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1991 COMPREHENSIVE FINAL REPORT

ON THE

PINE BAY PROJECT (284)

LAKE ATHAPAPUSKOW, MANITOBA

NTS 063 K/12,13

for

Placer Dome Inc.

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Kamloops, B.C.

SUMMARY

This report presents the results of the 1991 geological and lithogeochemical exploration programme on the Pine Bay project. The project area comprises a claim group owned partially by A.L. Parres Ltd. of Flin Flon, Manitoba.

The project area lies about 16 km east of Flin Flon, Manitoba on the northern arm of Lake Athapapuskow. The objective of the 1991 programme was to define areas of high potential for hosting additional massive sulphide deposits. A GEOTEM electromagnetic and magnetic survey was carried out over the property between February 19-24. Geological mapping and re-logging of drill core began June 2 and continued to October 8.

The Pine Bay lease is underlain by four gross stratigraphic sequences. From east to west these include the Baker Patton felsic complex (rhyolitic flows, flow breccias, pyroclastics and volcaniclastics), the Sourdough Bay volcaniclastic sequence (predominantly felsic composition tuffs which are bounded on the west by a 250 m thick mafic flow(s)), the Birch Bay pyroclastic sequence (andesitic to basaltic-andesite lapilli and tuff-breccias), and the Centennial-Sourdough sequence (mudstone, earthy-pyrite). The stratigraphy trends northeast and dips sub-vertically. It may be slightly recumbent on the east side of the project area.

Three known deposits occur within the bounds of the Pine Bay claims, the Pine Bay deposit, Cabin Zone and the Baker Patton. The former two deposits are syngenetic massive sulphide bodies, whereas the latter may represent the feeder zone to a syngenetic deposit. The Pine Bay deposit, about 300 m due east of the northern tip of Pine Point, contains 1.18 million tonnes of reserves grading 1.5% Cu. The Cabin Zone, 500 m farther east, is currently defined as containing 72,000 t of sulphide grading 6.9% Zn and 1% Cu. The Baker Patton, 300 m east of the Cabin Zone, consists of four zones of sulphide mineralization stretching over a 600 m northeast-southwest trend. The Baker Patton occurrence proper contains three small pods of massive and semi-massive sulphide (23,000-45,000 t) grading up to 1.7% Cu and 8.2% Zn.

Lithogeochemistry defined nine significant alteration zones. Three are associated with known mineralization. The remainder are associated with GEOTEM/magnetic signatures which classify them as geophysically anomalous.

Total exploration expenditures over the Pine Bay property for 1991 were $435,087.06 CDN. This included $225,835.00 CDN in option payments.

RECOMMENDATIONS

The Pine Bay property has a high probability of hosting an economic massive sulphide deposit(s). In order to fully evaluate the property the author recommends that:-

1. Lines be cut over the property at 100 m intervals in order to facilitate geological mapping and lithogeochemical sampling and ground geophysics.

2. Geological mapping be carried out over the southern part of the Pine Bay claim group followed by mapping over the Crow and Thompson Bay claims.

3. A gravity survey be carried out over the entire project area.

4. At the termination of the 1992 summer field programme, all coincident lithogeochemical and geophysical anomalies be ranked according to their probability of defining a massive sulphide deposit and then drilled/trenched (given physiographic constraints).

In order to meet these requirements I recommend that a minimum of $450,000 CDN be allocated to an exploration programme over the Pine Bay, Crow and Thompson Bay claims. Appendix A contains a master budget for the proposed 1992 programme.

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1.0 INTRODUCTION

1.1 Definition

The Pine Bay Project claims form a continuous parcel of land which extends 3 km in an east-west direction and 7.5 km in a north-south direction.

1.2 Location, Access, and Physiography

The Pine Bay property is situated at about 54° 45' North and 101° 37' West on NTS Map sheets 63 K/13 and 14 (Figure 1,2). The claims lie about 16 km due east of Flin Flon, Manitoba on the northern arm of Lake Athapapuskow. The Pine Bay property is reached via Highway number 10, thence by the gravel North Star Mine Road.

The topography over the claims is gently undulating, typical of the Canadian Shield. Elevations range from 291 m on Lake Athapapuskow to about 335 m on the northernmost claims.

Effective geological mapping programmes can begin in mid-June and extend to mid-September. Days are long, and temperatures are usually between the mid-20's and 30° C. Winter can be counted on to begin by October 30. Snow accumulation begins at this point and temperatures can be expected to be between -20 and -40° C. Lakes are sufficiently frozen by January 1 to support diamond drilling rigs. Ice break-up usually occurs between April 5 and 15.

1.3 Land Status

The Pine Bay property sets of claims under three separate option agreements. Table 1 catalogues, the claim name and claim numbers. The gross claim outline is illustrated in Figure 3a. Individual claim unit location is shown on Figure 3b. The Pine Bay claim groups is owned entirely or in the most part by A.L. Parres Ltd.

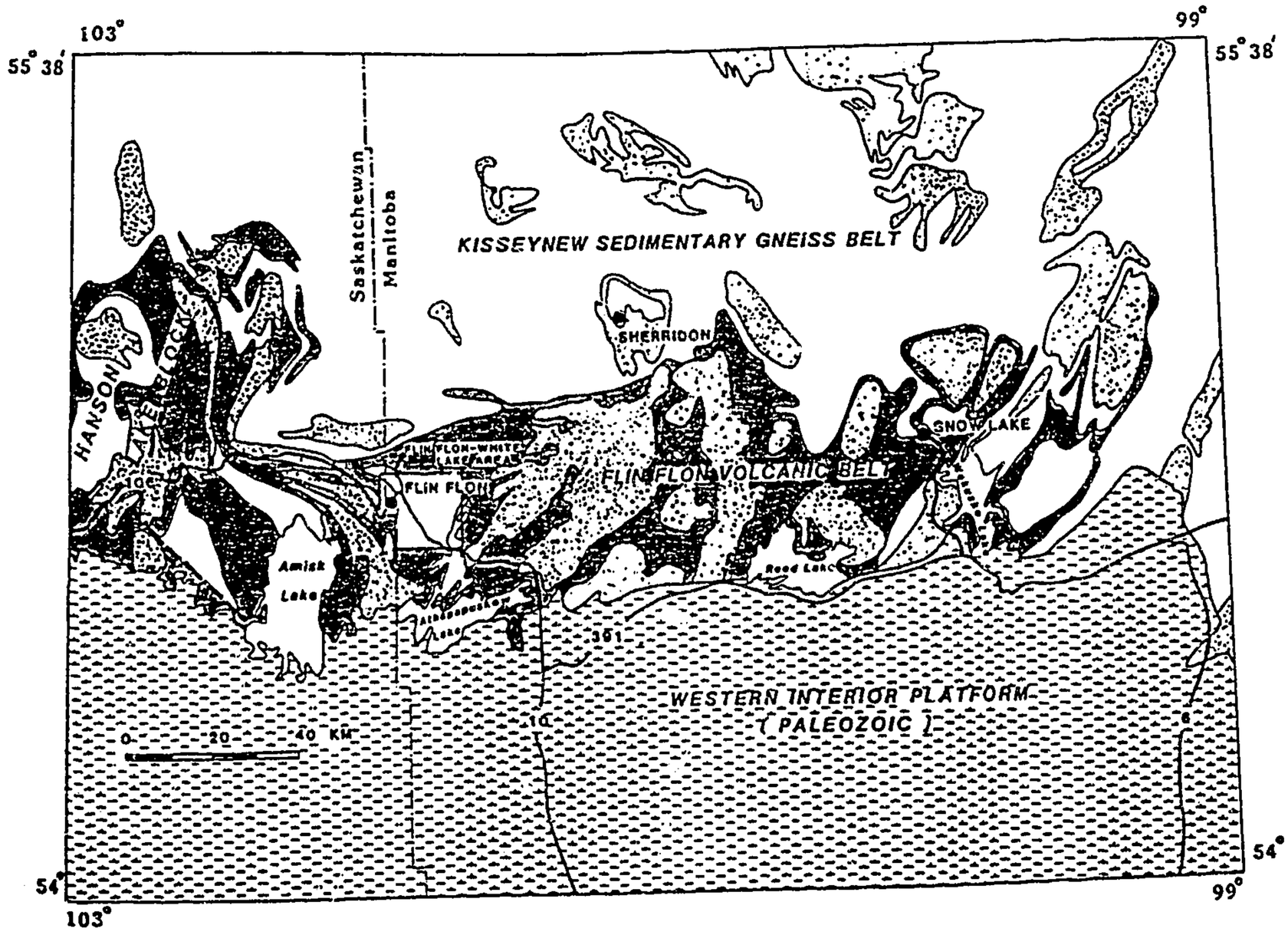


Figure 1 *Location of the Flin Flon-White Lake area on a generalized geology map of north central Manitoba and Saskatchewan. Dark dot pattern represents volcanic rocks, light dot pattern represents sedimentary rocks, paragneiss and orthogneiss, and hachured pattern represents granitic plutons.*

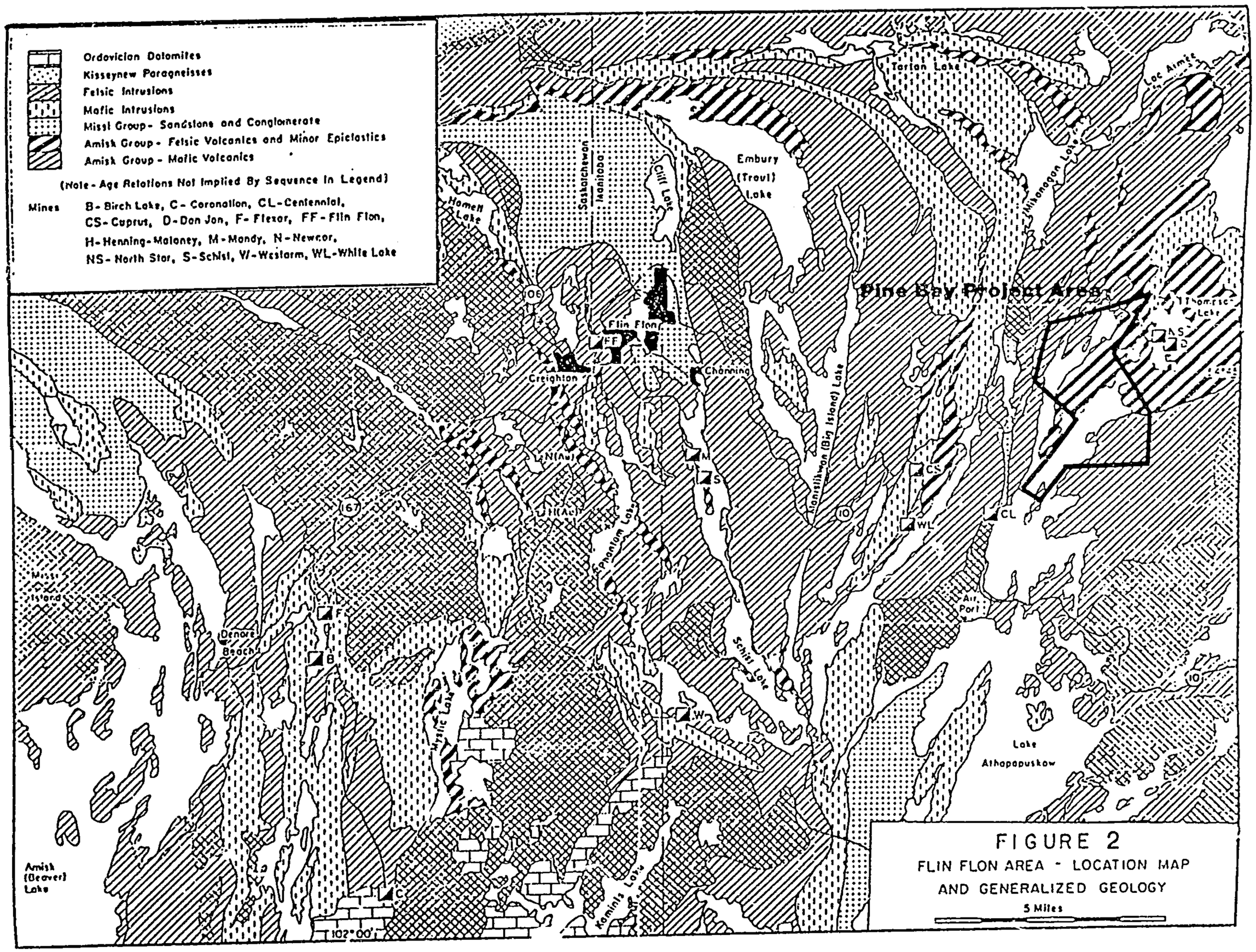


FIGURE 2

FLIN FLON AREA - LOCATION MAP AND GENERALIZED GEOLOGY

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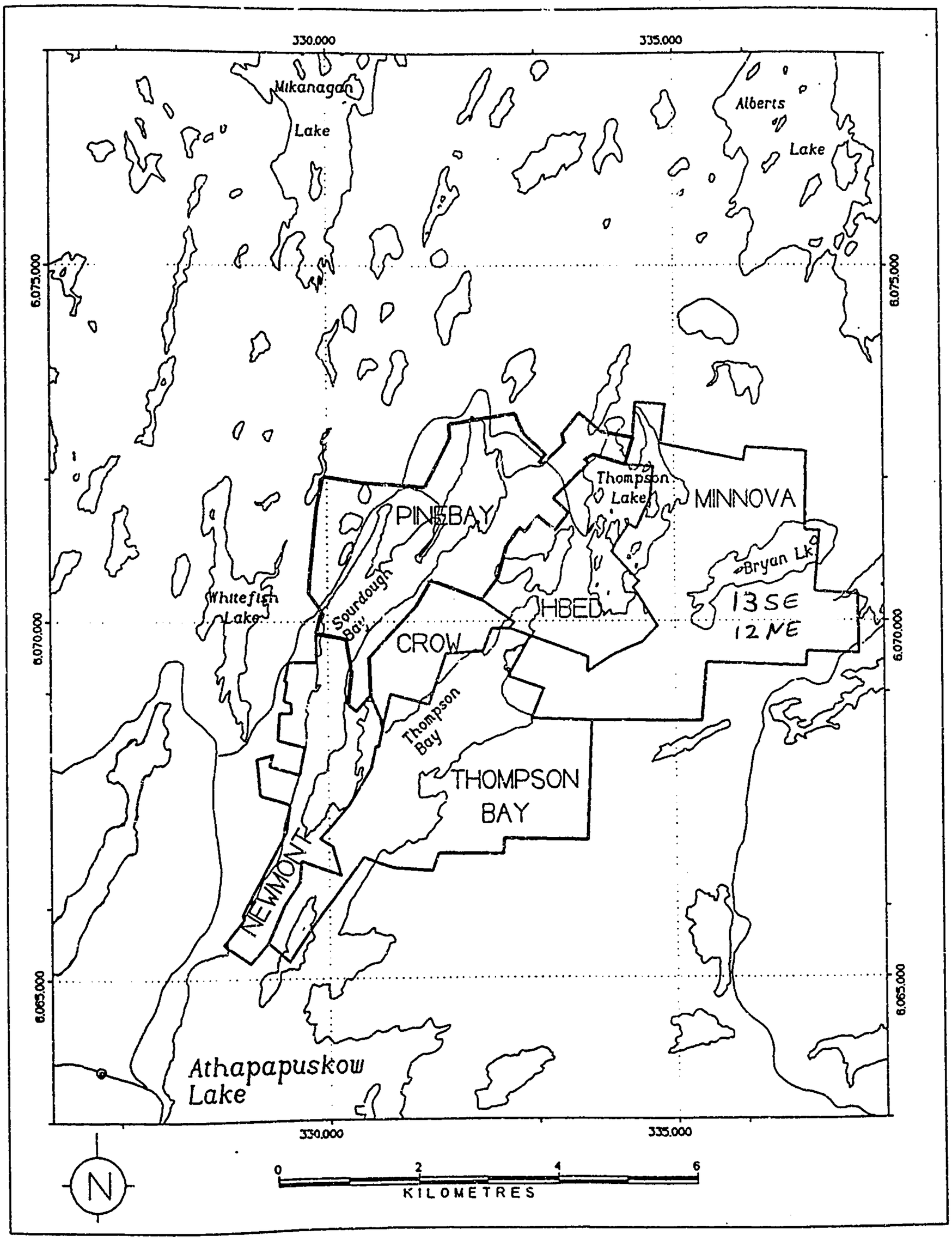


Figure 3a

TABLE 1

Pine Bay - Project 284, Listing of Claims on Explored Area Lease No. 35

Lease No.	Claim Name	Claim No.	Lot	Group
928	Little Bear	30886	614	421
M-1061	Ago	29474	606	421
M-1062	Alder	29632	611	421
M-1064	Neo	29473	607	421
M-1126	Olive	29634	609	421
M-2640	Zero	P.4191	2961	421
M-2641	Mince	P.4202	2960	421
M-3669	M.P. Fr.	P.9127	3205	421
M-3670	M.P. 1 Fr.	P.9128	3203	421
M-3673	M.P. 14	P.9134	3209	421
M-3679	M.P. 21	P.11960	3225	421
M-3732	M.P. 11	P.9131	3206	421
M-3733	M.P. 12	P.9132	3207	421
M-3734	M.P. 13	P.9133	3233	421
M-4139	Rayo	29711	615	421
M-9103	Pine 7, 25 Pine 9, 10 Pine 14, 15 Bay 50 Fr.	P.3877C, P.3878C, P.3882C, P.3883C, P.4013D, P.3915C, P.76909	3809	421
M-9104	Bay 16	P.3884C	3810	421
M-9105	Bay 19 Fr., 20 Bay 21 Fr., 32 Fr. Bay 51	P.3887C, P.3888C, P.3889C, P.8804C, P.4012D	3811	421
M-9106	Sour 1	P.9044C	3812	421
M-9379	Bay 5	P.3873C	3825	421
M-9499	Bay 3, 4 Bay 6, 7	P.3871C, P.3872C, P.3874C, P.3875C	3844	421
M-9500	Doug 3	P.3383E	3845	421
M-9501	Bay 17, Walt Fr.	P.3667E, P.3885C	3846	421
M-9502	Bay 18	P.3886C	3847	421
		P.2809E (unsurveyed)		

1.4 Property history

The Pine Bay claims (Project 284) have been extensively explored by both geological and geophysical methods in localized areas. Work has been carried out most extensively around the three known massive sulphide deposits, Baker Patton, Cabin Zone and Pine Bay (Figure 4). All work that has been carried out over the property and has been made available by A.L. Parres has been indexed in Appendix B.

Baker Patton

1919 *Staked by H.L. Baker and W. Patton*
1922 *London Exploration Co. - Trenching*
1927 *International Nickel Company of Canada - 5 DDHs*

1928 *Callinan Flin Flon Mines Ltd. - Three compartment shaft to 128 m, drift stations at 45, 84 and 122 m. 192 m of drifting and cross cutting (Wright, 1938).*
1929 *Mandy Mines Ltd. - 21 DDHs, 1463 m*
1946 *Transcan Investors Ltd. - 69 shallow drill holes*
1948 *Hudson Bay Exploration and Development - One to seven drill holes on the NEO claim*
1951 *Don Jon Mines - 1953 2 DDHs*
1958 *Knobby Lake Mines Ltd.*
1964 *Ansil Mines Ltd. - "Drilled the property at regular intervals across 500"*
1967 *Guggenheim Exploration Co. - Geological mapping, HLEM, 4 DDHs 1045m*
1969-70 *Cerro Mining Co. of Canada - Geological mapping of shoreline*
1971-77 *Pinebay Mines Ltd. - Less than 7 drill holes*
1976 *Pinebay Mines Ltd. - Helicopter-borne geophysical survey - Aerodat Ltd., VLF and magnetometer*
1983 *Hudson Bay Exploration and Development - 7 DDHs and downhole pulse EM*
1986-88 *Granges Exploration Ltd. - Ground geophysics - VLF, HLEM, geological mapping, 32 DDHs.*

Cabin Zone

The Cabin Zone, a small massive sulphide occurrence which occupies the western boundary of the Baker Patton felsic complex (Figure 7, see section 2.3), was likely discovered by Transcan Investors Ltd. during the course of its 1946 drill programme. Guggenheim Exploration Co., in 1967 was the first enterprise to carry out a "directed" programme over the occurrence. The following work history is a break-down of work which has been carried out over the east side of Sourdough Bay, but has in particular, been devoted to exploration of the Cabin Zone.

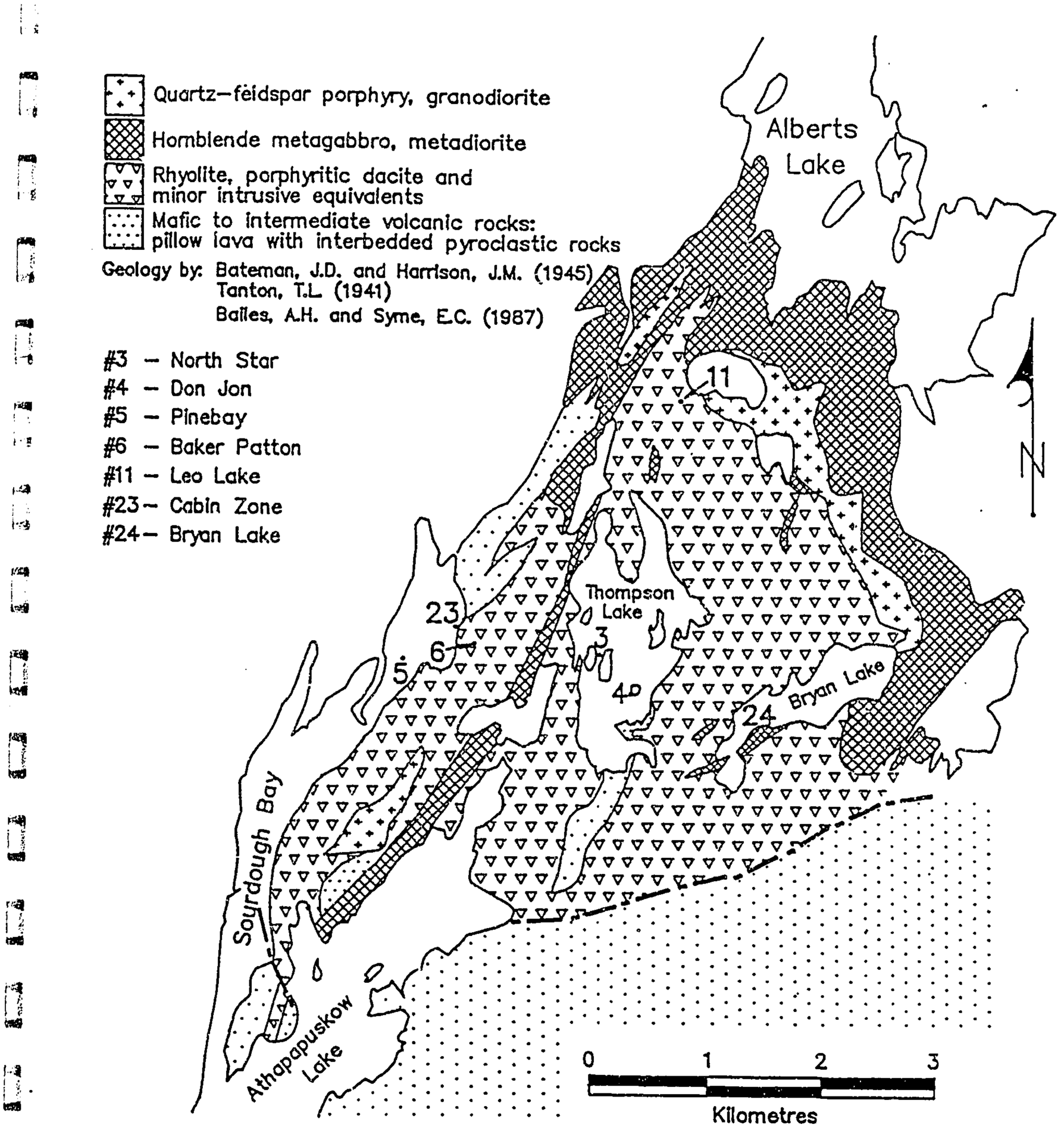


Figure 4 Distribution of mineral occurrences in the Baker Patton felsic complex.

1946 Transcan Investors Ltd. - 10? DDHs
1967 Guggenheim Exploration Co. - Ground geophysics, HLEM, 5 DDHs 1048 m
1976 Pinebay Mines Ltd - Helicopter-borne geophysical survey - Aerodat Ltd., VLF and magnetometer, 17 DDHs 1862 m
1986 Granges Exploration Co. - Ground geophysics - VLF, HLEM, 9 DDHs 158 m

Pine Bay Mine

1967-68 *Guggenheim Exploration Co. - Ground geophysics, HLEM, mag., 3884m diamond drilling, geological mapping*

1969-70 *Cerro Mining Co. of Canada - Shoreline geology, east Sourdough Bay, sinking of a three compartment shaft to 213 m with stations cut at 61, 123, and 183 m (the 200, 400 and 600 foot levels respectively). 1036 m of drifting and cross cutting was carried out on the 200 and 600 foot levels. 7084 m of underground diamond drilling was carried out (Wright, 1970)*

1970 *Ground geophysics, RONKA, TURAM*

1983 *Hudson Bay Exploration and Development Ltd. - 7 DDHs, 2668 m, downhole pulse EM.*

1986 *Granges Exploration Co. - Ground geophysics - VLF, HLEM, 2 DDHs, 157 m.*

Sourdough, Birch Bay areas

1976 *Pinebay Mines Ltd. - 48 km of gradient array induced polarization, lake portion of Sourdough Bay, north and south of the Pine Bay Mine shaft - Scintrex Ltd., helicopter-borne geophysical survey, VLF, mag. - Aerodat Ltd., TURAM, vertical loop EM - south part of Pine Bay, 89 vertical DDHs, 2263 m predominantly in the Birch Bay area, 52 inclined DDHs @ 6000 m.*

1.5 1991 Work Programme

The objective of the 1991 work programme was to evaluate through geology, geochemistry and geophysics the potential of the Pine Bay property for hosting polymetallic massive sulphide deposits. Field work started at the beginning of June. All geological mapping and core re-logging was carried out over the Pine Bay claims (Project 284). Work was performed by D.G. Mallalieu and J.F. Metail. The reader is referred to Table 2 for a listing of work carried out over the property.

A trailer at the Pine Bay mine site served as accommodation for two, from June through to September 10. From September 11 on to October 8 accommodation was provided at A.L. Parres' cabin at Pine Point.

TABLE 2

1991 WORK PROGRAMME

Date	Contractor	Work Performed
February 19-24	Geoterrex Ltd.	Combined airborne GEOTEM electromagnetic and magnetic survey, 564 line-kilometres
May 15-June 2	In-house	Familiarization with project area and commencement of compilation of historical data
June 3-October 8	TSL Laboratories, Saskatoon, Saskatchewan	Whole rock geochemical analyses, ICAP method, 366 samples
June 3-30	In-house	Mapping in Sourdough Bay area, compilation of drill hole locations
July 1-October 8	In-house	Re-logging diamond drill core, 7,600 m
August 16	Clark Geological, Surrey, B.C.	Petrography of grab samples, west side of Sourdough Bay, 13 samples
October 14-Nov. 11	In-house	Data entry and preliminary analysis of lithogeochemical data
October 31-Jan. 9	Cominco Engineering Services Ltd., Saskatoon	Diamond drill hole map and geological map preparation, Autocad.

1.6 Diamond Drill Core Conventions

Diamond drill core stored on the Pine Bay mine site was the source of most of the geological information gathered during the 1991 field programme (Table 2). As a rule, all companies who drilled either the Pine Bay or claims in the Sourdough Bay area pre-1988, identified the holes as PB-*drill hole number*. This practice lead to, in the beginning of the programme, a certain degree of confusion as to which hole was drilled by what company during what year. In order to make order of the plethora of PB drill holes a convention was produced for the purposes of easier identification. The reader is referred to Table 3 for a breakdown of the convention. All drill holes referenced in the report adheres to this convention unless otherwise specified. The reader is also referred to Figures 5 through 8 for the location of drill hole collars for the various drill programmes. All re-logged holes, in addition to many which were not re-logged, have been DYMO taped with aluminum strips with their appropriate new drill hole name.

TABLE 3

CONVENTION FOR FUTURE IDENTIFICATION OF DRILL HOLES

Exploration Company	Year Drilled	Identification Label
Transcan Investors Ltd.	1946	DDH Number-46
Guggenheim Exploration Co. Inc., Pineroot Mineral Enterprise	1967-69	DDH Number-67, DDH Number-68, DDH Number-69
Cerro Mining Corporation of Canada Ltd.	1969-70	U2-DDH Number or U6-DDH Number ('U' refers to underground while 2 or 6 refers to the level from which the drilling took place)
Pinebay Mines Ltd.	1976-77	DDH Number-76, DDH Number-77
Hudson Bay Exploration and Development	1983	DDH Number-83 *NOTE* Drill hole 5-83 is a "composite" hole. It was initially drilled by HBED and then in 1986 was wedged by Granges Exploration Ltd. in order to more adequately test stratigraphy at depth
Granges Exploration Ltd.	1986	DDH Number-86

2.0 GEOLOGY

2.1 Regional Geology

The Flin Flon greenstone belt is a 30 km east-west by 40 km north-south belt of early Proterozoic submarine volcanic, subordinate subaerial volcanic rocks and associated sedimentary rocks. It occupies the Flin Flon domain within the southern part of the Churchill Province. The assemblage is intruded by numerous dykes and stocks ranging in composition from peridotite to granite (Byers et al. 1965). "The greenstone belt is bounded to the north by metasedimentary gneisses of the Kisseynew belt, to the south by a gneissic terrain [sic] of uncertain origin" (Bailes and Syme, 1989). South of Lake Athapapuskow the Proterozoic volcano-sedimentary assemblage is overlain by Ordovician dolomitic limestone (Figure 1,2). The Flin Flon domain is exposed over an east-west distance of about 250 km and in a north-south direction of between 32-48 km. Government airborne electromagnetic surveys have indicated that the Flin Flon belt extends for a considerable distance south beneath the Ordovician limestone cover.[1]

Most lithologies in the Flin Flon area have been metamorphosed to the lower greenschist facies. Metamorphic grade increases in proximity to the Kisseynew gneisses (Figure 1) and adjacent to intrusions. Bailes and Syme (1989) suggest that five phases of folding have been recognized in the Flin Flon-White Lake area, one phase pre-dating the deposition of the Missi and four post-dating Missi Group deposition. A northeast trending fabric is dominant in Flin Flon area.

Faults bound major stratigraphic blocks in the Flin Flon area (Figure 9).

> *"Stratigraphic correlations cannot be made across block-bounding faults, whereas sequences can be traced or correlated across internal faults....each block comprises a more or less intact, definable stratigraphic succession that is unique to that block. A direct consequence of this is that a comprehensive, composite or regional Amisk Group stratigraphy cannot be reconstructed" (Bailes and Symes, 1989).*

The Pine Bay project area is hosted within the Sourdough Bay Block (Figure 9).

The stratigraphy of the belt is dominated by the Amisk and the Missi Groups. Bailes and Syme (1989) indicate that the Amisk Group is dominated by shallow to moderately deep marine deposited basalt and basaltic-andesite. This sequence is reported to be up to 3.3 km in thickness and is interpreted to be part of a shield volcano. Felsic volcanic rocks form a small part of the Amisk Group. With respect to the bulk of the Amisk Group, felsic volcaniclastics, volcanic conglomerates, oxide facies iron formation, greywacke-siltstone-mudstone and carbonate-rich

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[1] Manitoba Department of Energy and Mines and Geological Survey of Canada Experimental Colour Compilation (High Resolution Aeromagnetic Total Field) Geophysical Series 1983 Map Sheets

sedimentary rocks comprise a very subordinate component.

Syme (1987) suggests that on the basis of trace element contents of the Amisk Group mafic volcanic rocks, the environment of deposition may well have been similar to that of Cenozoic intra-oceanic island arc basalts. Basalts from the Lake Athapapuskow area were found to have a geochemical signature consistent with spreading centres "perhaps in a back arc basin."

The Missi Group is the youngest supracrustal succession in the Flin Flon belt (Bailes and Syme, 1989). At Flin Flon it has a known thickness of at least 1,900 m. It consists of metamorphosed terrigenous sediments, predominantly, sandstone, pebbly sandstone and polymictic conglomerate. The Group is separated from the underlying, folded, Amisk Group by an angular unconformity. Intrusions which post Amisk Group deposition frequently are not present in the overlying Missi Group.

The reader is referred to Bailes and Syme (1989), Stauffer and Mukherjee (1970) and Stauffer, Mukherjee and Koo (1975) for a more detailed description of the geology of the Flin Flon greenstone belt.

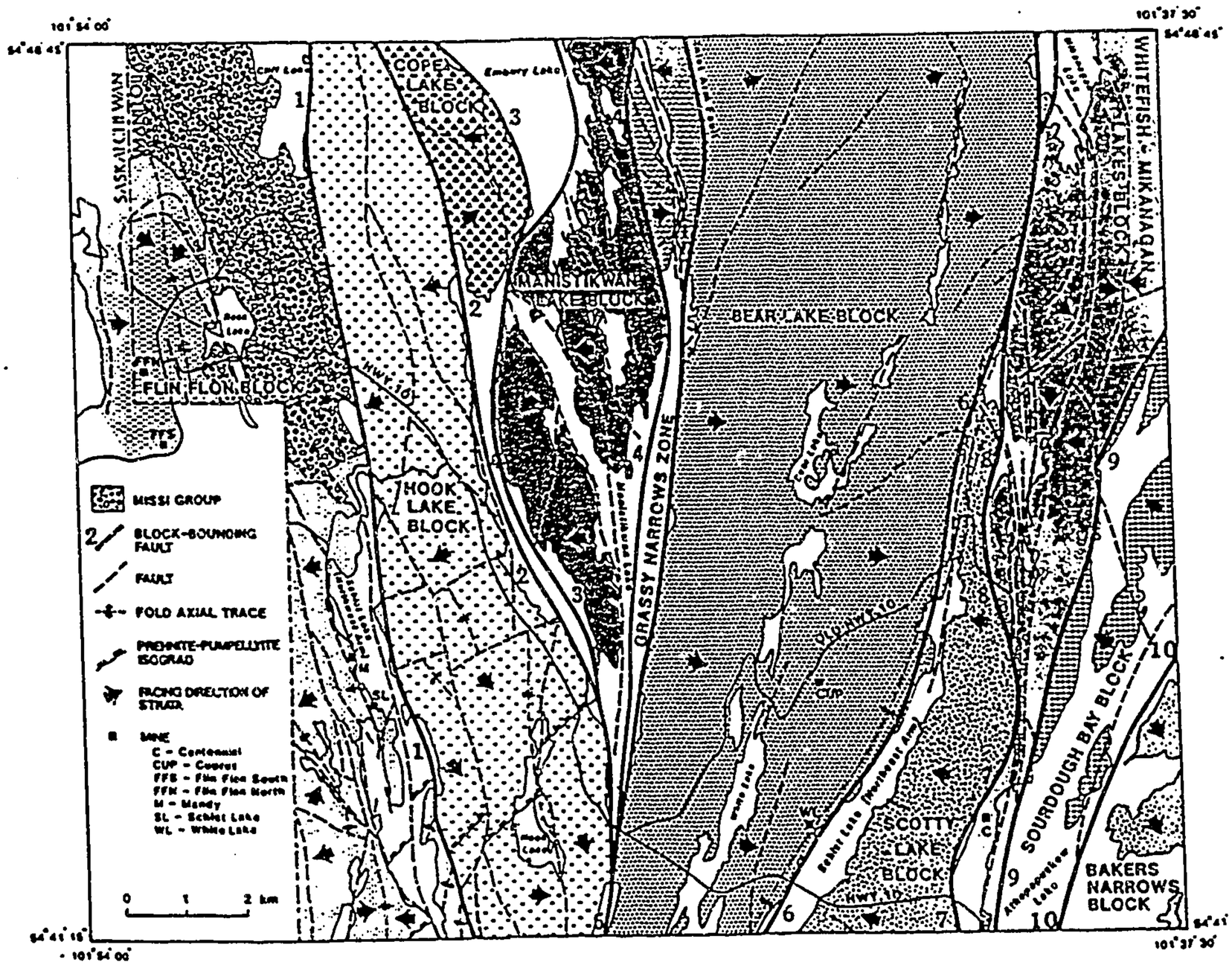


Figure 9 Structural blocks, major faults and folds, and metamorphic isograds in the Flin Flon-White Lake area. Structure in the Missi Group is from Stauffer and Mukherjee (1971). Block-bounding faults are: 1 — Cliff Lake fault, 2 — Manistikwan Lake fault, 3 — Big Island and Embury Lake faults, 4 — Rosenberg Lake fault, 5 — Inlet Arm fault, 6 — Northeast Arm fault, 7 — Old Highway 10 fault, 8 — Scotty Lake fault, 9 — Sourdough Bay fault, 10 — North Arm fault.

2.2 Local Geology

2.2.1 Introduction

The author has, as of December 1991, subdivided the Pine Bay project area into four gross assemblages of strata (Figure 10). These assemblages have been informally labelled from the east through to the west, the Baker Patton felsic complex, the Sourdough Bay volcaniclastic sequence, the Birch Bay pyroclastic sequence, and the Centennial-Sourdough sequence. This latter assemblage of rock, appears to be, from limited exposure, an extension of the stratigraphy which hosts the Centennial Mine and the Sourdough Bay deposit farther to the south.

2.2.2 Terminology

Volcanic rock types in the Pine Bay project area have been classified on a chemical and a textural basis. The chemical classification of extrusive volcanic rocks (and the intrusive or hypabyssal analogues) is based on their SiO_2 content post-normalization on a volatile-free basis. Class definitions are based on systems proposed by (Sethuraman and Moore, 1973; and Gelinas et al. 1977). Basalt, basaltic-andesite, dacite, rhyodacite, and rhyolite are defined by SiO_2 contents of $<53\%$, 53-58%, 58-62%, 62-67%, 67-71% and $>71\%$ respectively.

Terminology for volcaniclastic rocks generally follows that of Fisher and Schmincke (1984) with some gross modifications made by the author. The term volcaniclastic and pyroclastic are used as descriptive modifiers in this report to suggest degree of "coarseness". Those volcanic rocks which have been generated directly through explosive volcanic processes and contain greater that 25% lapilli or blocks are described as pyroclastic whereas those volcanic rocks that contain less that 25% accessory fragments are termed volcaniclastic. These terms are recognized as not adhering to strict AGI definitions but are useful in the field for mapping purposes. **NOTE:** these terms are not meant to infer that one rock unit is more proximal to a vent than another.

The term tuffite, as used in this report, is used to identify a laminated rock with a mixed chert, i.e., a chemical sedimentary component as well as a pyroclastic/volcaniclastic component.

The terms *alteration* and *metasomatism* are consistent with the definitions proposed by the AGI Glossary of Geology (3rd Edition). *Metasomatism* is defined in current usage as...

> "the presence of interstitial, chemically active pore liquids or gases contained within the rock body or introduced from external sources are essential for the replacement process, which often, though not necessarily, occurs at constant volume with little disturbance of textural or structural features."

In essence this definition is consistent with the isochemical changes that occur during many stages of metamorphism. As applied to the Pine Bay project area, all rocks are assumed to have undergone various degrees of metasomatism, i.e., regional greenschist metamorphism

and local contact metamorphism.

Alteration is defined as "any change in the mineralogic composition of a rock brought about by physical or chemical means, esp. by the action of hydrothermal solutions; also, a secondary, i.e. supergene, change in a rock or mineral." As a rule of thumb, any volcanic rock which exhibits chemical enrichment or depletion relative to a normative equivalent and can be demonstrated to have been affected by hydrothermal fluids syn-deposition of stratigraphy will be considered to be altered.

2.2.3 Lithology and Stratigraphy

The Amisk Group in the Pine Bay project area has been divided into 13 units, some of these units have been further subdivided on the basis of distinctive textural or depositional characteristics. Post deposition of the volcano-sedimentary strata a series of leucocratic through to melanocratic plutonic and/or hypabyssal intrusions were emplaced syn or post Amisk Group volcanism (Figure 10). On the basis of the restricted 1991 sampling programme, the Pine Bay claims are dominated by dacitic through to rhyolitic volcanics.

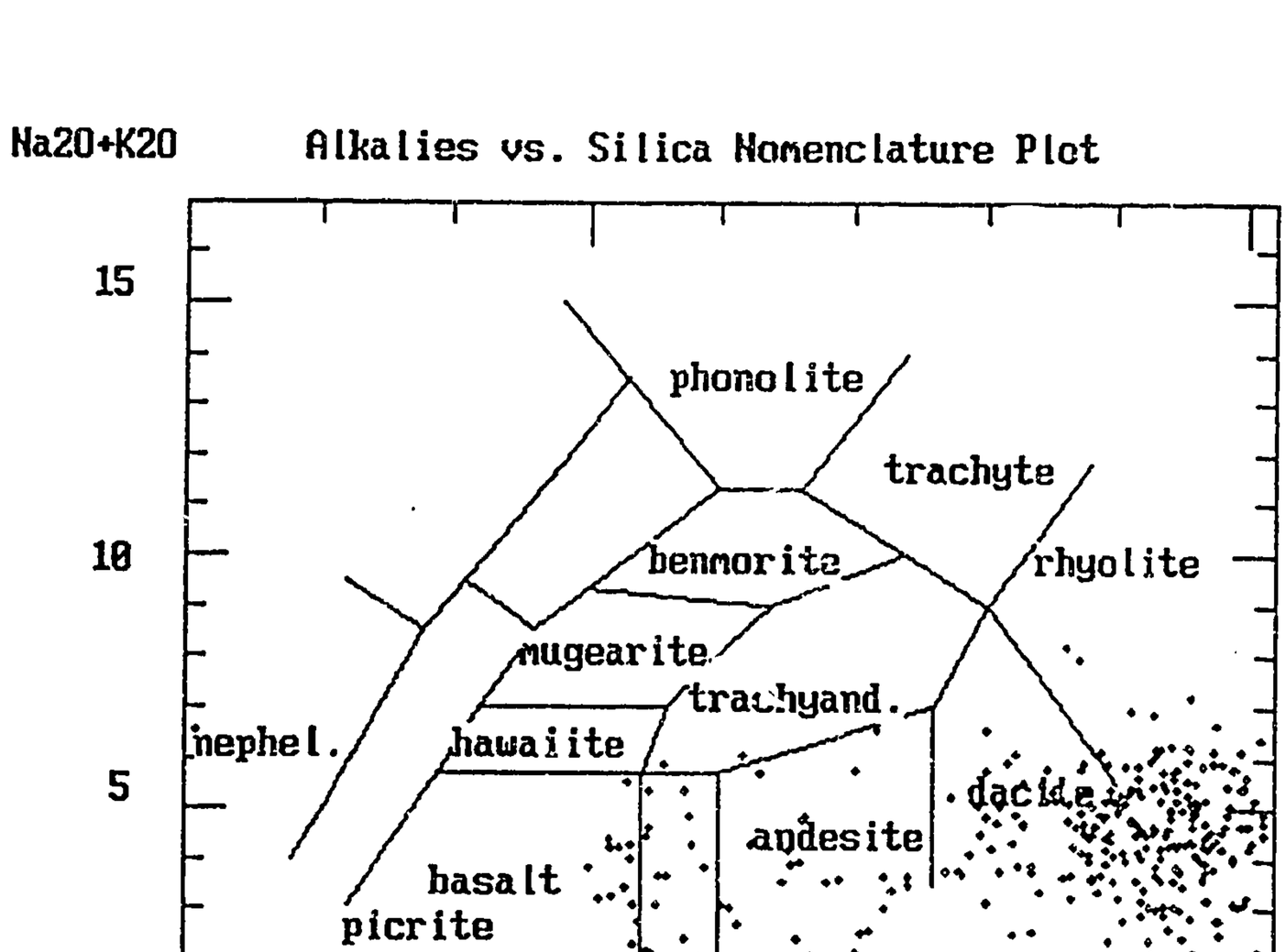


Figure 11

The Baker Patton felsic complex is known to extend from Leo Lake in the north to McFee Bay in the south, the east shore of Lake Athapapuskow in the west to Bryan Lake in the east (Figure 7). This assemblage of rock includes units 1 through 6 and is tentatively interpreted to represent the oldest units on the property. Mapping of this part of the property has been carried out entirely by G. Gale and his colleagues of the Manitoba Energy and Mines Mineral Division. Geological data was transferred from original field maps and from the Gale and Foote (1988) publication to 1:5,000 and 1:2,500 (Figure 10,12) compilation maps.

The Baker Patton felsic complex is composed predominantly of rhyolite. Within the map area (Figures 10,12) andesite flows are subordinate. From west to east the rock units consist of rhyolite breccia, rhyolitic and rhyodacitic flows, heterolithic rhyolite breccia, ash-tuff, and two-quartz rhyolite breccia. In the map area, the east side of the complex is bounded by gabbro and the south is bounded by a chlorite-rich diatreme. Differentiation between rhyolite units is based mostly on texture, morphology and position with respect to one another. Detailed rock descriptions are not currently available. The following descriptions are taken from Gale and Eccles (1988).

The most distinctive rock unit (map unit 1a) is described as an "extensive unit of reworked volcaniclastic rocks derived mainly from quartz-phyric rhyolitic flow rocks with 5% quartz phenocrysts that are 0.5-1mm and 3-5mm in size. Locally lenses of feldspar-phyric fragmental rocks are present....The unit is conspicuous by the 10-20% bimodal quartz crystals."

The rhyolitic and rhyodacitic flows (map units 2a,b) are massive with occasional flow brecciated sections. They weather a light brown.

Map units 3a,b and c consist of heterolithic rhyolite breccia, amygdaloidal rhyolite and rhyolite breccia and massive rhyolite flows respectively. The heterolithic rhyolite breccia is composed of "subrounded to angular dacitic to rhyolitic fragments (3-4 cm in length) and generally 5% matrix material. It is buff to cream coloured on weathered surfaces." The latter units have no particularly unique features beyond the presence of amygdules in map unit 3b.

Map unit 4a, rhyolite breccia, "is a unit of aphyric rhyolitic fragmental rocks that range in size from ash to blocks (30cm +/-) but consist mainly of 4-10 cm fragments. Map unit 5a, massive rhyolite flows was encountered on the east shore of Sourdough Bay, adjacent to the Cabin Zone occurrence.

Map unit 6a, outlines an area of un-subdivided rhyolitic and andesitic flows. This part of the property area has yet to be mapped in detail. The accuracy of the subdivision is questioned given that three drill holes collared in this vicinity were re-logged as being composed of felsic volcaniclastics.

The Sourdough Bay volcaniclastic sequence is composed predominately of felsic composition tuffs, felsic and mafic flows and chemical sediments including massive sulphide. The felsic volcaniclastic units range from rhyolite through to dacite in composition (map units

7a,b,c respectively). The units are nearly always fine grained, frequently are bedded/banded and locally contain quartz and/or feldspar crystals (< 5 mm, <7%). Quartz crystal tuffs of dacitic composition are common in DDH 120-76 and in many of the underground drill holes (Appendix B). NOTE: Alteration in proximity to the Pine Bay massive sulphide deposit makes identification on the basis of colour index unreliable, however; sedimentary textures frequently remain preserved. The west side of Sourdough Bay is distinguished by the presence of a 250 m thick sequence of basalt and rhyodacite flows (map unit 10b, 2b). The basalt flows are locally pillowed, (slightly to moderately flattened, minor vesicles present) but are largely massive as are the rhyodacite flows. Map units 8a and 8b consists of chemical sediments and mixtures of chemical sediments and fine grained volcaniclastics, semi-massive, massive sulphide, and tuffite, +/- sulphide bands/beds respectively. These units are relatively thin (< 20 m) and occur only within the volcaniclastic sequence.

Andesitic composition tuff (map unit 9a) is a very minor unit. It is typically. light to medioum green, fine grained, locally well and delicately banded. The unit may contain local equant feldspar crystals.

It is important to note that the volcaniclastic units grade into one another both laterally and vertically. Wright (1970) reported that, as observed in the underground workings, individual lithologies may vary from massive to schistose.

The Birch Bay pyroclastic sequence is dominated by andesitic through to basaltic-andesite lapilli-tuff, and tuff-breccia and intercalations of dacitic and rhyodacitic tuff. A narrow (< 30 m) thick laminated chert-greywacke is present in the middle of the assemblage. Map units 11a and 11b are identified as an andesitic composition, white lapilli-tuff, tuff-breccia and an andesitic to basaltic-andesitic composition rhyolite block-rich pyroclastic breccia respectively. The former unit defines a 10-15 m high escarpment along the east side of the North Star Mine road and strikes south along the east side of Birch Bay. Sub-rounded, elongate, chalky-white, felsic clasts give the unit a very distinctive appearance. Mean clast size is about 3 X 5 cm, with a maximum dimension of 5 X 15 cm. Clasts typically account for about 10-15 percent of the mode. Banding of clasts (30-50 cm) is locally present. Matrix is fine grained, light blue-green in colour. The rhyolite block-rich pyroclastic breccia is a unique unit in that clasts are sub-rounded, equant in shape, dominantly felsic in composition, and account for up to 40-60 percent of the mode. Clasts frequently contain ovoid to elliptically shaped quartz-carbonate amygdules (2-5 mm, up to 25 mm). Matrix of the unit is mafic in composition, medium green, fine grained. Locally fine (2mm, <1%) angular jasper grains are present in the matrix.

Unit 12a and 12b, chert/greywacke and cherty mudstone respectively are typically fine grained, siliceous, rhythmically laminated, locally graded bedded, and rarely cross bedded. The former unit has defined largely as a discontinuous band that strikes about 1 km down the centre of Birch peninsula. Units 12b and 12c form part of the Centennial-Sourdough sequence. Unit 12b has only been defined within drill hole 122-76, at the north end of Birch Bay. Map unit 12c, earthy-pyritic mudstone is a distinctive unit intersected in the southern parts of Birch Bay by the vertical drill holes collared by Pine Bay Mines Ltd. in 1976 (Figure 6). The unit consists

of black, locally graphitic(?) mudstone with intervals of granular, vuggy, massive pyrite, which can account for 50-100 percent of the defined 1 m intervals. Map unit 12d, consists of reworked andesitic composition tuff. The unit is typically well bedded and interlaminated with mudstone, locally pyritic.

Map unit 13, basaltic to andesitic composition hyaloclastite was intersected in drill holes on the west side of Birch Bay (124-76, Figure 6) and in the southern part of the mapped Baker Patton felsic complex (11-86, Figure 7). The hyaloclastite is composed of angular to subangular (4mm, 50%) grey-white, feldspar-rich fragments suspended in a fine grained, highly chloritic matrix.

Map units 14, 15 and 16 are classified as post-Amisk intrusions. These may be post-Missi however; this consideration cannot be confirmed nor refuted given that Missi Group stratigraphy is absent in map area. Map unit 14a-d consists of mafic intrusions, gabbro, fine grained mafic intrusions (dykes/sills?), lamprophyre, and diorite respectively. Map unit 15a is described as a quartz-feldspar dyke while map unit 15b is a quartz-feldspar phyric intrusion. The former unit is hosted within the Baker Patton felsic complex while the latter is hosted within the Sourdough Bay volcaniclastic sequence. The latter unit (mapped in 1991) is a distinctive, light pink to buff coloured, phaneritic dyke rock. It is composed dominantly of plagioclase with only about 10% quartz as phenocrysts. It forms, where exposed on the west side of Sourdough Bay, low, rounded outcrops up to 50 m across, within the Birch Bay pyroclastic sequence. It is frequently encountered in east-west drill holes in Sourdough Bay as extremely coarse, nearly pegmatitic, intervals up to 1 m in thickness (Figure 10). The unit strikes at a slightly acute angle to the regional fabric. Strike is about 015°. Unit 15a and 15b may be identical rock units, given that they are of similar description and they sub-parallel one another. This has yet to be determined.

Map unit 16, diatreme breccia, is present on the southern boundary of the map sheet (Figure 10,11) on the west side of Sourdough Bay. The unit is distinguished by a highly chloritic groundmass in which blocks of exotic or locally derived material, ranging from the centimetre to metre scale are randomly distributed throughout the fine grained chloritic groundmass.

2.2.4 Structure

The most comprehensive discussion of the structure within the Sourdough Bay Block is by Ferreira (1991). This report deals in detail with the structure in the Leo Lake area, about 3.5 km northeast of the Pine Bay property. Bailes and Syme (1989) discuss in detail the folding and faulting within the Flin Flon - White Lake area and Stauffer and Mukherjee (1971) provide information on the superimposed deformations in the Missi metasedimentary rocks in the Flin Flon area.

The stratigraphic successions mapped on the west side of Sourdough Bay in the course of the 1991 field season strike about the trend 030-210° with sub-vertical dip. The succession

is tightly to isoclinally folded with the fold axes? paralleling the planar fabric of the stratigraphy. Two foliations were locally noted on the property, both S_1 and S_2 are parallel, or at an acute angle to the bedding where observed. The lack of fabric in the groundmass of the pyroclastic rocks makes further analysis of deformation history of the stratigraphy difficult.

Younging direction was ascertained in several locations in the map area. Alternating directions over about 2 km cross section of stratigraphy suggests that there is at least three tight folds on the Pine Bay option. G. Gale (pers. comm., 1991) indicates that these findings are consistent with his interpretation that the Baker Patton felsic complex has been completely overturned.

The attitude of individual lithologies is not maintained down dip. Wright (1970) in his description of the Pine Bay ore body indicates that the dip of the sulphide body is about 70° to the SE from the 600 ft. level "at least down to 1200 ft., but it steepens above 600 ft., passing through the vertical at about 400 ft., and is overturned to a dip of 75° NW."

Faults illustrated in Figures 10 and 12 are located on the basis of observed displacements, the presence of shears and/or quartz vein floodings and brittle deformations in outcrops, reports of faults by the Pine Bay mine geologists (Wright, 1970), apparent displacements between stratigraphic successions, and finally, lineaments noted in the field. The Sourdough Bay Fault, the major north-northeast trending fault in the map area, is defined by a prominent topographic lineament that forms an escarpment along the east side of the North Star Mine Road. The fault was intersected by drill hole 125-76. A 6.8 m zone of sheared andesite tuff(?) marks the trace of the fault. Wright (1970) reports that a northeast trending, nearly vertical fault passes through the mine area, and is cut by the 600 ft. level. It is marked by a 30 m wide zone of intensely sheared felsic volcanics. Displacement along the fault plane was not determined.

Fault planes were noted in drill holes 131-76 and 5-83. These were distinguished by the presence of shears filled with white quartz, ferroan dolomite or calcite. These fault planes parallel the regional fabric. The faults intersected by drill hole 131-76 also lie in plane of a quartz feldspar dyke mapped by G. Gale. This may indicate that this faulting may have been penecontemporaneous with dyke emplacement which in itself post dates deposition of the Sourdough Bay volcaniclastic sequence.

2.3 Mineralization

2.3.1 Introduction

The Pine Bay claims host one delineated and two partially delineated Cu-Zn volcanogenic massive sulphide occurrences. From east to west these are the Baker Patton, the Cabin Zone and the Pine Bay deposit (Figure 10). Pyrite and pyrrhotite has been intersected in the course of drilling conductors under Birch Bay. The reader is referred to Figures 12a through 13q for an illustration of selected sections through mineralized and un-mineralized zones on the property.

2.3.2 Baker Patton

The Baker Patton occurrence is situated on the western margin of the Baker Patton felsic complex, about 400 m south of the mouth of Flintoba Creek (Figure 10,12). Due to previous "mining activity" (see section 1.4) it is necessary to rely on historical records for a description of mineralization at the Baker Patton. Wallace (1923) indicates that the occurrence consisted of "massive pyrite and bands of chalcopyrite in intimate mixture with the pyrite." Wright (1938) reported that "the underground workings across the zone of sulphide-bearing rock cut a few lenses and dyke-like masses of nearly massive pyrite and quartz." Gale and Eccles (1988) reported that "a zone of pyrite-quartz mineralization with 10-50% pyrite is exposed at the surface and has an east-west width of approximately 60 m at the shaft and a north south-length of over 180 m; the zone narrows rapidly northwards." Road maintenance activity during the summer of 1991 has buried the Baker Patton shaft and many of the surrounding outcrops.

McMillan (1968) used Transcan Investors Ltd. diamond drill hole data to define three sulphide "pods" at the Baker Patton showing. Pod tonnages and grades are given in Table 4.

TABLE 4

Currently defined tonnages and grades, Baker Patton occurrence

	Tonnage	Au	Ag	Cu	Zn
	(Tonnes)	(g/tonne)	(g/tonne)	(%)	(%)
Pod #1	45,000	0.31	11.5	0.47	5.75
Pod #2	27,000	0.31	11.5	1.66	1.95
Pod #3	23,000	2.48	195.42	0.42	8.26

Shallow drilling by Transcan Investors Ltd. in 1946 intersected at least three additional zones of interest within the map area. Gale and Eccles (1988) have labelled these zones B, C and D. Figure 14 illustrates the position of these zones. Zone B, a solid and near solid sulphide lens, was intersected by drill holes 15, 20, 28 and 35-46. Table 5, gives a breakdown of the assays of the sulphide lens.

TABLE 5

Selected intersections from Zone B, Baker Patton felsic complex

Drill Hole	Length (m)	Au (g/tonne)	Ag (g/tonne)	Cu (%)	Zn (%)
15-46	3.0	1.55	35.7	Tr.	5.9
20-46	1.1	1.86	77.7	1.83	16.1
	0.27	25.48	1708.8	1.34	Tr.
28-46	0.46	0.62	30.5	0.29	31.7
35-46	0.45	Tr.	Tr.	10.31	Tr.
	0.18	0.31	Tr.	7.80	Tr.

Zone C was intersected by DDHs 22, 12 and 17-46 respectively. 12-46 encountered a 15.8 m interval of narrow Cu-rich intercepts. Grades range from 0.32 to 3.81%. 2.0 m of this interval graded 2.61% Cu. Drill hole 17-46 intersected Zone C 60 m below 12-46. Copper mineralization was scattered throughout a 32 m interval, of which 5.5 m graded 1.5% Cu.

Zone D consists of veinlets of chalcopyrite +/- pyrite. This mineralization is exposed in several trenches (Gale and Eccles, 1988).

2.3.3 Cabin Zone

The Cabin Zone is situated about 50 m off the eastern shore of Sourdough Bay, and about 300 m south of the mouth of Flintoba Creek. The occurrence is a solid pyrite + sphalerite + chalcopyrite lens displaying delicate laminations between sulphide mineralogies. Drill hole 26-86 (Appendix C) intersected 47.7 m (30.5 m true thickness) of sulphide grading 0.42 g/tonne Au, 13.6 g/tonne Ag, 1.0% Cu and 4.05% Zn. One 10 m interval within this section graded 0.37 g/tonne Au, 7.16 g/tonne Ag, 0.48% Cu and 8.24% Zn. Footwall alteration is erratic but locally intense (Figure 13i). Drill hole 30-86, about 130 m to the east, is intensely altered. It intersected 140 m of pyritized and chloritized flows? Pyrite accounts for about 20% of the mode.

A.L. Parres suggests that the occurrence contains about 72,000 tonnes of sulphide grading 6.9% Zn and 1% Cu.

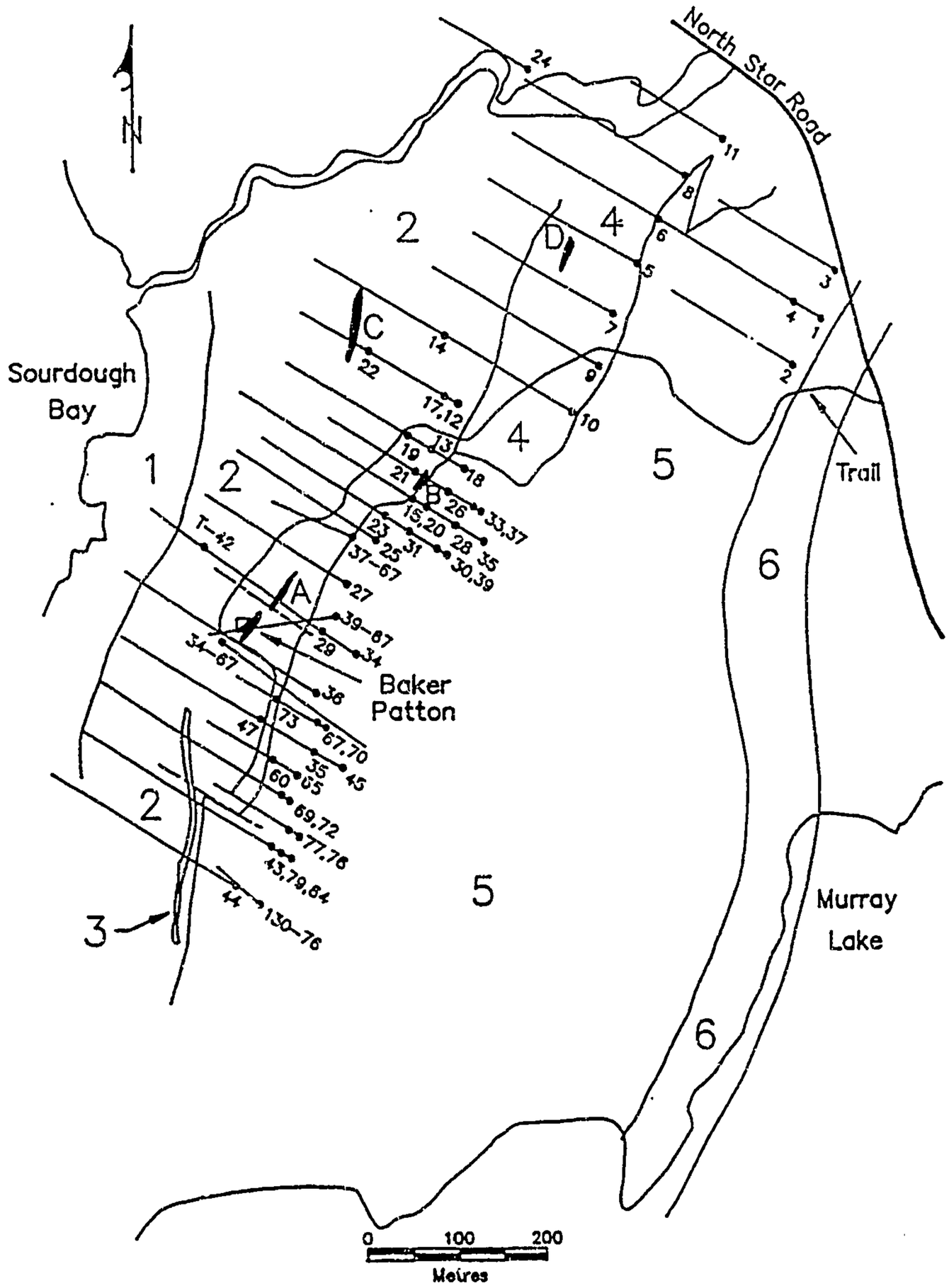


Figure 14 Drill hole locations at the Baker Patton Deposit.

2.3.4 Pine Bay deposit

The Pine Bay deposit is a 1.18 million tonne pyrite + chalcopyrite dominated volcanogenic massive sulphide situated about 300 m due east of the northern tip of Pine Point under Sourdough Bay (Wright, 1970). It grades 1.5% Cu. Four zones have been defined by Cerro Mining Co. of Canada (Figure 15a, b). From the southeast to northwest these include A, B, C, D. The zones consist almost entirely of massive sulphide which are enveloped by chlorite schist (chloritized dacitic and rhyodacitic tuff). The A Zone has the greatest strike length and thickness. It extends from the lake bottom to at least the 1265 foot level (390 m below lake surface). Wright (1970) indicates that zoning is prominent in the A Zone. The northwest wall (footwall) is rich in chalcopyrite, the centre is rich in pyrrhotite, while the hanging wall is composed of granular pyrite with minor chalcopyrite. Chalcopyrite is the only sulphide mineral present in "economic" quantities. Sphalerite is present only sporadically. Assays of 3% have been reported locally. Gold and silver are present only in trace amounts.

2.3.5 Centennial Mine - Hudson Bay Mining and Smelting Co.

The Centennial Mine, a Hudson Bay Mining and Smelting property, is situated about 7 km south of Birch Bay and within 3 km of the southern portion of the Thompson Bay option. This massive sulphide may have significant implications for the economic potential of the Pine Bay property in that the stratigraphy which hosts this past producer is considered to be present on the Pine Bay claims.

The Centennial Mine massive sulphide is a single sulphide lens which forms a tabular, near vertical sheet 10 m in thickness, 100 m long and at least 430 m deep. The massive sulphide has a footwall rich in chalcopyrite, a pyrite-rich core and a sphalerite-rich hanging wall. The deposit produced 1.2 million tonnes of ore grading 1 g/tonne Au, 22.29 g/tonne Ag, 2.6% Cu and 2.6% Zn.

The Centennial Mine is hosted within a 60 m thick unit of quartz-phyric felsic fragmental rock. This unit is conformably overlain by a 15 m thick pyritic argillite unit. This unit is composed predominantly of volcanic mudstone, chert, minor graphite and chlorite. At the base of this unit there is a 2 m thick graphite- and pyrite-rich schist which directly overlies the hosting felsic pyroclastics. "Earthy pyrite" is a term used to describe the friable, vuggy, graphite-rich layer. Pyrite content ranges from 10 to 100%. The reader is referred to Provins (1980) for a more detailed description of the local geology.

The "earthy pyrite" unit has been intersected in the course of the 1976-77 drill programme in Birch Bay (Figure 6). A sericite schist was also encountered but it is not possible to ascertain at this time if this unit is equivalent to the one hosting the Centennial massive sulphide.

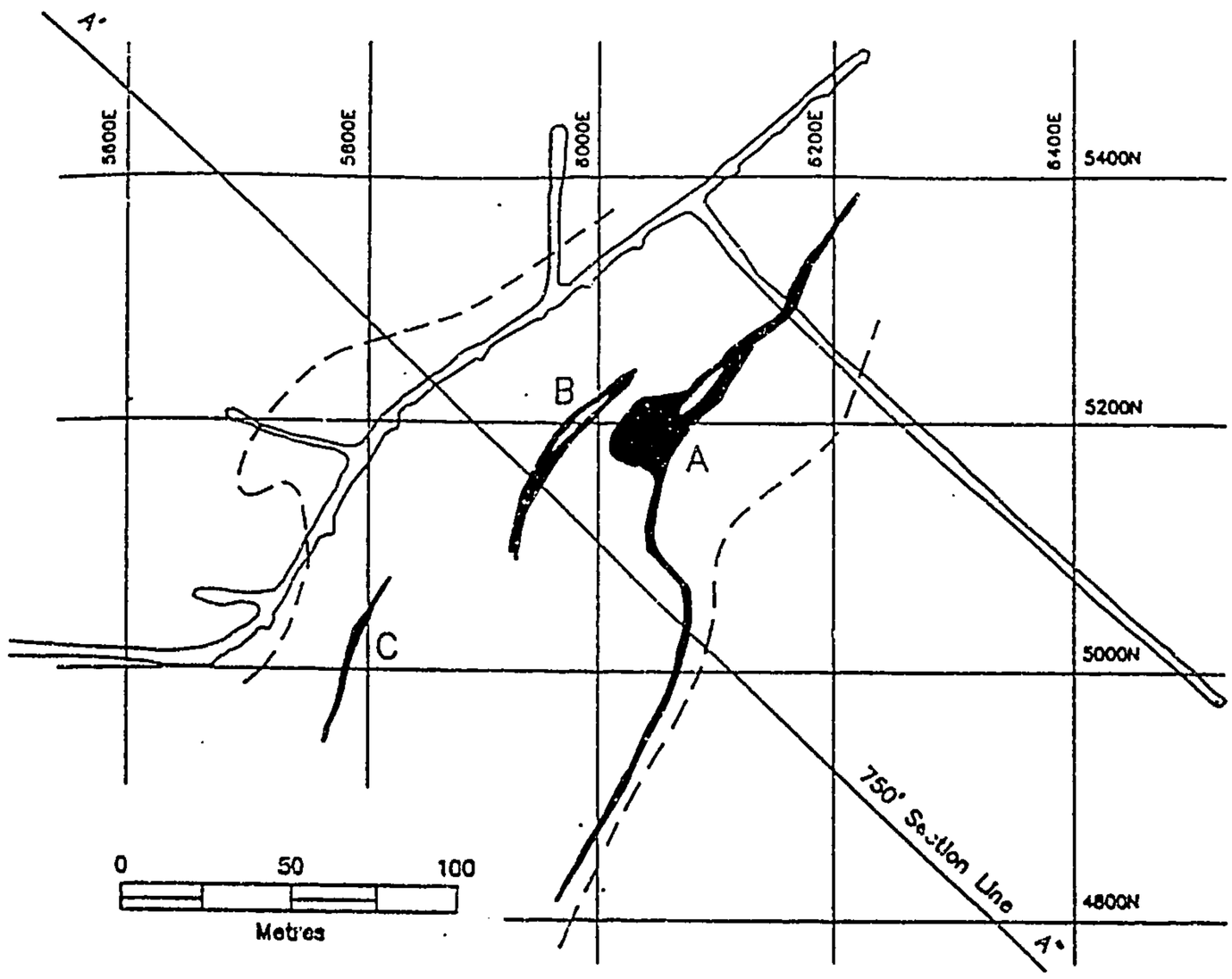


Figure 15a Simplified 600 foot level plan of Pinebay Mine. A, B and C are solid sulphide lenses; dashed line indicates trend of geological units. (After Cerro Mining Company of Canada, 1970.)

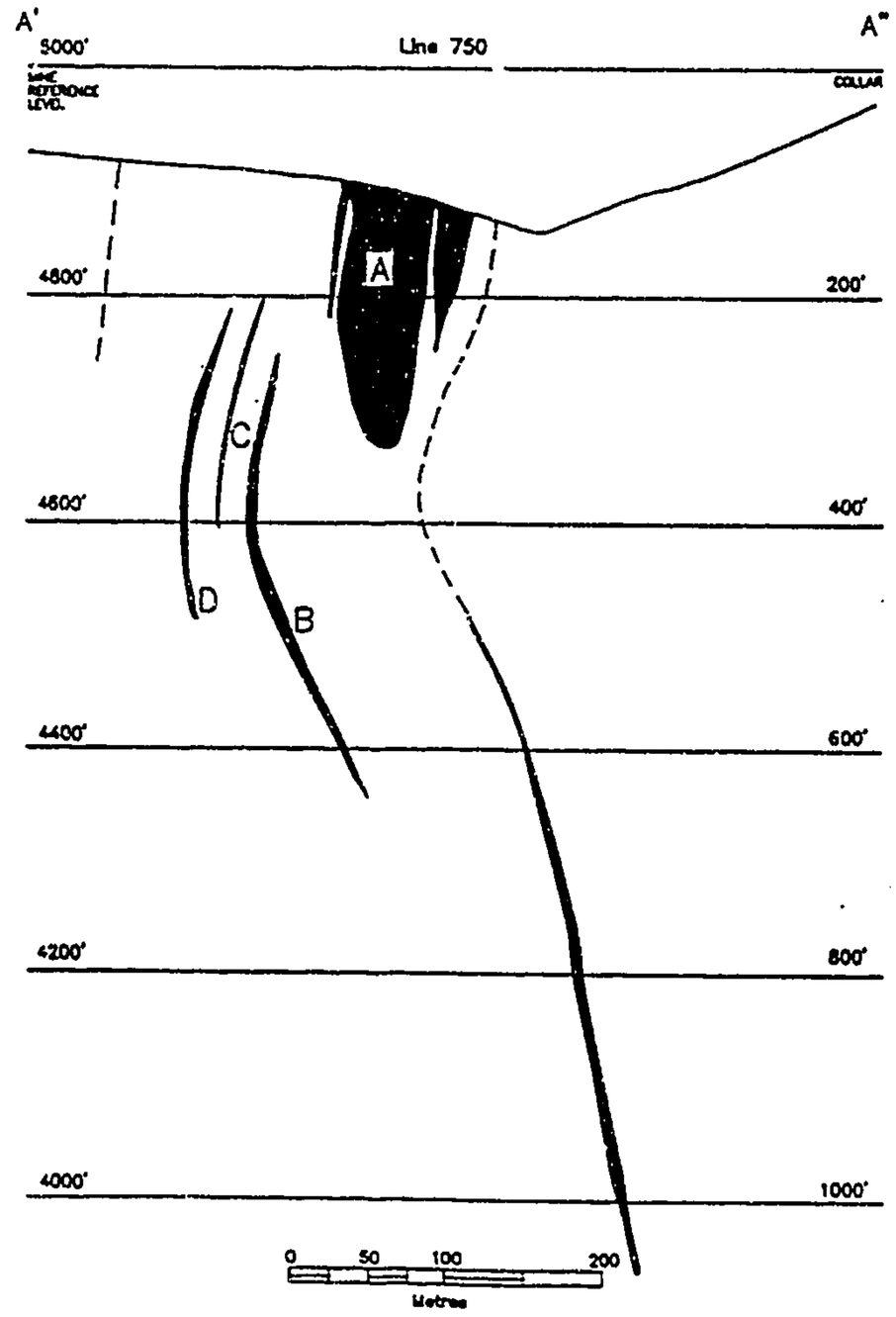


Figure 15b Pinebay Mine cross-section showing solid sulphide zones A, B, C and D. (After Cerro Mining Company of Canada.)

3.0 GEOPHYSICS

Geophysics has been carried out discontinuously over the Pine Bay property since 1967. A listing of the type, year and originator of all surveys carried out to 1987 is present in Appendix B. The 1991 Geoterrex GEOTEM survey is included with this report as a separate volume.

4.0 LITHOGEOCHEMISTRY

4.1 Introduction

Lithogeochemical sampling in conjunction with geological mapping were the predominant tools used during the course of the 1991 field season. Lithogeochemical techniques were chosen in order to: 1) assist in the identification of zones of alteration which would serve to vector the focus of exploration toward a massive sulphide target, 2) discriminate between anomalies defined through the airborne geophysical programme, and 3) aid in the identification of lithological units.

4.2 Sampling Methodology

During the course of the 1991 field programme both systematic and facies sampling techniques were used on volcanic rocks. Where different lithologies were encountered a minimum of a 1 kg sample was taken. As much of the weathered surface was removed as possible in the field in order to minimize the possibility of incorporating "extraneous" elements or inhomogeneities into the sample. In the case of drill core, samples were taken approximately every 30 m. Sample density would locally be increased or decreased depending on the inclination of the drill hole (steeper holes would remain in one homogeneous unit for a longer period of time than a shallow hole), the frequency of lithological variations and finally the presence or absence of recognized alteration. Figure 13d best shows how sample density varies with these factors.

In many cases 1 kg drill core samples proved to be impossible or impracticable to obtain due to the presence of inhomogeneities, i.e., quartz/carbonate veining. Samplers found that 40 cm intervals of core would provide sufficient material for analysis.

Samples were bagged and then shipped to TSL Laboratories in Saskatoon, where they were pulverized with an agate mill. Pulps were then forwarded to the TSL laboratory in Missassauga where they were analyzed by Inductively Coupled Argon Plasma techniques. Sample fusion and calibration against several international rock standards gives the process a degree of precision that is reputedly equivalent to XRF techniques (B. Dunn, pers. comm., 1992). Appendix D gives a more detailed description of the analytical techniques used in the analysis of SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, Na_2O, K_2O, TiO_2, MnO, P_2O_5, Ba, Sr, Y, Sc, and LOI. 368 rock samples were analyzed from the Pine Bay claims during the course of the 1991 field programme. Appendices E and F provide brief field descriptions of samples taken from surface exposures and drill holes respectively.

4.3 Data Processing Technique

All numeric data was formatted into a PDI STATS file format and then normalized to a volatile-free basis using a reformatting programme generated in-house. Raw and normalized numeric data is compiled in Appendices G through T. The IGPET 3.0 programme was used for petrogenetic and statistical analyses.

Three alteration screens or "filters" were used in order to provide semi-quantitative information on the degree of alteration that individual lithologies may have undergone. The primary, and most sensitive filter, is Hughes' modified igneous spectrum (Hughes, 1972; Stauffer et al. 1975; and Kemp, 1982). This filter is used to distinguish samples, and hence areas, where there has been alkali metasomatism. Given the relative "mobility" of the alkali oxides during hydrothermal events of even mild intensity this diagram is very effective in discriminating between "modal" volcanic rocks and those with "anomalous" chemistry. Of 347 samples plotted on this diagram only 46%, or 161 samples, plotted within the field designating unaltered rock (Figure U-1, Appendix U).

The Spitz-Darling and Ishikawa alteration indices comprise the secondary and tertiary filters respectively. The former compares the relatively immobile oxide Al_2O_3 to the relatively mobile oxide Na_2O. Spitz et al. (1978) found that the Al_2O_3/Na_2O ratio adequately defined the hydrothermally altered rocks around the Louvem copper deposit. A value of 10 was found to represent the threshold between altered and unaltered rock. The latter index, proposed by Ishikawa et al. (1976) and later used by Hashimoto (1977) is defined by the relationship

$$MgO + K_2O / (MgO + CaO + Na_2O + K_2O) \times 100$$

Kemp (1982) found that index values in excess of 50 and 60 indicated alteration.

The reader is referred to Mallalieu (1989) for a more detailed discussion of these alteration filters.

Correlation matrices produced through the PDI in-house programmes in conjunction with statistics produced through IGPET 3.0 were used to identify major and minor oxides which could possibly have been used to produce a unique "Pine Bay Alteration Index". It was found that the historical indices proposed by Spitz et al., (1978) and Ishikawa et al., (1976) were found to be satisfactory in defining alteration on the Pine Bay claims. No unique index was generated. The reader is referred to Appendix U for a tabulation of results generated through all alteration filters.

4.4 Petrogenesis

Petrogenetic interpretations concerning the nature of the volcanic stratigraphy on the Pine Bay claims is based on a compilation of analyses taken during the course of the 1991 field season as well as samples taken by G. Gale of the Manitoba Energy and Mines Geological Services branch. All interpretations have been carried out solely on the population of samples

that have been classified as "unaltered" (Figure U-1 Appendix U). Note that the following interpretations will surely be modified as data from Ferreira (1991) and the succeeding field seasons are incorporated into the data base.

The alkali-silica variation diagram of Irvine and Baragar (1971) (Figure U-2) illustrates that the unaltered volcanic rock population is subalkaline. The altered population also plots within the same field. The AFM diagram (Figure U-3) indicates that the population is dominantly calc-alkaline; however a portion of the suite is iron enriched resulting in their being a tholeiitic affinity. The SiO_2 vs. FeO/MgO diagram advocated by Miyashiro (1974) (Figure U-4) confirms the conclusions drawn from the AFM diagram.

5.0 ALTERATION

5.1 Introduction

Given the propensity of Hughes' Igneous Spectrum to detect even the mildest degree of metasomatism, combined with the relatively small area sampled (5 km^2), emphasis was placed on the less sensitive Spitz-Darling and Ishikawa alteration indices to define zones of interest. These indices were used to discriminate between, and quantify degrees of alteration in the Pine Bay claim area. The reader is referred to Figure 16 for a location of all lithogeochemical sample sites and Appendix U, Figure 13a-13q, and 17-19 for a quantification and illustration of the respective alteration indices.

5.2 Presentation of Results

All figures illustrating the Spitz-Darling alteration index depicts a graduated series of five circles defining index values of 0-7, 7-10, 10-25, 25-100, and > 100. Larger circles are consistent with larger index values. These classes define nil, mild, moderate, strong and intense levels of metasomatism respectively. The Ishikawa alteration index is depicted by a graduated series of open squares. The index values are represented by the classes, 0-50, 50-60, 60-70, 70-80 and 80-100. The larger the square the greater the index value. These classes also define nil, mild, moderate, strong, and intense metasomatism respectively.

The reader must remember that classical statistical techniques can only be used on lithogeochemical data with extreme care. The greater the degree of complexity of the geology the more difficult it is to define homogeneous sample populations from which to apply a statistical analysis. For this reason, quantifying semi-quantitative data requires a heavy application of the "eye-ball" approach.

Background threshold levels for both Spitz-Darling and Ishikawa alteration indices have been designated on the basis of norms defined by researchers from a diversity of terranes (see Mallalieu, 1989). The Spitz-Darling background level is considered to be between 0 and 10 while for the Ishikawa it is typically between 50 and 60. In the former case class boundaries were defined on a non-statistical basis. Class boundaries for the Spitz-Darling alteration index is "stepped". This means that class intervals are approximately geometric. The result of this

method is that the most strongly metasomatized samples are emphasized. Class boundaries for the Ishikawa alteration index are arithmetic with class interval of 10. Only the "Intensely Metasomatized" class is stepped by 20 (80-100) in order to emphasize the samples which have been most intensely metasomatized.

5.3 Zones of Alteration

The reader is referred to Appendix U for a listing of all samples taken during the course of the 1991 field season and each samples position on the Hughes Igneous Spectrum and its respective Spitz-Darling and Ishikawa alteration index value. Figures 17 and 18 depict, with appropriate symbols, (see section 4.1) alteration indices for surface grab samples as well as samples taken from drill core. Surface locations of all sub-surface samples was approximated by carrying out a manual vertical projection from all drill sections. Figure 19 delineates those areas where metasomatized samples occur within zones of "anomalous" geophysical responses (see Pederson, 1991). The zone numbering sequence used in the geophysical report is also used to identify the areas of interest.

Figure 20 illustrates the basic algorithm used by the author in determining whether a sample showing elevated degrees of alteration justified additional investigation. Table 6 presents a compilation of all altered samples that lie within the zones of anomalous geophysical responses.

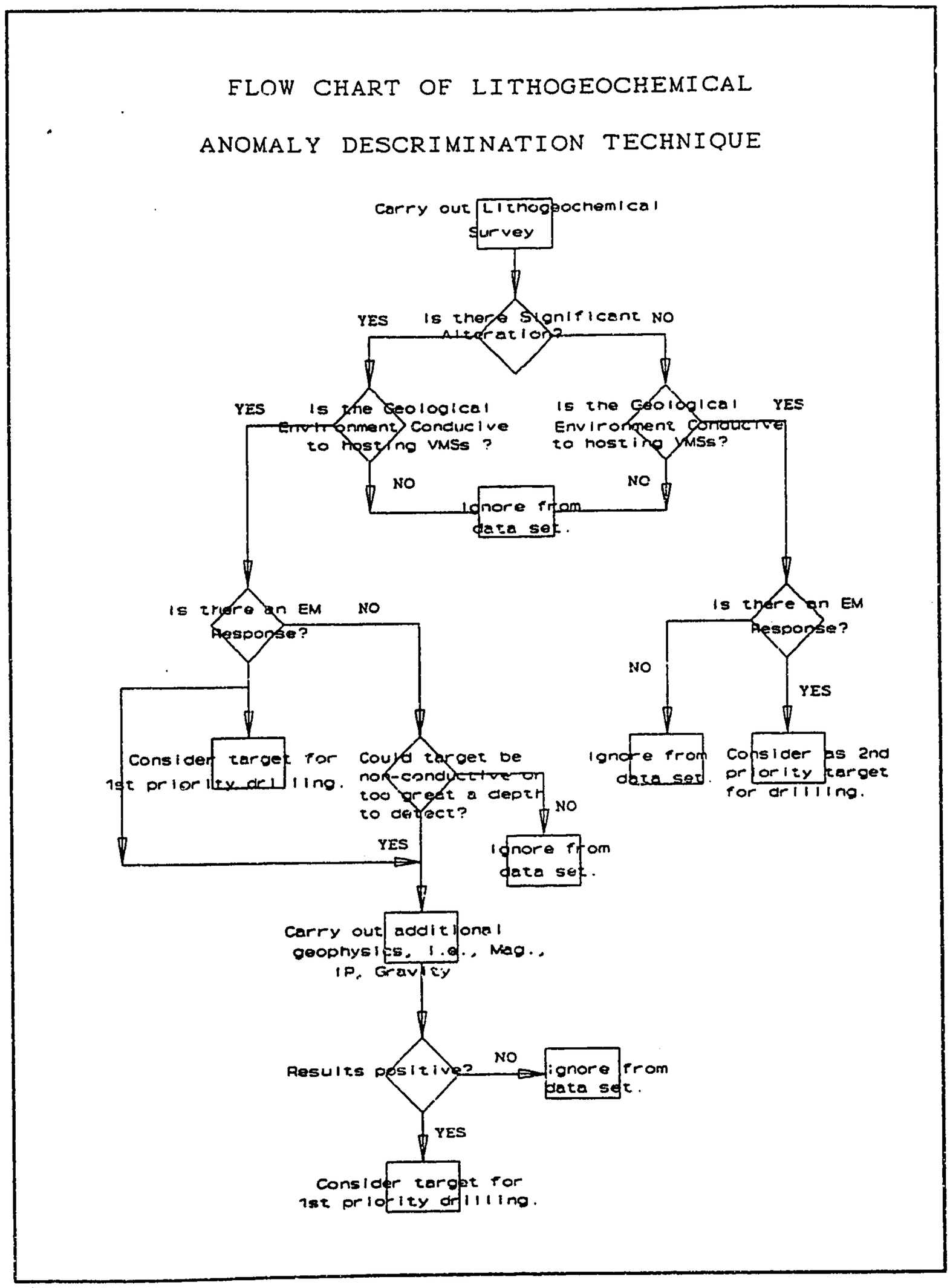

FLOW CHART OF LITHOGEOCHEMICAL
ANOMALY DESCRIMINATION TECHNIQUE
Carry out Lithogeochemical Survey
Is there Significant Alteration?
YES
NO
Is the Geological Environment Conducive to hosting VMSs ?
YES
NO
Is the Geological Environment Conducive to hosting VMSs?
YES
NO
Ignore from data set.
Is there an EM Response?
NO
YES
Consider target for 1st priority drilling.
Could target be non-conductive or too great a depth to detect?
NO
YES
Ignore from data set.
Is there an EM Response?
NO
YES
Ignore from data set.
Consider as 2nd priority target for drilling.
Carry out additional geophysics, i.e., Mag., IP, Gravity
Results positive?
NO
YES
Ignore from data set.
Consider target for 1st priority drilling.

Figure 20

TABLE 6

Tabulation of Significantly Metasomatized Whole Rock Geochemical samples which lie within zones of Anomalous Geophysical Responses

Zone	Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
Cabin	D1588	Altered	11.5	71
	D1599	Altered	31.7	88
	D1873	Altered	157.5	83
	D1875	Altered	14.3	84
	D1877	Altered	21.6	78
	D1932	Altered	13.6	78
	D1941	Altered	5.9	69
	D1947	Altered	20.8	74
	D1949	Altered	96.9	93
	D1961	Altered	106.9	95
	D1964	Altered	175.0	91
	D1965	Altered	433.7	96
	D1966	Altered	134.8	95
	D1967	Altered	142.3	96
	D1968	Altered	132.0	94
	D1969	Altered	167.0	95
	D1970	Altered	148.0	97
	D1971	n/a	115.6	92
	D1972	n/a	183.4	86
	D1973	n/a	7.9	78
	D1975	Altered	195.0	98
	D1976	Altered	10.6	79
	D1977	n/a	83.5	94
	D1981	Altered	255.6	89
	D1983	n/a	10.6	68
	D1985	n/a	85.7	87
4	D1635	Altered	51.3	92
5	D1587	Altered	51.3	94
	D1626	Altered	8.1	72
6	D1628	Altered	5.9	66
	D1629	Altered	154.3	91
	D1630	Altered	241.5	86
	D1631	Altered	297	98
	D1632	Altered	16.2	83
	TL551	n/a	78.9	90

Zone	Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
7	8-76	n/a	66.9	92
	TL508	n/a	75.3	94
	TL518	n/a	42.1	95
9a, 9b	D1686	Altered	7.7	75
	D1688	Altered	18.1	75
	D1693	Altered	11.8	83
	D1696	Altered	35.0	90
	D1698	Altered	107.2	61
	D1699	Altered	73.4	71
	D1726	Altered	8.7	72
	D1728	Altered	106.0	85
	D1864	Altered	26.6	79
	D1865	Altered	69.8	94
10	D1551	Altered	68.6	95
	D1552	Altered	223.5	99
	D1553	Altered	304.0	98
	D1555	Altered	94.5	96
	D1556	Altered	50.4	92
	D1557	Altered	15.8	69
	D1558	Altered	25.5	67
	D1559	Altered	343.3	60
	D1561	Altered	12.2	69
	D1563	Altered	22.8	89
	D1564	Altered	36.5	90
	D1768	Altered	90.8	95
	D1769	Altered	180.4	99
	D1770	Altered	2415.0	99
	D1771	Altered	54.5	95
	D1773	Altered	62.4	82
	D1786	Altered	73.5	89
	D1787	Altered	514.7	99
	D1789	Altered	813.0	91
	D1790	Altered	290.8	95
	D1791	Altered	246.6	80
	D1792	Altered	322.3	96
	D1793	Altered	113.4	96
	D1794	Altered	184.7	96
	D1795	Altered	86.5	76

Zone	Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
10	D1796	Altered	16.9	83
	D1801	Altered	195.5	90
	D1802	Altered	218.0	96
	D1803	Altered	1127.0	98
	D1804	Altered	98.4	84
	D1812	Altered	213.6	95
	D1813	Altered	300.8	99
	D1814	Altered	184.0	97
	D1824	Altered	159.6	98
	D1825	Altered	50.5	91
	D1888	Altered	185.6	89
	D1889	Altered	352.3	94
	D1890	Altered	312.5	97
	D1891	Altered	556.5	97
	D1895	Altered	244.4	86
	D1896	Altered	279.6	93
	D1897	Altered	669.0	97
	D1898	Altered	856.0	93
	D1899	Altered	78.4	75
	D1900	Altered	13.8	74
	D1907	Altered	107.9	93
	D1908	Altered	203.3	97
	D1915	Altered	2484.0	100
13	D1707	Altered	66.1	76
	D1718	Unaltered	5.3	73
	D1831	Altered	47.8	73
16a	D1850	Altered	49.7	63

Cabin Zone Alteration Zone

The Cabin Zone is enveloped by intensely altered dacitic and rhyodacitic tuffs. The massive to well bedded pyrite, sphalerite, pyrrhotite and local chalcopyrite body generates a 7-8 channel GEOTEM response (B. Groves, pers. comm., 1992). Mineralized drill hole 26-86 (see section 2.3.2) contains andesitic and dacitic composition volcaniclastics which exhibit a relatively low degree of metasomatism. Drill hole 30-86, collared about 110 m east and 30 m south of 26-86, intersected a sequence of intensely altered dacitic through to rhyolitic composition volcaniclastics and flows. The latter drill hole may have intersected a paleo-hydrothermal system which is not related to the mineralization in drill hole 26-30. Alternatively faulting may have truncated and translated the footwall alteration zone of 26-86 100 m to the east where it was intersected by 30-86. See section 5.0 for a more detailed discussion of the

geology and alteration within this zone.

Zone 4

This zone is defined by a single, highly altered sample of rhyodacite tuff which is coincident with a 9-10 channel GEOTEM response. Pedersen (1991) considered that the geophysical response may have reflected cultural disturbances. The intensity of the alteration, combined with the strong geophysical response makes this an attractive target.

Zone 5

Samples D1587 and D1626 lie within 125 m of a gabbro intrusion. The proximity of a pluton suggests that these samples may have been metasomatized contemporaneously with the emplacement event. Zone 5 may be the northern extension of Zone 6. The continuity of the conductor's axis south through Zone 6 and into the Cabin Zone suggests that the conductor may be related to stratiform mineralization.

Zone 6

The southern part of Zone 6 produces 5-6 channel GEOTEM responses over two flight lines. All samples (rhyodacitic tuff and tuff-breccia) taken in the vicinity of the geophysical anomalies have been moderately to intensely metasomatized. The conductive axis of Zone 6 leads directly into the Cabin Zone 125 m to the south.

Zone 7

Zone 7 may define Zone A of the Baker Patton occurrence. It is important to note that the entire area between Sourdough Bay and Murray Lake is extensively metasomatized; however only one mineralized occurrence was detected by the airborne geophysical survey even though four were intersected during the course of the 1946 Transcan Investors Ltd. drill programme. It is quite possible that sphalerite mineralization could be dominant in any future mineralization in this area.

Zone 9a, 9b

This zone(s) was not considered a high priority by Pedersen (1991). The 1.2 km long trend was considered to possibly reflect lake-bottom sediments. Intensively metasomatized dacitic and rhyodacitic tuffs indicate that the geophysical response is definitely produced in bedrock. The geophysical and lithogeochemical trend passes through the Pine Bay deposit. The metasomatized samples could be an indication that: i) a semi-conformable footwall alteration zone extends along strike from the Pine Bay massive sulphide, ii) an as yet undetected massive sulphide lies along this part of the volcanic stratigraphy, or iii) the fault marking the contact between the mafic and felsic volcanic rocks along the north side of the massive sulphide continues north to the top of Sourdough Bay. The latter interpretation suggests that the fault may have been a conduit for hydrothermal fluids that could have metasomatized host lithologies.

Zone 10

Zone 10 marks the location of the Pine Bay massive sulphide. Seven of the nine drill holes sampled from the underground workings showed intensive degrees of metasomatism (see Table 8). Metasomatized samples taken from drill hole 131-76 lie along the projected plane of the massive sulphide. The 7-8 channel GEOTEM response on line 124 marks the location of the metasomatized dacitic tuff samples taken from drill hole 121-76. The intensity of metasomatism within this region makes it difficult to vector to targets in close proximity to the known massive sulphide. Masuda-Coryell diagram analysis could be of assistance in this respect (see Mallalieu, 1989).

Zone 13

Zone 13 may have been intersected by drill holes 137 and 138-77. These holes are collared west of the indicated zone of anomalous geophysical responses (see Sheet 1, Qualitative Interpretation Map; Pedersen, 1991). The most intensively metasomatized samples taken from these drill holes consists of rhyolite tuff. The qualitative interpretation map provided by Geoterrex indicates that the anomalous geophysical responses are coincident with Pine Point peninsula. If the responses have been correctly located this would indicate that the horizon of interest is contained entirely within or at the interface between mafic flows and the felsic volcaniclastics of the Sourdough Bay volcaniclastic sequence. The metasomatized samples taken from drill holes 137 and 138-77 are on strike with the "horizon" hosting the Pine Bay massive sulphide. The moderate level of metasomatism (see Table 8) could indicate that the rhyolite tuff horizon is coincident with a semi-conformable alteration zone related to Pine Bay deposit. As no samples have been taken on Pine Point peninsula it is not possible to ascertain at this time whether the discrete geological horizon interpreted to exist by Pedersen (1991) is associated with an alteration pattern or whether the anomaly reflects a concentration of ferro-magnetic minerals in basalt.

Zone 16a

A series of 11-12 channel GEOTEM anomalies were detected between flight lines 125 to 146. Most of these geophysical responses were likely generated by the 1 m thick earthy pyrite horizon (50-100% pyrite) which is hosted within chert/greywacke and cherty mudstone unit. At the north end of Birch Bay drill hole 122-76 intersected moderately metasomatized lapilli-tuff. The presence of this metasomatized unit may indicate that portions of the pyritic horizon may have been generated through hydrothermal rather than euxinic processes. The horizon is extremely prospective for massive sulphide mineralization on the basis of its paleo-environment and its similarity to that which hosts the Centennial deposit 7 km to the south.

6.0 DISCUSSION

Younging directions derived from outcrop and drill core (Figure 10, 12) suggest that the rhyolitic flows, volcaniclastics and pyroclastics on the east side of Sourdough Bay (the Baker Patton felsic complex) comprise the oldest units in the map area. The predominantly sedimentary units underlying Birch Bay represent the youngest. The rapidity of lateral and vertical facies changes, the lack of a marker horizon, and the presence of at least three sub-vertical fold axes has complicated the process of unravelling the stratigraphy of the area.

The author suggests that the Baker Patton felsic complex represents a domal felsic pile which hosted vents for barren as well as metal-rich hydrothermal solutions. The presence of tuffite horizons, syngenetic massive sulphide (Cabin Zone) adjacent to the eastern shore of Sourdough Bay and magnetite- and pyrite-rich chemical sedimentary rocks hosted within the rhyolite and andesite flow unit (Figure 10) suggests that the volcanic pile was subaqueous when it was generated. The western flank of the dome is interpreted to have been the site of accumulation of sequences of interdigitating dacitic to rhyolitic composition tuffs (Figure 21a).

The author hypothesizes that the Cabin Zone and Pine Bay deposit may have been generated penecontemporaneously, with the latter at a slightly farther distance from the mass of the felsic pile than the former (based on the assumption that deformation has produced a rotation of the strata not a translation). This hypothesis suggests that both of these massive sulphide bodies were produced along a unique horizon. Differences in sulphide mineralogy between the deposits (Cabin Zone, sphalerite-rich, Pine Bay, chalcopyrite-rich) does not appear to be a significant problem for this hypothesis. The Trout Lake Mine, 14 km to the northwest provides evidence that significantly different sulphide mineralogies can exist in lenses produced concurrently within the same immediate area. The Trout Lake Mine consists of a series of sulphide lenses which can be chalcopyrite-rich, sphalerite-rich, or can be a mixture of both (D. Rusk, pers. comm., 1991).

Tight and slightly recumbent synclinal folding about a P_3 northeast trending axis (Stauffer et al., 1971), which occupies the centre of Sourdough Bay, has resulted in the Pine Bay deposit having an easterly facing direction while the Cabin Zone has a westerly facing direction (Figure 21b). The plane of the Pine Bay massive sulphide passes sub-vertically through about 331960E with the footwall being on the west and the hanging wall on the east (Figure 13d). Core from drill holes 131-76 and 5-83 exhibit intense alteration above and below the projected plane of the massive sulphide. East of 332150E alteration is mild or non-existent. This suggests that the hanging wall alteration is restricted to a maximum of 120 m of stratigraphy. If the stratigraphy which hosts the Cabin Zone extends south to intersect drill hole 131-76 it is not metasomatized as indicated by the paucity of elevated Spitz-Darling or Ishikawa alteration index values.

The style and type of mineralization in drill holes 26-86 and 30-86 presents equivocal data. The preserved mineralization may or may not be related. Drill hole 26-86 cuts through syngenetic massive sulphide mineralization which presents a core intersection angle of about 45°. Pyrite veins in drill hole 30-86 are intersected at about 60° to the core axis (parallel

or sub-parallel to the stratigraphy) and also at random angles.

In the simplest variation of the classical massive sulphide model tabular, banded/bedded massive sulphide is underlain by a disconformable alteration zone and sulphide stockwork. Typically, the axis of the stockwork is orthogonal (or nearly so) to the strata. 26-86 does not intersect either of the above and 30-86 does not intersect banded/bedded sulphide. This indicates that:-

i) syn-volcanic faulting has translated stratigraphic sequences with respect to one another,

ii) faulting syn-regional deformation has translated sequences with respect to one another,

iii) preserved mineralization is unrelated and the hanging wall syngenetic mineralization to 30-86 lies elsewhere within the stratigraphic succession.

Given the proximity of the drill holes and the author's personal preference for parsimonious solutions alternative i) is favoured. The author assumes that the pyrite veining in 30-86 does represent a stockwork and they were originally orthogonal to the stratigraphy. The author suggests that the veins have been rotated or partially rotated into the plane of the regional fabric. Given that the stratigraphy is overturned and younging to the west fluid flow direction must been west (up). The model proposed is that sulphidic fluids debouched (from the conduits intersected by 30-86) flowed over a paleo-scarp to a paleo-basin which was cut by 26-86. Given that this discussion is based on data from two drill holes alternate hypotheses are certain to be generated.

G. Gale (pers. comm., 1991) believes that on the basis of re-logged drill holes, the Cabin Zone has been truncated by faults. A crystal tuff marker horizon reportedly lies in the immediate hanging wall of the Cabin Zone. Its absence north of the Cabin Zone suggests that it and therefore the massive sulphide have been truncated. A northeast-southwest trending escarpment on the east shore of Sourdough Bay immediately east of the Cabin Zone may indicate the presence of a fault scarp (Figure 10, 12). The Baker Patton felsic complex may have been block faulted upwards with respect to Cabin Zone stratigraphy. This may suggest that additional syngenetic sulphide mineralization is at depth. This interpretation is consistent with the concept that the exposed parts of the Baker Patton felsic complex may represent the roots, i.e., the feeder system, of a massive sulphide (see below).

The Baker Patton deposit(s) (see section 2.3.2) may or may not represent an accumulation of syngenetic massive sulphides. Historical records and examination of dump material indicate that lenses of massive pyrite and bands of chalcopyrite exist; however, there is insufficient evidence to confirm or refute the syngenetic hypothesis. The Baker Patton area is conspicuous given that over a 540 m east-west and a minimum of a 360 m north-south distance there is extensive amounts of disseminated and vein pyrite mineralization (Figure 22).

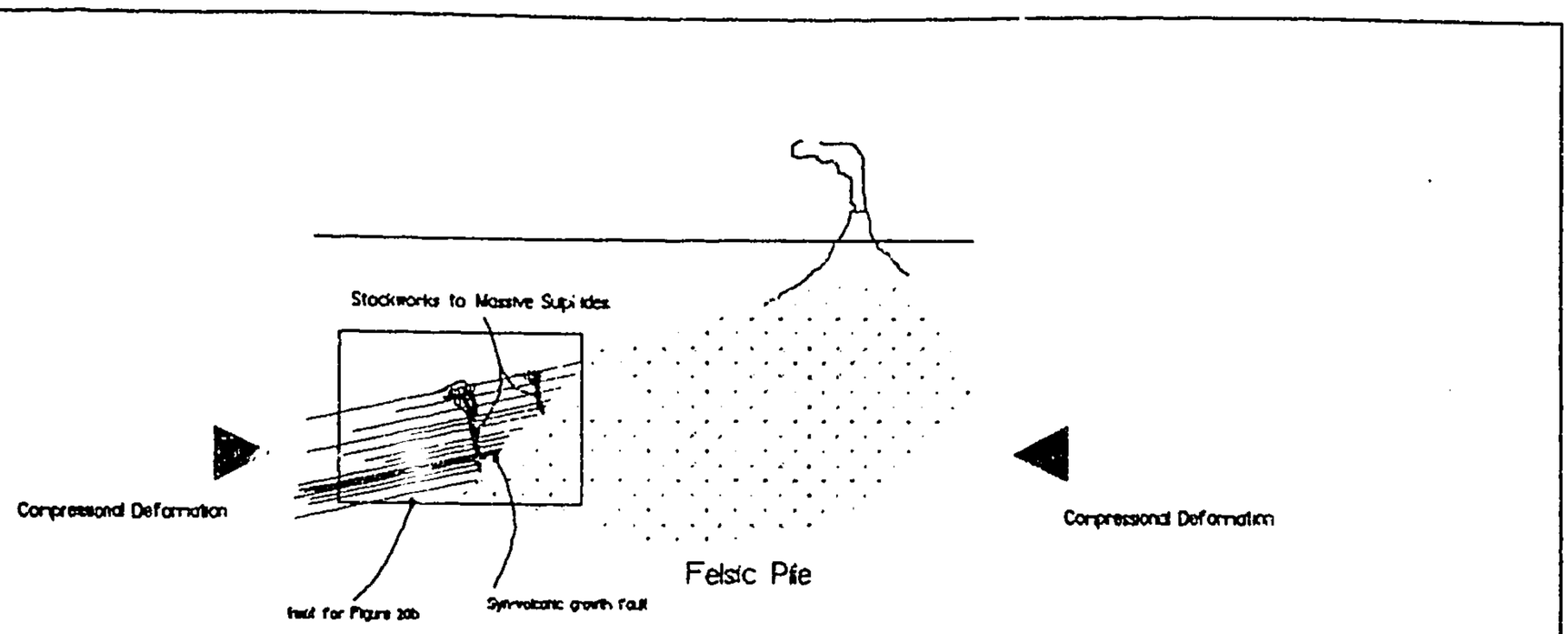


Figure 21a

i) Deposition of a mixed felsic and intermediate composition tuff sequence on the flank of a growing felsic pile.
ii) Normal faulting synchronous with the development of the felsic dome and deposition of the volcaniclastics.
iii) Deposition of the Cabin Zone and Pine Bay deposits along a unique stratigraphic horizon
iv) Compressional deformation with P3 being the last episode about a northeast trending axis.

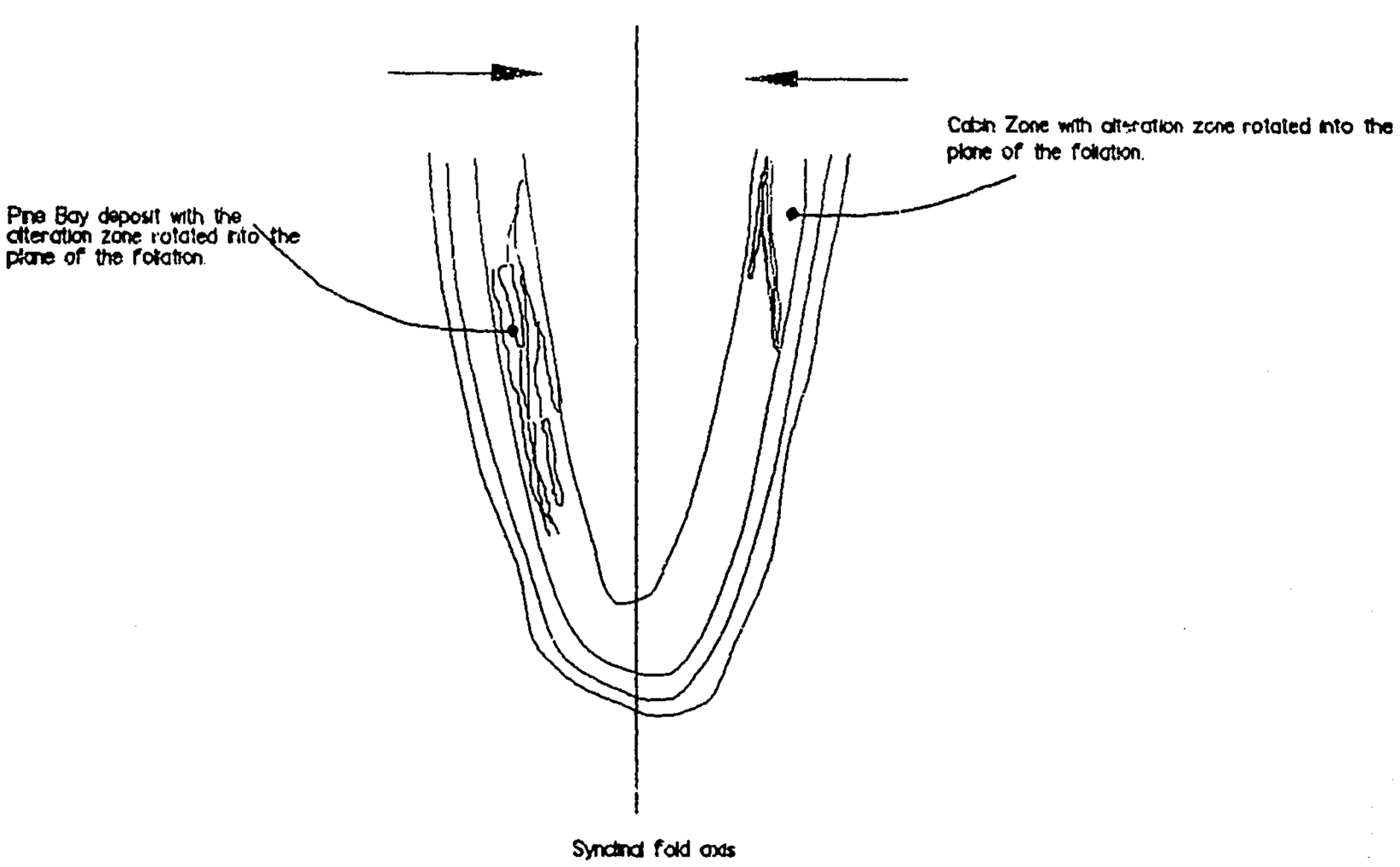


Figure 21b

An idealization of the position of the Pine Bay deposit and the Cabin Zone and how they are related to one another.

In addition, drill hole intersections confirm the presence of locally massive chalcopyrite and sphalerite over narrow widths (< 1.5 m). A limited number of facing directions suggest that the felsic complex is slightly overturned. The author suggests that the epigenetic mineralization observed in surface exposures **could** represent the plumbing system to a massive sulphide at depth. In essence, surface exposures represent the base of a possible massive sulphide. One should note that while Figures 16 and 17 indicate that the Baker Patton felsic complex is extensively altered, only the Baker Patton deposit was detected by the airborne geophysical survey (Pedersen, 1991). The lithogeochemical survey was successful in detecting paleo-hydrothermal systems in the Baker Patton area; however, the GEOTEM survey may have only detected accumulations of massive, conducting sulphides. The GEOTEM survey was only marginally successful in detecting the Cabin Zone[2]. Transcan Investors Ltd. drill sections indicate that massive sphalerite is present locally (see Table 7). Gravity or down hole geophysical techniques may resolve whether the pervasive alteration in the Baker Patton area was produced by barren or metal-rich hydrothermal systems.

Samples D1552 (5-83) and D1769, D1770 (131-76) suggest that the plane of the Pine Bay massive sulphide may pass through stratigraphy 60 m lower in the section (east on Figure 8 and 13d). These samples consist of intensely chloritized rhyodacitic tuff (Appendix E). SiO_2 values range between 29 and 34 % and MgO contents range between 20 and 24 % (on a volatile free basis). Cerro Mining Company of Canada Ltd. geologist termed this rock, "chlorite rock." This rock is "the most frequent wall rock of the ore zones." In the course of re-logging the underground drill holes chlorite rock nearly always presaged the presence of massive sulphide farther along the drill core. If this "rule of thumb" can be applied to what was observed in drill holes 5-83 and 131-76 one must consider that this represents the true plane of the projected massive sulphide and thus represents a unique horizon for the deposition of the Pine Bay massive sulphide.

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[2] The Cabin Zone was detected only after the re-interpretation of analogue flight data by B. Groves of the Timmins exploration office.



Figure 22 Sulphide distribution and alteration in the Baker Patton area.

7.0 CONCLUSIONS

1. The Pine Bay claims (1991 coverage) are underlain by a sub-vertically dipping, northeastly trending sequence of volcanic and minor sedimentary rocks. From east to west, four gross assemblages of strata has been identified.

2. The four stratigraphic assemblages mark changes between major cycles of volcanism.

3. Compressive deformation has resulted in isoclinal and recumbent folding of the stratigraphy.

4. The GEOTEM survey was successful in detecting Pine Bay, and Baker Patton deposits. Additional interpretation of the analogue light data indicated that the Cabin Zone and North Star mines have mild and subtle responses.

5. Ishikawa and Spitz-Darling alteration indices adequately define the alteration over the Pine Bay claims.

6. The lithogeochemical survey was successful in defining, local, but very intense alteration zones in the vicinity of the Pine Bay deposit and Cabin Zone. The Baker Patton deposit(s) are surrounded by an intense and extensive alteration zone.

7. Lithogeochemistry acts as an unequivocal tool in discriminating between cultural and bedrock geophysical responses (where outcrop is present).

8. Nine coincidental zones of anomalous lithogeochemical and geophysical responses were identified during the course of the 1991 field programme.

9. The Baker Patton deposit(s) may be the sulphide stockwork to a massive sulphide at depth.

10. The Pine Bay deposit and Cabin Zone are mineralogically distinct syngenetic massive sulphides which may have been generated penecontemporaneously along a single horizon.

11. A zone of alteration which extends south, along the projection of the Pine Bay massive sulphide strike, was intersected by drill holes 5-83 and 131-76 at a depth -125 to -400 m.

PROJECT BUDGET
FOR THE YEAR ENDED DECEMBER 31, 1991

Project		281	284	292	Total Amount
90 Property Costs					
02	Warehousing/Freight	$775.00	$7,052.00	$400.00	$8,227.00
04	Option Payments	$35,006.00	$145,829.00	$45,000.00	$225,835.00
91 Geology					
01	Salaries, etc.		$50,516.89		$50,516.89
02	Contractors		$53,908.00		$50,908.00
03	Expenses		$94.34		$94.34
10	Air Transport		$312.80		$312.80
11	Supplies	$1,135.51	$7,533.91	$923.88	$9,597.30
12	Freight		$312.76		$312.76
14	Lab Work		$2,624.06		$2,624.06
15	Data Acquisition	$63.35	$2,307.71		$2,371.06
92 Geophysics					
12	Freight		$34.05		$34.05
14	Lab Work		$1,250.70		$1,250.70
93 Geochemistry					
11	Supplies		$106.80		$106.80
12	Freight		$82.54		$82.54
14	Lab Work		$6,745.75		$6,745.75
94 Environment					
01	Salaries, etc.		$175.68		$175.68
11	Supplies		$73.93		$73.93
99 Logistics					
01	Salaries, etc.		$2,674.32		$2,674.32
02	Contractors		$113.21		$113.21
11	Supplies		$543.80		$543.80
12	Freight	$188.80	$199.14	$38.80	$426.74
30	Food		$4,273.15		$4,273.15
31	Accommodation	$614.93	$2,434.70		$3,049.63
32	Travel	$315.50	$1,188.31		$1,503.81
33	Vehicle Expense	$331.55	$7,008.48	$447.17	$7,787.20
34	Camp Operation	$637.50	$5,535.83		$6,173.33
35	Communication	$24.99	$885.36		$911.35
80 Administration					
Project Expense		$39,092.13	$303,817.22	$46,815.85	$389,725.20
TOTAL PINE BAY PROJECT EXPENSE					$389,725.20

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STATEMENT OF QUALIFICATIONS

I David G. Mallalieu, as an employee of Placer Dome Inc., with offices at 1440 Hugh Allan Drive, Kamloops, B.C., do hereby declare that :

1. I am a graduate of Carleton University, Ottawa, Ontario (B.Sc Honours Geology 1983) and Queen's University, Kingston, Ontario (MBA 1991).

2. I have practised my profession as an exploration and mine geologist since graduation, throughout Canada.

3. I supervised the work described in this report.

Dated at Toronto, Ontario, this 21st day of May, 1993.

David G. Mallalieu

APPENDIX A

Lake Athapapuskow Massive Sulphide Programme – Projects 281, 284, and 292
1992 Proposed Budget

90	Property Costs			$5,820
91	Geology	1 Salaries	$185,000	
		11 Supplies	$1,000	
		12 Freight	$1,580	
		14 Lab Work	$5,500	
		30 Food	$10,000	
		31 Accomodation	$6,400	
		32 Travel	$18,000	
		33 Vehicle	$10,000	
		34 Camp operations	$1,200	
		35 Communications	$2,000	
		Sub-total		$240,680
92	Geophysics	1 Salaries	$7,000	
		2 Contractors	$75,000	
		13 Grid Preparation	$50,000	
		Sub-total		$132,000
93	Geochemistry	11 Supplies	$500	
		12 Freight	$1,000	
		14 Lab Work	$70,000	
		Sub-total		$71,500
	Contingency			$0
	Total			$450,000

Thompson Bay – Project 281
1992 Proposed Budget

90	Property Costs			$0
91	Geology	1 Salaries	$87,407	
		11 Supplies	$472	
		12 Freight	$747	
		14 Lab Work	$2,599	
		30 Food	$4,725	
		31 Accomodation	$3,024	
		32 Travel	$8,504	
		33 Vehicle	$4,725	
		34 Camp operations	$567	
		35 Communications	$945	
		Sub-total		$113,714
92	Geophysics	1 Salaries	$3,694	
		2 Contractors	$39,582	
		13 Grid Preparation	$26,388	
		Sub-total		$69,663
93	Geochemistry	11 Supplies	$236	
		12 Freight	$472	
		14 Lab Work	$33,073	
		Sub-total		$33,782
	Contingency			$0
Total				$217,159

Pinebay – Project 284
1992 Proposed Budget

90	Property Costs			$5,820
91	Geology	1 Salaries	$65,327	
		11 Supplies	$353	
		12 Freight	$558	
		14 Lab Work	$1,942	
		30 Food	$3,531	
		31 Accomodation	$2,260	
		32 Travel	$6,356	
		33 Vehicle	$3,531	
		34 Camp operations	$424	
		35 Communications	$706	
		Sub-total		$84,989
92	Geophysics	1 Salaries	$2,553	
		2 Contractors	$27,350	
		13 Grid Preparation	$18,233	
		Sub-total		$48,136
93	Geochemistry	11 Supplies	$177	
		12 Freight	$353	
		14 Lab Work	$24,718	
		Sub-total		$25,248
	Contingency			$0
	Total			$164,193

Crow Property – Project 292
1992 Proposed Budget

90	Property Costs			$0
91	Geology	1 Salaries	$32,266	
		11 Supplies	$174	
		12 Freight	$276	
		14 Lab Work	$959	
		30 Food	$1,744	
		31 Accomodation	$1,116	
		32 Travel	$3,139	
		33 Vehicle	$1,744	
		34 Camp operations	$209	
		35 Communications	$349	
		Sub-total		$41,977
92	Geophysics	1 Salaries	$753	
		2 Contractors	$8,068	
		13 Grid Preparation	$5,379	
		Sub-total		$14,201
93	Geochemistry	11 Supplies	$87	
		12 Freight	$174	
		14 Lab Work	$12,209	
		Sub-total		$12,470
	Contingency			$0
	Total			$68,648

APPENDIX B

CERRO MINING CORPORATION OF CANADA LTD.

DATE	DWG. No.	TITLE	SCALE
June 1968	PB68-013	Road Rock Cut, Plan Section and Yardage Calculations (Vellum and Whiteprint)	1":40'
	Figure 1	Surface Geology Map	1":2400'?
Sept. 1969		Shoreline Geology, Sourdough Bay East	1":200'
Oct. 1970		Geologic Map, Baker-Patton	1":200'
Aug. 1970		Proposed Deep D.D.H.	1":40'
Nov. 7, 1969	69-024	200 Ft. Level Sump Detail (Superimposed on Grid)	As indicated
Nov. 9, 1969	P.B. 69-024	200 Ft. Level - Sump Detail	As indicated
Nov. 17, 1969	P.B. 69-025	200 Ft. Level - Steel Bulkhead	As indicated
Dec. 1969	LODE 69-003	600 Ft. Level Drift and X-Cut Plan (East Side)	1":40'
Dec. 1969	LODE 69-004	200 Ft. Level Drift and X-Cut Plan	1":40'
Dec. 1969		LODE 69-005 600 Ft. Level Magnetic Deviations	1":40'
Dec. 1969		LODE 70-006 600 Ft. Level Geology Plan (East Side)	1":40'
Feb. 1970		LODE 70-007 200 Ft. Level Geology Plan (East Side)	1":40'
Feb. 1970		LODE 70-009 Contour Map of Lake Bottom (Depth of Bedrock)	1":40'
Nov. 1969		Plan - Diamond Drill Holes at the 600 Ft. Level	1":40'
Nov. 8, 1969		Geology 67/2 (Diamond Drill Hole Sections)	1":40'
Nov.11, 1969		Geology 67/7	1":40'
Nov. 11, 1969		Geology 67/8	1":40'
Nov. 8, 1969		Geology 67/9	1":40'
Nov. 12. 1969		Geology 67/10	1":40'
Nov. 9, 1969		Geology 67/11	1":40'
Nov. 8, 1969		Geology 67/12	1":40'
Nov. 8, 1969		Geology 67/13	1":40'
Nov. 9, 1969		Geology 67/14	1":40'
Nov. 11, 1969		Geology 67/15	1":40'
Nov. 12, 1969		Geology 67/16	1":40'
Nov. 8, 1969		Geology 67/17	1":40'
Nov. 11. 1969		Geology 67/18	1":40'
Nov. 8, 1969		Geology 67/19	1":40'
Nov. 8, 1969		Geology 67/21	1":40'
Nov. 12, 1969		Geology 67/23	1":40'

DATE	DWG. No.	TITLE	SCALE
Nov. 12, 1969		Geology 67/24	1":40'
Nov. 11, 1969		Geology 67-27	1":40'
Nov. 11, 1969		Geology 67-28	1":40'
Nov. 12. 1969		Geology 68/23	1":40'
		425 Section	1":100'
		500 Section	1":100'
		525 Section	1":100'
		625 Section	1":100'
		725 Section	1":100'
		825 Section	1":100'
		925 Section	1":100'
		1025 Section	1":100'
	183-16-70	RONKA 876 CPS - Thompson Bay South 2S-0	1":400'
1970?	183-17-70	TURAM - Thompson Bay Sheet 1S-0	1":400'
	183-20-70	RONKA 876 CPS - Thompson Bay Sheet 1S-0	1":400'
	183-24-70	RONKA 876 CPS Pinebay Sheet 00	1":400'
	183-25-70	TURAM Pinebay Sheet 00	1":400'
	183-32-70	SE 300 Vertical Loop Pine Bay Sheet 00	1":400'
	183-36-70	RONKA 2400 cps - Thompson Bay Sheet 1S-0	1":400'
	126-26-70	SE 300 EM PIC-DIG Group - Thompson Bay Sheet 1S-0	1":400'
May 1970	GEN 70-005	Proposed Site of Sandpit	1":200'
May 1970	GEN 70-006	Proposed Tailings Area	1":200'
May 26, 1970	GEN 70-008	Topographic Contours, 2' Interval	1":40'
Jan. 1970		200 Ft. Level Plan	1":40'
Jan. 1970		400 Ft. Level Plan	1":40'
March 1970		200 Ft. Level Plan	1":40'
March 1970		600 Ft. Level Plan	1":40'
		200-1200 Ft. Level Plans with sulphide lens Intersections	1":100'
		Isometric drawing of Pinebay Deposit with Production Levels, Cross Cuts, Airways etc.	1":60'

DATE	DWG. No.	TITLE	SCALE
March 1970		200 Ft. Level Geology Plan	1":100'
March 1970		600 Ft. Level Geology Plan	1":100'
Sept. 30, 1969		Plan - 600 Ft. Level Ore Zone	1":40'
Aug. 1970		Longitudinal Section of Orebodies	1":100'
Dec. 1969	DISC 69-007	600 Ft. Level Plan (East Side)	
July 1969	DISC 70-009	600 Ft. Level Geology Plan (West Side)	1":40'
Feb. 1970	DISC 70-010	200 Ft. Level Geology Plan (West Side)	1":40'
Feb. 1970	GEOL 70-042	Diamond Drilling Plan: 600 Ft. Level	1":40'
March 1970		Diamond Drilling Plan: 600 Ft. Level	1":100'
March 1970		Diamond Drilling Plan: 200 Ft. Level and Surface	1":100'
		Surface Diamond Drill Holes (1967-69) Corrected for Changes in Bearing - Pine Bay Mine (White print copy)	1":40'
		Section 500 Looking N-E	1":100'
		Section 600 Looking N-E	1":100'
March 1970		Section 1145 Looking N-E	1":100'
		Section 1190 Looking N-E	1":100'
March 1970		550 Section through to 1100 Section (at 50' intervals)	1":100'
Feb. 1970		Section and Plan U2-15	1":40'
Feb. 1970		Section and Plan U6-37	1":40'
Feb. 1970		Section and Plan U6-38	1":40'
Feb. 1970		Section and Plan U6-39	1":40'
Feb. 1970		Section and Plan U6-40 through to 49	1":40'
Feb. 1970		Section and Plan U6-50	1":40'
Feb. 1970		Section and Plan U6-51	1":40'
Feb. 1970		Section and Plan U6-52	1":40'
Feb. 1970		Section and Plan U6-53	1":40'
Feb. 1970		Section and Plan U6-56	1":40'
Feb. 1970		Section and Plan U6-57	1":40'
Feb. 1970		Section and Plan U6-58	1":40'
June 1970		Section and Plan U6-59	1":40'
June 1970		Section and Plan U6-62	1":40'
June 1970		Section and Plan U6-63	1":40'

DATE	DWG. No.	TITLE	SCALE
Feb. 1970		Diamond Drill Hole Section and Plan 2/67	1":40'
Feb. 1970		Diamond Drill Hole Section and Plan 7/67	1":40'
Feb. 1970		Section and Plan 8/67	1":40'
Feb. 1970		Section and Plan 9/67	1":40'
Feb. 1970		Section and Plan 11/67	1":40'
Feb. 1970		Section and Plan 12/67	1":40'
Feb. 1970		Section and Plan 13/67	1":40'
Feb. 1970		Section and Plan 15/67	1":40'
Feb. 1970		Section and Plan 19/67	1":40'
		Property Index Map, Appendix I	
Feb. 1970	SS 041	600 Ft. Level Drift and X-Cut Plan with Shore Outline on Surface	1":100'
Feb. 1970	SS 042	200 Ft. Level Drift and X-Cut Plan with Shore Outline on Surface	1":100'
March 1970		Copper distributions on various levels (200-1100 Level)	1":40'
June 25, 1970		Plan - 1200 Ft. Level Ore Zone	1":40'
		Cu Grades 500 Level	1":40'
		Cu Grades 700 Level	1":40'
		Cu Grades 800 Level	1":40'
		Cu Grades 1100 Level	1":40'
		Longitudinal Projection Pinebay Mine "A-D" Zone	1":100'
Jan. 1970		Longitudinal Section "A" Orebody	1":100'
Jan. 1970		"B" Orezone Long. Section	1":100'
Jan. 1970		"C" Orezone Long. Section	1":100'
Jan. 1970		"D" Orezone Long. Section	1":100'
		White Print Copies of Geological Sections, 500-1145 Section (Coloured)	1":40'
		Mylar originals of Geological Sections, 325-1190 Section	1":40'
Nov. 1969	69-042	Lake Distribution around Pinebay	1":2000'
Aug. 10, 1970		Pinebay Mine Project Phase I Final Report	

DATE	DWG. No.	TITLE	SCALE
		(SUPERCEDED WHITEPRINTS)	
July, 1969		600-Foot Level Geology	1":40'
		Diamond Drilling Data	1":40'
June 6, 1969		600 Ft. Level Development	1":40'
June 6, 1969		600 Ft. Level Geology - Proposed D. Dr. for June and July	1":40'
June 19, 1969		600 Ft. Level General	1":40'
June 19, 1969		600 Ft. Level General with outline of 400 Ft. Level Ore Zone	1":40'
June 20, 1969		600 Ft. Level General with outline of 400 Ft. Level Ore Zone	1":40'
June 20, 1969		600 Ft. Level General with outline of 200 Ft. Level Ore Zone	1":40'
March 31, 1969		600 Ft. Level Geological Mapping	1":40'
June, 1969		Section C-C' Looking North-East	1":40'
		Section D-D' Looking North-East	1":40'
		Section E-E' Looking North-East	1":40'
		Section F-F' Looking North-East	1":40'
		Section G-G' Looking North-East	1":40'
		Section 300	1":40'
		Section 400	1":40'
		Section 500	1":40'
		Section 600	1":40'
		Section 700	1":40'
		Section 800	1":40'
		Section 850	1":40'
		Section 900	1":40'
		Section 950	1":40'
		Section 1000	1":40'
		Section 1050	1":40'
		Section 1100	1":40'
		Section 1145	1":40'
		Section 1190	1":40'

DATE	DWG. No.	TITLE	SCALE
September, 1969	475 Section		1":40'
September, 1969	500 Section		1":40'
September, 1969	525 Section		1":40'
September, 1969	600 Section		1":40'
September, 1969	625 Section		1":40'
September, 1969	650 Section		1":40'
September, 1969	725 Section		1":40'
September, 1969	750 Section		1":40'
September, 1969	800 Section		1":40'
September, 1969	825 Section		1":40'
September, 1969	850 Section		1":40'
September, 1969	900 Section		1":40'
September, 1969	925 Section		1":40'
September, 1969	950 Section		1":40'
September, 1969	1000 Section		1":40'
September, 1969	1025 Section		1":40'
September, 1969	1050 Section		1":40'

WHITEPRINTS

550 Section - 'C' Ore zone, 'D' Ore zone	1":40'
600 Section - 'C' Ore zone, 'D' Ore zone	1":40'
650 Section - 'B' Ore zone, 'D' Ore zone	1":40'
700 Section - 'A' Ore zone, 'B' Ore zone, 'D' Ore zone	1":40'
750 Section - 'A' Ore zone, 'B' Ore zone, 'D' Ore Zone	1":40'
800 Section - 'A' Ore zone, 'B' Ore zone, 'D'Ore zone	1":40'
850 Section - 'A' Ore zone, 'B' Ore zone, 'D'Ore zone	1":40'
900 Section - 'A' Ore zone, 'B' Ore zone, 'D'Ore zone	1":40'
950 Section - 'A' Ore zone	1":40'
1000 Section - 'A' Ore zone	1":40'
1050 Section - 'A' Ore zone	1":40'
1100 Section - 'A' Ore zone	1":40'
1150 Ore Zone - 'A' Ore zone	1":40'
1200 Ore Zone - 'A' Ore zone	1":40'
400 Level - 'B' Ore zone, 'C' Ore zone, 'D'Ore zone	1":40'

DATE	DWG. No.	TITLE	SCALE
		500 Level - 'A' Ore zone, 'B' Ore zone, 'D' Ore zone	1":40'
		600 Level - 'A' Ore zone, 'B' Ore zone, 'C'Ore zone, 'D' Ore zone	1":40'
		700 Level - 'A' Ore zone, 'B' Ore zone	1":40'
		800 Level	1":40'
		900 Level	1":40'
		1000 Level	1":40'
		1100 Level	1":40'
		1200 Level	
		SUPERCEDED MYLARS	
March 31, 1969		600 Ft. Level	1":40'
		600 Ft. Level Geology	1":40'
		600 Ft. Level Development	1":40'
Nov. 11, 1969		Geology 67/27	1":40'
Nov. 11, 1969		Geology 67/28	1":40'
		WHITEPRINTS	
February, 1970	SS041	600 Ft. Level	1":100'
December 9, 1969		600 Ft. Level Geology Plan	1":40'
September, 1969		Shoreline Geology, Sourdough Bay East	1":200'
		Diamond Drilling 800-1200-Foot Level	1":40'
	D-618-46-4301	Water Supply, Tailing Disposal, General Layout (Wright Engineers Ltd.)	1":200'
		Hoisting Signal Stencil	
1970 - 1971		Pineroot Proposed Exploration Program	
		Pineroot South Sheet	1:10,000
		Pineroot Central Sheet	1:10,000
		Pineroot North Sheet	1:10,000
1970	1N-1E	TURAM Survey, Mud Lake	1":400'

GRANGES EXPLORATION LTD.

DATE	DWG. No.	TITLE	SCALE
		WHITE PRINTS	
April, 1986		VLF EM Survey, Plan of Anomalies and Diamond Drilling, Pinebay Option	1":400'
April, 1986		Composite Geology and VLF - Pinebay Option	1":400'
Feb., 1987		Cabin Zone - Compilation Old Drilling	1":50'
		46+00S	1":50'
		46+50S	1":50'
		47+00S	1":50'
		47+25S	1":50'
		47+50S	1":50'
		48+00S	1":50'
Feb., 1987		Cabin Zone (looking Grid West) Pinebay Option, Compilation Old Drilling	1":50'
March, 1987		Vertical Longitudinal Projection (looking Grid West) Cabin Zone - Pinebay Option	
March, 1987		Horizontal Loop EM Survey, Pinebay Option Grid	1":200'
March, 1987		Section 2+50N (looking Grid North) Cabin Zone, Pinebay Option	1":50'
March, 1987		Section 1+50N Pinebay Option	1":50'
March, 1987		Section 0+50N Pinebay Option	1":50'
March, 1987		Section 0+50S Pinebay Option	1":50'
March, 1987		Section 1+50S Pinebay Option	1":50'
1986		AGO, NEO, ZERO, MINCE, RAYO, OLIVE, MPXX cls. (Pinebay Option) - Composite Geology & VLF Including DH location PB1-PB23	1":400'
1987		Somewhere!!! - Drill hole location (#24-30)	
1986		AGO, NEO, ZERO, MINCE, RAYO, OLIVE, MPXX cls.	1":400'

DATE	DWG. No.	TITLE	SCALE
1987		VLF, anomalies & drilling PB1-17 Cabin Zone, Pinebay opt. - Vertical Longitudinal Projections DDH 21, 24-27, 29, 30	
1987		Cabin Zone, Pinebay opt. - Vertical Longitudinal Projections, Old drill holes	
1987		Cabin Zone, Pinebay opt. - Vertical Longitudinal Projections - Drill Hole plan	

GUGGENHEIM EXPLORATION CO. INC.

DATE	DWG. No.	TITLE	SCALE
1968		Pineroot Project Report on Fieldwork, summer 1968 (McMillan)	
		M.5.-Pineroot M.E. Pineroot Project-E.M. Surveys Key Map	1":2640
1968	68-042	Electromagnetic Survey of Birchbay-Pineroot River Area-Manitoba (with Superimposed Geology by W.E.G., Sept., 1968).	1":400'
1968	68-042	Electromagnetic Survey of Birchbay-Pineroot River Area-Manitoba.	1":400'
	Plate 1	Geology Map	1:24000
Jan., 1968		Plan of Survey of Bay No. 16 M.C. situated in Unsurveyed Twp. 67 Rge 28 WPM, Athapapuskow Division	1":200'
July, 1968		Plan of Diamond Drill Hole Locations, EM Conductors, Ore Shoots (Plate 4) (paper copy)	1":100'
July, 1968		Plan of Diamond Drill Hole Locations, EM Conductors, Ore Shoots (Plate 4) (with coloured geology)	1":100'
1968		Sourdough Bay - Mag. & location of drilling holes	1":200'
Jan.-Feb., 1968		Field Plan - Sour Mineral Claims (Whiteprint)	1":500'
1968		Amulet Lake - Mag Survey	1":200'
1968		Mikanagan Lake - EM Survey	1":400'
1968		Aimee Lake - EM Survey	1":400'
1968		Birchbay & Pineroot River - EM Survey	1":400'
1968		Aimee Lake - Horizontal Loop EM Survey	1":400'

DATE	DWG. No.	TITLE	SCALE
1968		Pineroot Area - Mag Suvey (Pine 4 claim)	1":400'
1968		Sourdough Bay - EM conductors & proposed drill holes	1":200'
1968		Pineroot Project - EM Surveys Key Map	
1968		Area SW of New Deal claims - EM Surveys (Sour SW & SE)	1":400'
1968		Tim, Sour, New Deal cls, Horizontal loop EM Survey	1":400'
1968		Flintoba & Little Mud Lake area, EM survey	1":400'
1968		Birchbay - Pineroot River Area, Composite map Coincidence between Mag & EM anomalies	
April 10, 1969	19-000-001	Field Sketch Plan, Chica, Conn, and North Star Claims	1":400'
1969		Area around Bay 6-10 & 14-19 - Magnetometer The map is a bit out of scale	1":200'
1969		Vertical Loop EM Survey - Cleaver Lake	1":400'
1969		Tag Claims, Bakers Narrows Pineroot	1":400'
1969		Horizontal loop GO & ORO claims - EM Survey	1":400'
1969		Gwen claims, Horizontal loop EM	1":400'
1969		Tim cls., Vertical loop EM	1":400'
1970		Nugget claim - Vertical EM Surveys	1":400'
Jan., 1970		RONKA Horizontal Loop Electromagnetic Survey, Thompson Lake	1":400'
March, 1970		ABEM TURAM Survey, GO Claims	1":200'

DATE	DWG. No.	TITLE	SCALE
March, 1970		Horizontal Loop EM Survey, Bay Claims, Sourdough Bay (north part)	1":200'
March, 1970		Horizontal Loop EM Survey, Bay Claims,	
April, 1970		Horizontal Loop EM Survey, Alberts Lake, Rob Claims	1":400'
April, 1970		RONKA 240 CPS - Alberts Lake Manitoba Horizontal Loop EM Survey	1":400'
April, 1970		RONKA 870 CPS - Blackfoot Lake, Horizontal Loop EM Survey	1":200'
April, 1970		Horizontal Loop EM Survey, Alberts Lake, ore claims	1":400'
April, 1970		Horizontal Loop EM Survey Eppa Claims, Pineroot River	1":200'
May 4, 1970		TURAM Electromagnetic Survey for Guggenheim Exploration on	
May 4, 1970		TURAM Electromegnetic Survey for Guggenheim Exploration on the EPPA 7, Art Fraction and Pine Bay Areas, North Arm and Sourdough Bay, Athapapuskow Lake, Flin Flon Area, Manitoba (report and maps)	1":100'
Feb., 1970	70-002	Horizontal Loop EM Survey, Eppa 7, Athapapuskow Lake	1":200'
March, 1970	70-006	RONKA 2400 CPS survey of Alberts Lake, CON and GAP Claims Sourdough Bay (south part)	1":400'
June, 1970	70-020	Horizontal Loop EM Survey, Thomson Lake	1":200'
June, 1970	70-021	Birchbay, East of Pineroot River	1":200'
		Cerro Mining Co. of Canada Ltd. - Pine Bay Mine - Surface Geology Map (no legend included on map, units not numbered)	1":200'
Jan., 1971	71-G-001	Plan of Diamond Drilling	1":200'
1971	71-005	Diamond Drill Hole No. 1	1":200'

DATE	DWG. No.	TITLE	SCALE
May, 1971	71-006	Magnetometer Survey, MP Fr. and MP1 Fr., East side of Sourdough Bay	1":50'
1971?	71-007	Claim Map	
1971		Eppa Group EM Survey - EM SE and RONKA	1":400'
1973		Birch Bay - TURAM Survey	
1973	73-029		
1973	73-030		
1973		Sourdough Bay and Area	
		Pineroot Project - Key Maps	

PINEBAY MINES LTD.

DATE	DWG. No.	TITLE	SCALE
1970?		Interpretation of IP data on Sourdough Bay, Manitoba	1":200'
1974	76-24	Magnetometric Survey of Cu-Zn Deposit - Sourdough Bay	1":50'
July 25, 1976		Proposed program of development for immediate future	
1976		Drill hole location map - Cabin Zone	1":50'
1976?		Section 2+00N (Hole 118)	1":50'
		Section 3+00N (Hole P-31)	1":50'
		Section 3+50N (Hole P-31)	1":50'
		Section 4+00N (Hole P-31)	1":50'
		Section 4+50N (Hole P-31)	1":50'
		Section 5+00N (Hole P-31)	1":50'
		Section 5+50N (Hole P-31)	1":50'
1976		Cross-section of DDH TB-1	1":50'
1976		Cross Section of DDH SP-1	1":50'
1976		Cross-section of DDH 106	1":50'
1976		Cross-section of DDH 107 (-85°) through 4 & 15 M	1":50'
1976		Cross-section of DDH 108, 109, 113	1":50'
1976		Cross-section of DDH 110	1":50'
1976		Cross-section of DDH 111	1":50'
1976		Cross-section of DDH 112, 114	1":50'
1976		Cross-section of DDH 115	1":50'
1976		Cross-section of DDH 116	1":50'
1976		Cross-section of DDH 117	1":50'
1976		Cross-section of DDH 118	1":50'
1976		Cross-section of DDH 119	1":50'
1976		Cross-section of DDH 119 (-45°) - Cabin Zone	1":50'
		Baker Patton	1":50'
1976		Cross-section of DDH 120	1":50'

DATE	DWG. No.	TITLE	SCALE
1976		Cross-section of DDH 121	1":50'
1976		Cross-section of DDH 122	1":50'
1976		Cross-section of DDH 123	1":50'
1976		Cross-section of DDH 124	1":50'
1976		Cross-section of DDH 125	1":50'
1976		Cross-section of DDH 126	1":50'
1976		Cross-section of DDH 127	1":50'
1976		Cross-section of DDH 128	1":50'
1976		Cross-section of DDH 129	1":50'
1976		Cross-section of DDH 130	1":50'
1976		Cross-section of DDH 131 and W-131	1":50'
1976		Cross-section of DDH 132	1":50'
1976		Cross-section of DDH 133	1":50'
1976		Cross-section of DDH 134	1":50'
1976		Cross-section of DDH 135	1":50'
1977		Cross-section of DDH 136	1":50'
1977		Cross-section of DDH 137	1":50'
1977		Cross-section of DDH 138	1":50'
1977		Cross-section of DDH 139	1":50'
1977		Cross-section of DDH 140	1":50'
1977		Cross-section of DDH 140 (whiteprint)	1":50'
1977		Cross-section of DDH 141	1":50'
1977		Cross-section of DDH 142	1":50'
1977		Cross-section of DDH 143	1":50'
May, 1976		Diamond Drill Holes-1976, Zinc Deposit Sourdough Bay (Baker-Patton Area)	
		Longitudinal Sections Approx. 80 & 20W Looking West	1":50'
1976		EM-17L 1600 CPS - 2.29 miles	1":200'
1976		EM-17L 820 Hz - 1.98 miles	1":200'
1976		EM-17L 820 Hz - 1.21 miles	1":200'
1976		EM-17L 820 Hz - 1.93 miles (106 on map with grid co-ordinates)	1":200'
June, 1976	SB-76-25A	Sourdough Bay EM-17L 870 CPS 300' Cable	1":200'
	76-27	EM-17 820 CPS 400' Cable - Sourdough Bay	1":200'
	76-28	RONKA 2400 CPS 300' Cable - Sourdough Bay	1":200'
	76-029	Sourdough Bay Mag	1":50'

DATE	DWG. No.	TITLE	SCALE
July, 1976	76-30	Birch Bay Drill Holes	1":200'
July, 1976	88-76-30	Birch Bay and Area South survey showing location of diamond drill holes and geochemical assays of drill core	1":200'
Aug., 1976	76-54	Magnetometer Survey, Birch Bay	1":200'
Sept., 1976	76-58	Ground EM and MAG of Airborne Anomaly 30	1":200'
1976	76-58A, 58B	Horizontal Loop EM-17L and MF-1 Mag Survey of Airborne Anomalies No. 28, 29 an 30 near Sourdough Bay, Manitoba	1":200'
Sept., 1976	76-59	DDH 128, 129 on Bay 20 and Bay 22 Fr, super imposed on Horizontal Loop EM - 17L survey	1":100'
1976	76-59A	EM-17L (820 Hz - 300' Cable) Suvey of AM.10, North of Sourdough Bay, Manitoba	1":100'
	76-62	Ground EM and Mag. Survey of Anomaly 98, Athapapaskow Lake	1":100'
	76-67	Technical Cross-Section of DDH 131, W-131 and Relative Location of Projected Steep DDH -85°	1":100'
1976	76-68	Modified Cerro Pinebay Grid Map Showing Plan of D.D.H.(3) and Proposed Location of steep Diamond D.H. -85°	1":40'
	76-69	EM-17L Survey - Baker-Patton, Inphase Profile and the Horizontal Projection of D.D. Holes	1":100'
1976	76-70	Interpretation of IP data on Sourdough Bay, Manitoba, Cabin Zone, Baker-Patton Sketch Map of DDM 127, 112	1":200'
Nov., 1976		Sketch showing the location and horizontal projection of diamond dill hole 135 (traced from Aerodat Base map)	1":800'
1976	5B-76-22	Longitudinal Section, Diamond Drill Holes, 1976	1":50'
1977	77-01	Horizontal Loop EM Survey, Sourdough Bay Area, Lake Athapapuskow, Manitoba	1":200'
March, 1977	77-01A	Horizontal Loop Electromagnetic Survey, Sourdough Bay Area, Lake Athapapuskow, Mon. In Phase Profile	1":200'

DATE	DWG. No.	TITLE	SCALE
March, 1977	77-02	Horizontal Loop EM Survey, Sourdough Bay Area	1":200'
March, 1977	77-02A	Horizontal Loop Electromagnetic Survey, Sourdough Bay Area, Lake Athapapuskow, Mon. In Phase Profile	1":200'
March, 1977	77-03	Horizontal Loop Electromagnetic Survey, Sourdough - Birch Bay Areas, Lake Athapapuskow, Manitoba	1":200'
March, 1977	77-04	MF-2 Magnetometer Survey of IP Zones 1-6 on Sourdough Bay	1":200'
1977	77-05	McPhar M-700 Magnetometer Survey of Airborne Anomalies 34 and 39 on Sourdough - Birch Bay Area, Athapapuskow Lake, Manitoba	1":200'
March, 1977	77-06	Horizontal Loop Electromagnetic Survey Airborne Anomalies 74 & 75, Lake Athapapaskow, Manitoba	1":200'
1977	77-08A	Horizontal Loop Electromagnetic Survey, In-Phase Profile, Amulet Lake Area, Manitoba.	1":200'
1977	77-09	The Drilling of IP zones 1, 2, 3, 4, and 9 on Sourdough Bay, Manitoba	1":200'
	77-10	MF-1 Mag. Survey over anomaly 51 and 52	
1977	77-11	M-700 Mag Suvey over Cabin Zone - April 1977 and 67-055)	1":200'
1977	77-11-08	Vertical Loop EM Conductors on Sourdough Bay, Manitoba (Compiled from maps 66-121, 67-006, 67-054	1":400'
1977	77-12	Detail Plan Map - Grids 1, 2, 3, Sourdough Bay Area, Lake Athapapuskow, Manitoba	1":400'
1977	77-12A	Topographical Base Map, Sourdough Bay Area, Lake Athapapuskow, Manitoba	1":400'
	77-12B	Grid Map, Sourdough Bay	1":400'
	77-13	Mineralization on Don Jon Island	1":100'
	77-13A	Sketch Showing the Detail Geology of Don Jon Island on Thompson Lake, Manitoba	1":100'
1977	77-14-00	Airborne Anomalies, Sourdough Bay, Manitoba	1":400'
1977	77-14-01	Horizonal Loop EM - 17L Conductor Axis 20 Hz. - 400' Cable (compiled from Map 77-01, 77-02, 77-03)	1":400'
1977	77-14-02	ABEM Horizontal Loop Conductors, Sourdough Bay, Manitoba, 3520 Hz - 300' Cable (compiled from B. Dunlop Survey)	1":400'

DATE	DWG. No.	TITLE	SCALE
1977	77-14-03	TURAM Conductors, Sourdough Bay, Manitoba 660 Hz - 100' Cable (Compiled from 67-101, 70-012-013, 73-029	1":400'
1977	77-14-04	RONKA - 876 Mz Sourdough Bay, Manitoba	1":400'
1977	77-14-05	Zone of Anomalous Chargeability, Sourdough Bay, Manitoba	1":400'
1977	77-14-06	Peaks of low resistivity, Sourdough Bay, Manitoba	1":400'
1977	77-14-07	Magnetic Highs on Sourdough Bay, Manitoba (compiled from maps 67-025, 68-007, 68-03, 68-044, 69-G-27 & 76-54)	1":400'
1977	77-14-09	Geochemical Analysis of Vertical (-90°) Holes on Sourdough Bay, Manitoba - compiled from 1976 Diamond Drill logs *excellent map for locations	1":400'
	77-14-10	Location of Horizontal Projection of D.D. Holes on Sourdough Bay	1":400'
1977	77-14-12	Geology of Sourdough Bay	1":400'
	77-16-00	Airborne Anomalies on Thompson Bay, Manitoba - Compiled from Aerodat Interpretation Map	
1977	77-16-04	Horizontal Projection of D.D.H. 135-76 on Athapapuskow Lake, Manitoba	1":400'
1977	77-17-05	Location and Horizontal Projection of D.D. notes on Pineroot River - Whitefish Lake (Compiled from D.D. Hole Logs and Cross-Section)	1":400'
Nov., 1977	77-20-00	Compilation Key Map of the Pinebay Property on Athapapuskow Lake	1":800'
1977	77-20-01	Compilation Key Map of the Pinebay Property on Athapapuskow Lake (South Portion)	1":800'
Feb., 1977		Sketch showing grids 1, 2, and 3, Birch and Sourdough Bay Areas	1":800'
1977	77-H-G	General Information Map of Mineral Deposits on Sourdough Bay	1":400'
1978		Longitudinal Projection Pinebay Mine, A, B, C, D, Zones	1":100'
		Longitudinal Projection Pinebay Mine "B" Zone (shows intersection of drill holes)	1":100'
		Longitudinal Projection Pinebay Mine "C" Zone	1":100'

DATE	DWG. No.	TITLE	SCALE
		Longitudinal Projection Pinebay Mine "D" Zone Sketch showing the location and Horizontal Projection of diamond drill holes 128 and 129 on Ol. P-3890C Evaluation of 1977 Exploration Program	1":100' 1":800'
July 25, 1976		Proposed program of development for immediate future objective	1":2640
July 26, 1976		Quarterly Report on the Pinebay Project for Pinebay Mines Ltd. Flin Flon Area - Manitoba. Relative to agreement No. 36 by A. L. Parres	
October 15, 1976		Quarterly Report	

PINEROOT MINERAL ENTERPRISE

DATE	DWG. No.	TITLE	SCALE
Oct., 1966	66-122	Mink Lake; Pineroot Claim	1":400'
1967?		Longitudinal Section of Drill Holes Intersections?	1":50'
		Section 6+00N	1":50'
		Section 2+50N	1":50'
		Section 1+50N	1":50'
		Section 1+00N	1":50'
		Section 0+50N	1":50'
		Section 0+00N	1":50'
		Section 0+50S	1":50'
		Section 1+00S	1":50'
1967		Diamond Drill Hole Sections	
1967		67-7, 8, 16	1":50'
1967		67-9	1":50'
1967		67-10	1":50'
		67-10	1":100'
1967		67-11, 14	1":50'
1967		67-2, 12	1":50'
1967		Diamond Drill holes 67 2-12 and 25	1":50'
1967		67-15, 18	1":50'
1967		67-19	1":50'
1967		67-20	1":50'
1967		67-13, 17, 21	1":50'
1967		67-22	1":50'
1967		67-23	1":50'
		Diamond Drill Hole 67-26	1":50'
1967		Sourdough Bay - Location of diamond drill holes w/grid coor.	1":200'
	67-035-69	Sourdough Bay drill hole loc.	1":200'
	67-043	Pineroot - EM	1":200'
	67-045	Whitefish - EM	1":200'

DATE	DWG. No.	TITLE	SCALE
Nov., 1967	67-048	Tip Top Claim/ EM Survey	1":400'
Nov., 1967	67-053	Loop: Athapapuskow	1":200'
	67-055	Clarke Lake - EM	1":200'
Dec., 1967	67-057	Whitefish Lake/Tri-J Survey	1":400'
	67-058 & 059	Whitefish - EM	1":200'
June, 1967		Longitudinal Section and Plan of Diamond Drilling on the Pineroot Mineral Enterprise Property, Sourdough Bay Area, Manitoba	1":100'
?		Assay Plan of the Pineroot Mineral Enterprise Property, Sourdough Bay, Manitoba	1":100'
June, 1967		Geological Plan of the Pineroot Mineral Enterprise Property Sourdough Bay Area	1":100'
June, 1967		Geological Plan of the Pineroot Mineral Enterprise Property, Sourdough Bay Area Athapapuskow Mining Division, Manitoba	1":100'
1967 ?		Plan showing location of drill holes 27 and 28 as determined Topari Test	1":200'
	BP-68-1	Plan of Diamond Drill Hole Locations, Sourdough Bay - Athapapuskow Lake, Manitoba	1":100'
July, 1968	Figure 1	Baker-Patton Prospect. Plan map showing GEC grid, H.B.M. & S Co. property line, GEC EM conductors and drill holes, surface geology, and location of longitudinal sections	1":400'
July, 1968	Figure 2	Baker-Patton Prospect. Longitudinal section at 80+20W (H.B.M. & S. Co. grid) showing drill holes, important mineralized intersections, and indicated ore shoots	1":100'
July, 1968	Figure 3	Baker-Patton Prospect. Longitudinal section at 68+50W (H.B.M. & S. Co. grid) showing drill holes, important mineralized intersections, and indicated ore shoot.	1":100'
July, 1968	Figure 4	Baker-Patton Prospect. Longitudinal section at 68+80W (H.B.M. & S. Co. grid) showing drill holes important mineralized intersections	1":100'

DATE	DWG. No.	TITLE	SCALE
Jan., 1968	M.S.	Proposed locations of damsites for draining Sourdough Bay	
Jan., 1968	68-000 to 005	Sourdough Drill Holes	1":400'
Jan., 1968	68-011	Sourdough Drill Holes	1":400'
	68-012	Mag Survey/Balckfish	1":200'
Feb., 1968	68-013 to 016	Sourdough Drill Holes	1":400'
Feb., 1968	68-17 & 18	Athapapuskow Drill Holes	1":400'
Jan., 1968	68-019 & 020	Blackfoot Lake Drill Holes	1":400'
Feb., 1968	68-021 to 023	Scotty Lake Drill Holes	1":400'
Jan., 1968	68-024 & 025	Schist Lake Drill Holes	1":400'
	68-027	Lawson Linecutting	1":800'
April, 1968	68-029	RONKA: Sourdough Bay	1":200'
	68-031/031A	Fluxgate Magnetometer Survey of Sourdough Bay, Manitoba	1":200'
May, 1968	68-031	Composite Map Showing Magnetic Surveys over Pinebay Orebody and Area to the North and East	1":200'
May, 1968	68-031A	Ground Mag/Sourdough	1":200'
May, 1968	68-037	Sourdough Linecutting	1":1320'
June, 1968	68-039	Quarrying Claim	1":200'
July, 1968	68-042	Pineroot - EM	1":400'
	68-045	Birch Bay composite	1":400'
Jan., 1969	68-048	Flinto[illegible]M Survey	1":400'
Sept., 1969	68-057	RONK[illegible] - Sour Claim	1":400'
	68-062	RONKA - New Deal Claim	1":400'
	68-071	Pineroot - EM	1":2640'
Dec., 1968	68-072	Sourdough EM cond.	1":200'
1969		Plan of Sourdough Bay Area showing Location of Diamond Drill Holes	1":200'

DATE	DWG. No.	TITLE	SCALE
1969		Sourdough Bay - Location of diamond drill holes. No co-or.	1":200'
June, 1969	69-025	RONKA - Bakers Narrows	1":400'
April, 1969	69-027	Pinebay Mag Survey	1":200'
June, 1969	69-028	Bay EM survey	1":200'
June, 1969	69-033	GO Claim EM survey	1":400'
Oct., 1969	69-038	Gwen Claim/H. Loop EM	1":400'
Oct. 21, 1969		General Surface Layout	1":200'
1970		RONKA 2400 CPS EM Survey - New Deal Claims	1":400'
		Longitudinal Section and Plan of Diamond Drilling on the Pineroot Mineral Enterprise Property, Sourdough Bay Area, Manitoba	1":100'
April, 1970	70-004	Thompson Option: RONKA Survey	1":400'
April, 1970	70-007	RONKA; Alberts Lake	1":400'
May, 1970	70-018	Alberts Lake EM	1":400'
April, 1970	70-019	Bay 23 FR EM Survey	1":400'
	71-007	Sourdough 13 & area	
	72-001	RONKA - Eppa Group 600 HZ	1":400'
	73-029	Turam - Sourdough Bay check loop	1":1/2mi
	73-030	Turam - Sourdough Bay check loop	1":1/2mi

TRANSCAN OPTION

DATE	DWG. No.	TITLE	SCALE
?		Transcan Option, Longitudinal Section	1":50'
?		68 & 80W - 67 & 70W, Looking West Transcan Option Section 70+00W	1":50'
		Coloured Sections Reduced to 1/2 size	
		68+00 N	
		69+00 N	
		70+00 N	
		71+00 N	
		72+00 N	
		73+00 N	
		73+50 N	
		74+22 N	
		80+20 W Longitudinal Section	
		White prints at 100%	
	B.P. 1	Longitudinal Section Approx. 68+50 W Looking West	1":50'
	B.P. 2	Section 74+00N	1":50'
	B.P. 3	Section 76+00N	1":50'
	B.P. 4	Section 77+00N	1":50'
	B.P. 5	Section 78+00N	1":50'
	B.P. 6	Section 79+00N	1":50'
	B.P. 7	Section 80+00N	1":50'
	B.P. 8	Section 82+00N	1":50'
	B.P. 9	Section 84+00N	1":50'
	B.P. 10	Section 86+00N	1":50'
	B.P. 11	Section 88+00N	1":50'
	B.P. 12	Longitudinal Section 68+80W - 67+70W	
	B.P. 13	Section 62+00N	1":50'
	B.P. 14	Section 64+00N	1":50'
	B.P. 15	Section 65+00N	1":50'
	B.P. 16	Section 66+00N	1":50'
	B.P. 17	Section 67+00N	1":50'
	B.P. 18	Section 68+00N	1":50'
	B.P. 19	Section 69+00N	1":50'
	B.P. 20	Section 70+00N	1":50'

DATE	DWG. No.	TITLE	SCALE
	B.P. 21	Section 72+00N	1":50'
	B.P. 23	Section 60+00 N	1":50'
	B.P. 24	Section 64+00N	1":50'
		66+90W Looking West	1":50'
	B.P. 33	Section 76+00N	1":50'

TRI-J MINERAL SURVEYS LTD.

DATE	DWG. No.	TITLE	SCALE
1966		RONKA Horizontal Loop Suvey on the North Section of Sourdough Bay Pineroot Area, Manitoba Report and enclosed maps	1":200'
1966		SE-300 Electromagnetic Survey on MIK and BAY claims, Pineroot River area, Manitoba (report)	
Sept., 1966		Pineroot Venture, Vertical EM Survey of Bay Claims - Sourdough Bay Area - Manitoba	1":400'
July, 1966	66-119	Vertical EM Survey, of Beaverhouse Lake Area	1":200'
April, 1966	66-120	Vertical EM Survey, Bols and Clarke Lake Area (East part)	1":200'
April, 1966	66-120A	Vertical EM Survey, Bols and Clarke Lake Area (West part)	1":200'
Sept., 1966	66-121	Pineroot Venture, Vertical EM Survey of Bay Claims - Sourdough Bay Area - Manitoba	1":400'
?		Sourdough Bay - Lake Athapapuskow, Pineroot Project A.B.E.M. Electromagnetic Survey	1":200'
Oct., 1966	66-125	Vertical EM Survey of Eppa Claims - Pineroot River Area	1":400'
Oct., 1966	66-136	Pineroot Project Key Map	1":2640'
1967		Magnetometer Survey of Bay 19 and 20	1":100'
1967?	67-001	Preliminary EM Survey of TEE Claims 1-12, Wekusho Lake Manitoba	1":200'
	67-004-A	RONKA Survey of Clarke Lake	1":200'
	67-005	Detail EM Survey of MIK Claims 20 - 21	1":200'
	67-006	Detail EM Survey of Bay 19 & 20	1":200'
1967	67-006	Detail EM Survey of Bay 19, 20 (*north end of Sourdough Bay)	1":200'
1967	67-006-A	Detail E.M. Survey on Bay 19 & 20 and MP 12 & 14	1":200'

DATE	DWG. No.	TITLE	SCALE
	67-025	Magnetometer Survey of Bay Cls 19 & 20, Sourdough Bay - Manitoba Lease, Sourdough Bay, Manitoba	1":100'
Nov., 1967	67-054	Vertical Loop Electromagnetic Survey on 13 Mineral Claims, in the Sourdough Bay - Flintoba Lake Area, Athapapuskow Lake Manitoba.	1:200'
Oct., 1966	67-122-B	Composite Map of Root Claims - Mink Lake Area	
Oct., 1966	66-124	Vertical EM Survey of PIC Claims - Scotty Lake Area	1":400'
?	19-020	RONKA 876 CPS EM Survey, North part of Sourdough Bay	1":200'
?	19-020A	RONKA 876 CPS Survey, South part of Sourdough Bay	1":200'
1967		Pineroot Project - ABEM Electrmag	1":200'
1967		Tip Top & Eppa claims - Electromag Sur. w/grid	1":400'
1967		Sourdough Bay Area - Vertical Loop Electromag Sur. MP 11-12-13 Sour 1-3, 7-10	1":200'
1967		Amulet Lake - Clarke Lake Area - Vertical Loop Eletromag Sur.	1":200'
1967		Whitefish Lake - Electromag Survey	1":400'
1967		Whitefish Lake - Electromag Survey (Northern Parts)	1":200'
1967		Sourdough Bay - Grid map of electromag survey	1":200'
1967		Long Lake - EM Survey	1":200'
April 1967		A.B.E.M. Electromagnetic Survey of Thompson Lake - Long Lake (Flintoba Lake)	1":200'
1967		Finger Lake - EM Survey	1":200'

DATE	DWG. No.	TITLE	SCALE
1967		Sourdough Bay - Mag Survey	1":200'
1967		Bols Lake - EM Survey	1":200
1968		Sourdough Bay - drill hole location	1":400'
1968		Sourdough Bay - drill hole location	1":400'
1968		Sourdough Bay - drill hole location	1":400'
1968		Sourdough Bay - drill hole location	1":400'
1968		Sourdough Bay - Mag Survey	1":200'
1968		Blackfoot Lake & Kit Lake Area - Mag Survey	1":200'
1968		Sourdough Bay - Mag Survey	1":200'
1968		Whitefish - EM Survey	1":400'
1968		Sourdough Bay - Mag	1":200'
1968		N.E. Bay, Alberts Lake - EM Survey	
1968		Pineroot Project - Linecutting but not situated	
1968		Bols Lake - Grid Map	
May, 1971		Magnetometer Survey (survey near Olive 609 claim north end of Sourdough Bay)	1":50'

SOURDOUGH BAY MINES LTD.

DATE	DWG. No.	TITLE	SCALE
1968	68-062	Sour-Gar-Sou, ALP 9&10	1":400'
1968	68-6-57	Sketch Map of Geophysical Conductors	

CALLINAN FLIN FLON MINES

DATE	DWG. No.	TITLE	SCALE
Nov. 1, 1928		Assay Plan 1st Level	1":20'
Nov. 1, 1928		Assay Plan 2nd Level	1":20'
Nov. 1, 1928		Assay Plan 3rd Level	1":20'

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RECORDING OFFICE
MINES
WINNIPEG, MAN.

'93 JUL 12 AM 10 25

PINE BAY PROJECT

GRAVITY SURVEY

FLIN FLON AREA, MANITOBA

FOR

PLACER DOME INC.

JULY, 1992

Laurence Bdef for
DAVID C. BINGHAM , B.Sc.

PATTERSON MINING GEOPHYSICS LTD.
LA RONGE, SASKATCHEWAN

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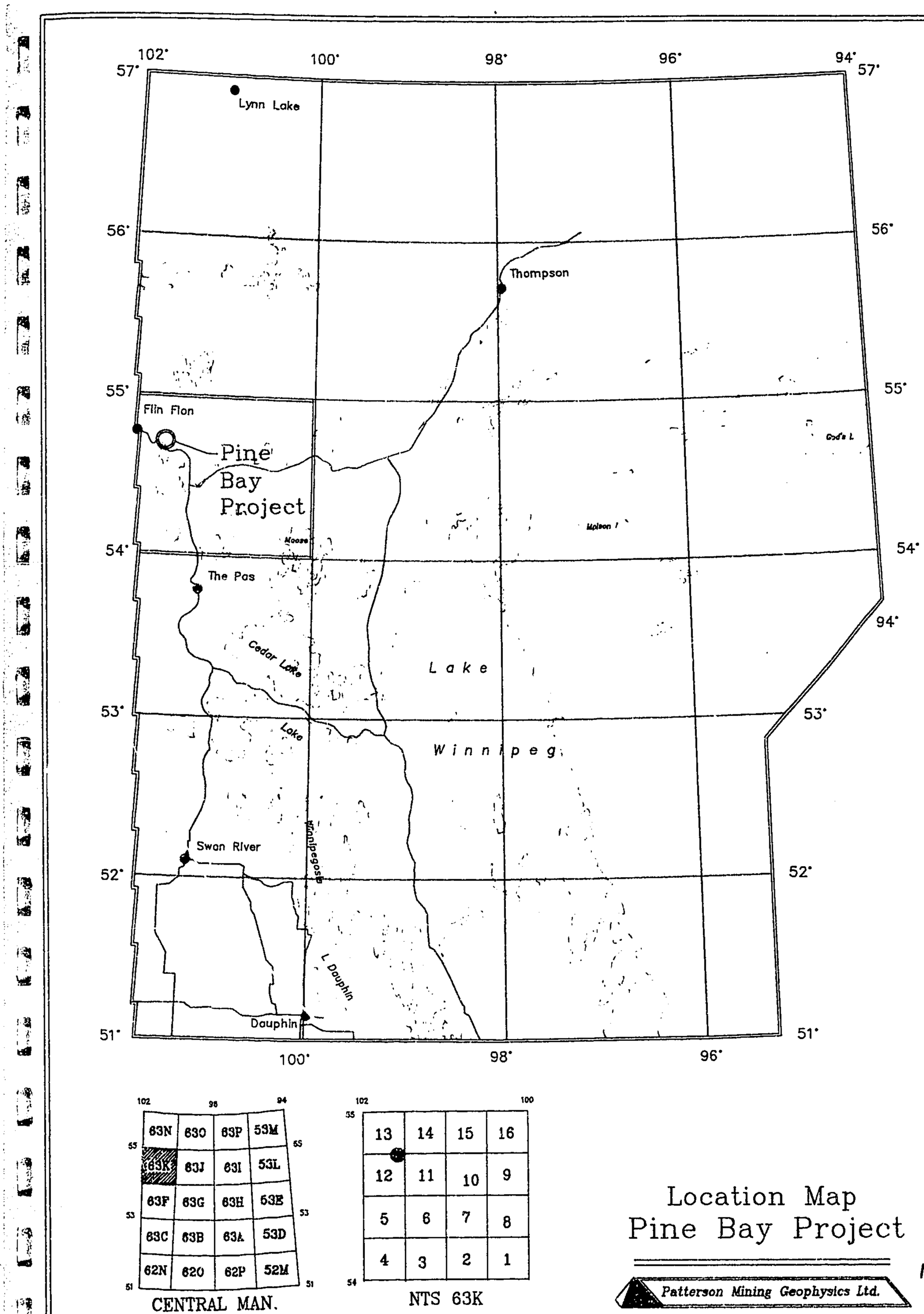
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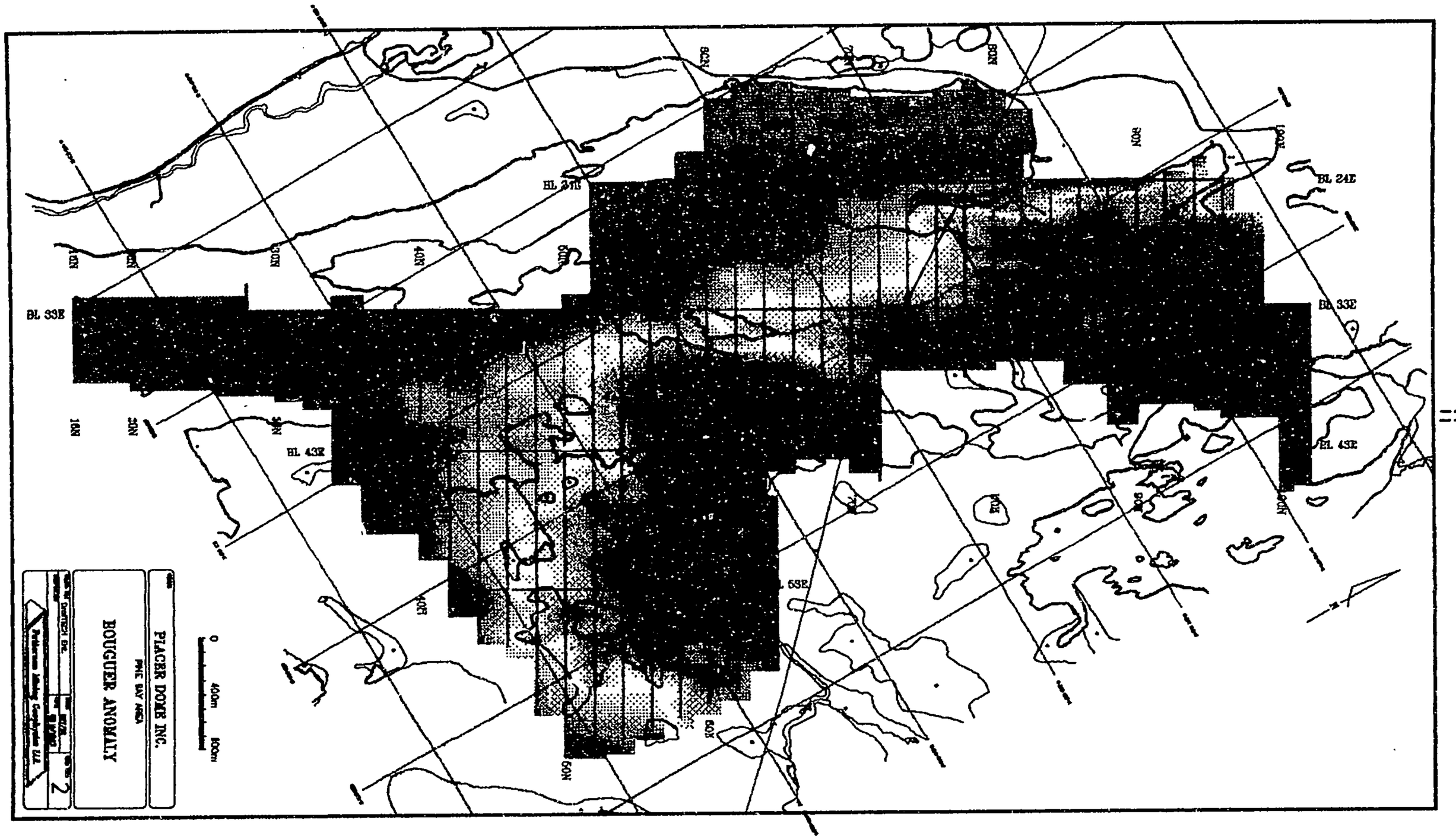
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Location Map
Pine Bay Project

Patterson Mining Geophysics Ltd.

Map 1


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BL 63E
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PLACER DOME INC.
PINE BAY AREA
BOUGUER ANOMALY
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400m
800m
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1.0 INTRODUCTION

A gravity survey was carried out in the North Star Mine area, located approximately 50 km east of Flin Flon, Manitoba (see Location Map, page i). The work was carried out by Patterson Mining Geophysics Ltd. of La Ronge, Saskatchewan.

The crew mobilized on March 2nd, 1992 and stayed at the cabin residence of Lou Parres on the job site. The field portion of the survey was completed on April 14th, 1992. The survey was conducted on a 7 day per week basis. Inclement weather played a small part in delaying some of the ice readings.

The elevations were surveyed at 25 meter intervals on even numbered lines spaced 200 meters apart. The gravity survey was conducted at 50 meter intervals on the surveyed lines. A total of 1858 gravity stations were completed, of which 802 were on ice. This total includes 72 stations which were added to detail a response on lines 85 N to 88 N.

2.0 SURVEY SPECIFICATIONS

2.1 Transit Survey

The elevation transit survey was carried out using a Sokkia Total Station EDM/Theodolite Set 3. Survey station measurements were taken at 25 meter intervals. Vertical control was maintained by closed survey loops tied to a relative benchmark elevation of 105.000 meters. The benchmark is located at the west corner of the concrete base step at the south entrance of Lou Parres' cabin. Linecutting and chainage maps provided adequate horizontal control.

2.2 Gravity Survey

The gravity measurements were taken with Lacoste and Romberg Model G Geodetic Gravity Meters (serial # 789 and # 287). The gravity readings started and finished from one base station at the main benchmark with a relative observed gravity of 100.07 mgals. The absolute gravity values were not determined but could be tied to the regional gravity net if desired. Since absolute elevations were not determined (tied to geodetic bench marks), the establishment of absolute gravity values is academic.

A total of 1858 gravity measurements were taken, of which 802 were on ice. The gravity measurements were taken at 50 m station intervals with 200 m line separations. The area of the grid from line 85 N to line 88 N between 2900 E and 3600 E was detailed with 25 m station intervals and 100 m line separations. Water depths were determined at each ice location by a measurement through a drilled ice hole.

Repeated observed gravity values averaged +/- 0.03 mgals on land repeats and +/- 0.06 mgals on damped ice reading locations.

3.0 DATA REDUCTION

3.1 Transit Survey

The elevations of the surveyed stations were calculated on a Lotus 1-2-3 spreadsheet. Vertical control was carried throughout the grid area from the main benchmark. Elevation errors were not spread through survey loops since the ties were 5 cm or better (equivalent to 0.01 mgal or less on Bouguer gravity). Once the calculations were complete the data were transferred to an XYZ format data file for further plotting and use with the GEOSOFT mapping package.

3.2 Gravity Survey

The base station used for the survey was the concrete step of Lou Parres' cabin. All the data was adjusted and is tied to the relative observed gravity of 100.07 mgals. The gravity data recorded in the field consisted of line and station, meter reading, date, time and the height of the meter base plate above the surveyed mark. The data was processed with the GEOSOFT GRAVRED gravity reduction program which calculates the gravity data as follows :

i. G(observed) = G(reading) + Tide + Drift + HI correction

   The gravity readings are converted to mgal values determined by the scale factor for the gravimeter.

   The tide corrections are based on the input longitude, latitude and time.

   The meter drift is calculated and corrected for each loop of gravity readings.

   The free air effect for the HI (height of instrument) correction of the base plate is also added to obtain the absolute (observed) gravity.

ii. The theoretical gravity for the earth is calculated for the latitude correction based on the 1967 formula. This value is subtracted from the absolute gravity.

iii. Topographic or terrain effect calculations were based on the two dimensional survey profiles and were done on a line by line basis using a Lotus 123 spreadsheet.

iv. The Bouguer correction is then added, based on the input density of 2.67 g/cc. An additional Bouguer correction is added to compensate for water depth. The final result is the Bouguer gravity values:

Bouguer Gravity = Observed Gravity + Latitude Correction + Free Air Correction + Terrain Correction + Bouguer Correction + Lake Depth Correction

The data is stored on diskette in the files GRAV.WK1 and GRAV.XYZ. The file GRAV.WK1 is a Lotus 123 worksheet file containing X and Y (station & line) co-ordinates, elevation, terrain corrections, observed gravity, lattitude corrected gravity, lake depths, calculated free air gravity and the calculated final Bouguer gravity at a density of 2.67 g/cc. The file GRAV.XYZ contains the station, line, station, elevation and Bouguer gravity values in a GEOSOFT XYZ file format.

4.0 DATA PROCESSING

The Bouguer gravity data was further processed with the GEOSOFT MAGMAP modules to produce residual and 2nd derivative (vertical gradient) maps. The following steps were used in the GEOSOFT MAGMAP routines to generate the processed maps.

i. The data was gridded in two directions using the BIGRID routine. During this process a simple Hanning filter was applied. This data is plotted as the Bouguer Anomaly Map. A first order trend was removed from the data using the GRIDTRND routine prior to processing.

ii. To reduce edge effects the data set was expanded by 10% with GRIDXPND. At this stage the grid area was expanded to a square region and the unsurveyed portions were filled in with trend calculated values using the GRIDFILL routine.

iii. The data was transformed from the spatial domain to the wave number domain with the program FFTIN.

iv. All filters were applied in the wave number domain to produce regional-residual, and 2nd vertical derivatives. The 2nd vertical derivatives were smoothed with a Hanning filter to reduce noise.

The regional-residual filter used a Gaussian filter function with a standard deviation (cutoff point) of .00033 cycles/meter (3 km wavelength). The 2nd derivative map required no input parameters.

v. The regional-residual and 2nd vertical derivatives were then inverse Fourier transformed from the wave number domain to the spatial domain with the FFTOUT routine. At this stage the recovered outputs were masked against the original data set with GRIDBOOL using a Boolean function to recover the original surveyed points. The previously removed first order trend was returned to the regional gravity component.

5.0 INTERPRETATION

5.1 Discussion of Results

The final data accuracy can be expressed as a summation of individual error estimations. The sum of possible errors from drift (.02 mgal or less), repeatability (.03 to .06 mgals on land or ice), survey accuracy (5cm = .01 mgal), and water depth measurement (.01 mgal) is in the order of 0.10 milligals.

The final Bouguer gravity is contoured at 0.1 mgals and does not appear to contain an excessive amount of noise. In general the main contributions to the geologic noise level will be from low density overburden such as muskeg and from side terrain effects, since the terrain correction was calculated based on two dimensional profiles.

Low density overburden materials or sediments may affect the gravity response by as much as .05 mgals per meter of overburden. This problem appears to be minimal over most of the large lake areas, but seems quite pronounced in the eastern section of the grid between 4200 N and 6300 N. This response is most evident in the residual gravity map. This area contains a number of beaverponds and shallow, sediment loaded lakes which appear as low gravity responses.

The terrain effects are generally less than 0.10 mgals although they exceed 0.40 mgals in isolated cases near cliffs. The two dimensional terrain corrections appear to work fairly accurately for the grid area, since the lines appear to be crossing the topographic trends.

No high pass filtering was performed on the data with the exception of a simple Hanning filter appplied to the Bouguer gravity and 2nd derivative maps. For high pass filters to be applied effectively without losing response amplitude and definition, the sampling rate of the data should be increased to 25 meter intervals.

The regional separation was calculated using a separation wavelength of 3 km. This would effectively remove responses deeper than 1500 meters. Decreasing the wavelenth reduces the amplitudes of the residual responses and tend to enhance noise.

The 2nd derivative filter tends to enhance noise, but also gives increased resolution over response areas and structures. The noise was somewhat reduced with a Hanning filter. The noise levels should be reduced by pre-applying high pass filters before processing, but the resolution of the data would be reduced due to the large data interval.

5.2 Conclusions

The Bouguer gravity is dominated by strong regional and structural trends which mask many of the gravity responses. The interpretation of gravity anomalies should be based on the residual and 2nd derivative maps.

Discussions with Placer Dome Inc. geologists enabled rough interpretations of many of the gravity anomalies present on the residual gravity map.

The gravity responses on the eastern edge of the grid from lines 4200 N to 6400 N are part of the regional response. This response remains in the residual gravity due to incomplete sampling of the regional.

The pronounced high trend on the west edge of the grid from lines 6000 N to 9800 N are due to a higher density intusive gabbro unit.

The linear gravity response from 3800 E, 7200 N to 3300 E, 5600 N is also interpreted as an intrusive gabbro unit. This unit bends and continues from 3300 E, 5400 N to 3500 E, 4200 N. The same unit pinches out and bends again to continues from 3600 E, 3600 N to 3600 E, 1600 N. The linear gravity response from 3800 E, 10200 N to 3900 E, 8800 N seems to be part of the same trend.

The North Star Mine, the Cabin Zone and the Baker-Patton Zone are delineated on the residual gravity map.

The North Star Mine Zone is heavily masked in the Bouguer gravity map and is readily seen on the residual gravity map. This zone appears to have a large southern extent on the 2nd derivative map.

APPENDIX I

Instrument Specifications

SOKKIA TOTAL STATION EDM/THEODOLITE SET 3

Telescope:	coaxial, erect image	
	Length	170 mm
	Objective aperture	45 mm
	Magnification	30 x
	Resolving power	3"
	Field of view	1 deg 30 '
	Minimum focus	1.3 m
Angle Measurement		
	Horizontal circle	Diameter: 80 mm Direct reading: 10" model
	Vertical circle	Diameter: 70 mm Direct reading: 10" model
	Damping system	Magnetic compensator. Range: +/- 5' Setting accuracy: +/- 0.5"
Distance Measurement		
	Range	1000 m - 2800 m (1 to 9 prisms)
	Accuracy	+/- (5 mm + 3 ppm)
	Unambiguous	1,999.999 m
	Measuring range	measure: 1 mm
	Display resolution	track: 10 mm
	Measuring time	measure: 4 sec track: every 0.4 sec
	Atmospheric correction	-99 to 199 ppm (1 ppm step)
	Prism constant correction	0 to 9 cm (1 cm step)
	Earth curv./Refr. correction	Selectable ON / OFF
	Audio target acquisition	Selectable ON / OFF
	Operating voltage	6V DC

Power Supply: Integral battery BDC18 detachable, rechargeable 6V DC Ni-Cd.

Keyboard: Input mode, Angle input, Setting out data input.

Measuring mode:

Slope distance	Horizontal distance
Height difference	N - coordinate
E - coordinate	Setting out

Sensitivity of level:	Plate level 30"/2 mm Circular level 10'/2 mm
Optical plummet:	Image erect Magnification: 3 x Minimum focus: 0.1 m

Display unit:	8 digit LCD
Operating temperature:	-20 C to + 50 C
Dimensions:	175 x 170 x 327 mm 7.2 Kg (case 5.7 Kg)

Lacoste-Romberg Gravity Meter

Model G Gravity Meter S/N #789

Operating Temperature:	50.0 degrees C.
Reading line:	2.10

Electronic readout with sensitivity, zero adjust.

Variable damping

Range:	7000 milligals
Accuracy:	+/- 0.01 milligals
Drift Rate:	less than 1 milligal / month
Note:	LaCoste & Romberg gravity meters are sealed to eliminate any effect from changes in atmospheric pressure. As a safety precaution, they are also internally pressure compensated. The sensor is completely de-magnetized and then enclosed within a magnetic shield.
Weight:	approximately 19 lbs. The battery charger and levelling disc weigh an additional 8 lbs.
Power Source:	12 V DC rechargeable battery for field use. Battery charger/ eliminator is used to keep the meter at operating temperature on a 24 hour basis.

APPENDIX II

Personnel

The crew consisted of the following personnel:

David Bingham, Geophysicist	Mar 2 - Apr 14
Vern Allen, Gravity operator	Mar 2 - Apr 2
Lunn Johnston, Gravity operator	Mar 19 - Apr 14
Marlin Pohjavuori, Rodman	Mar 10 - Mar 20
Dalton Kingfisher, Rodman	Mar 21 - Apr 6
Seird Eriks, Rodman	Apr 9 - Apr 14

72637

LOGISTICS AND INTERPRETATION REPORT

of the

AIRBORNE GEOTEM® ELECTROMAGNETIC AND MAGNETIC SURVEY

over the

PINEBAY AREA

near

FLIN FLON, MANITOBA

for

PLACER DOME INC.

93 JUL 12 AM 10 25
RECORDING OFFICE
MINES
WINNIPEG, MAN.
216093

R. PEDERSEN

GEOTERREX LTD.

PROJECT NO. 656
MAY 1991

geoterrex ltd.

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I. INTRODUCTION

During the period 19 to 24 February, 1991 a combined airborne GEOTEM® electromagnetic and magnetic survey was flown for PLACER DOME INC. by GEOTERREX LIMITED. In all, 564 line-kilometres of survey were flown over the PINEBAY AREA near Flin Flon, Manitoba (see Figure 1).

The survey area covered, and went beyond, an irregular group of claims being investigated by Placer Dome which are underlain by Archaean rocks of the Churchill Province of the Canadian Shield. These rocks are associated with numerous mineralization occurrences. The magnetic and electromagnetic responses mapped over such rocks can yield important structural, textural and compositional information which will be useful in most exploration applications.

The data were compiled, processed and interpreted in Ottawa by Geoterrex and are presented as a GEOTEM® electromagnetic anomaly map, a total magnetic field contour map, a GEOTEM® electromagnetic qualitative interpretation map (includes magnetic interpretation), processed multichannel profiles, GEOTEM® anomaly listing and digital archives.

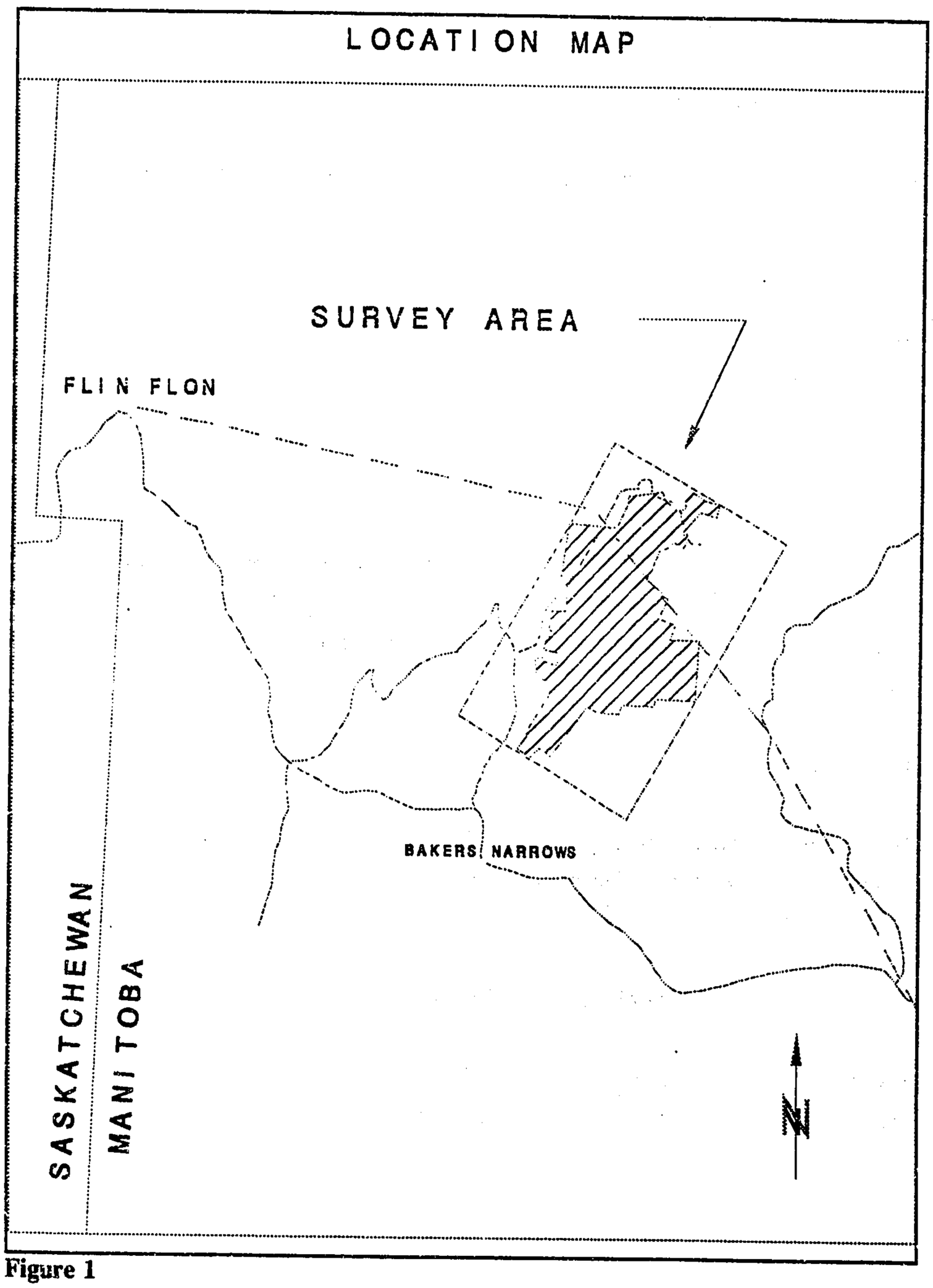

LOCATION MAP
SURVEY AREA
FLIN FLON
BAKERS NARROWS
SASKATCHEWAN
MANITOBA

Figure 1

II. SURVEY OPERATIONS

1. Location of the Survey Area

The Pinebay Area is located approximately 17 kilometres east of Flin Flon.

2. Flight Grid

Ninety one lines, 6 km long, oriented N60°W, at a nominal spacing of 100 m, covered the area. Two tie lines, 9 km long, perpendicular to the regular lines, were flown near either side of the survey block. A total of 564 line-km of data was collected.

3. Flight Altitude

The survey was flown at a height of 120 m above ground whenever possible, with regard to topographic relief and commensurate with the safety of the aircraft and bird. This flying altitude maintains the EM sensor (located in a towed bird at the end of a 135-m cable) at approximately 64 m above the ground.

4. Navigation

The navigation was primarily visual, using airphoto mosaics at a scale of 1:10 000, prepared by Geoterrex. The navigation was aided by the GPS satellite and Doppler navigation systems.

5. Aircraft and Geophysical On-board Equipment

The survey aircraft used was a CASA C212-200, twin turbo-prop STOL aircraft, maintaining a survey speed of 120 knots (220 km/h, 61 m/s).

The following equipment was on board the aircraft:

- GEOTEM® Electromagnetic System: Comprising a transmitter and loop, a digital receiver, and a sensor mounted in a towed bird. A description of the gate settings used for this survey may be seen in Table 1. A description of the system is included as Appendix A.

TABLE 1 **GEOTEM® Gate Description**

Gate	Centre	Width
1	393 µsec	156 µsec
2	549	156
3	705	156
4	862	156
5	1018	156
6	1174	156
7	1330	156
8	1487	156
9	1643	156
10	1799	156
11	1955	156
12	2112	156
13-20	Used for diagnostic purposes.	

Note: All times shown are in microseconds after termination of the transmitter current.

- MADACS Digital Acquisition System: Combining an Interdata 6/16 16-bit microprocessor and a Digi-Data 1640, 9-track, 800-bpi tape drive. The following information was recorded digitally:

  - 20 GEOTEM® EM channels
  - Magnetic total field
  - Barometric altitude
  - Radar altitude
  - Time (fiducials)
  - Doppler velocity along track
  - Doppler velocity across track
  - Doppler heading
  - Primary EM field
  - 60 hertz powerline monitor
  - Noise monitor
  - 3 reference monitors
  - 7 GPS fields: lat., long., elevation, acquired time, universal time, satellite time, standard deviation.

- Magnetometer: Scintrex cesium vapour, single-cell, split-beam magnetometer, 0.1 nT sensitivity, 1 s sample rate, mounted in a stinger on the tail of the aircraft.

- Altimeters:

  - Radar altimeter: King KRA405
  - Barometric altimeter: Rosemount AVH8

- Electronic Positioning Systems:

  - Trimble 4000 AX Global Positioning System
  - Decca 71 Doppler navigation system

- Tracking Camera: Panasonic VHS video with 4.2-mm lens mounted vertically, recording in NTSC mode, with fiducial marks every second.

- Analog Recorder: RMS-GR-33A-1 heat-sensitive graphic recorder, displaying the following information on a 32-cm wide chart, running at a speed of 9 cm/min:

  - 12 GEOTEM® EM channels (low-pass filtered with a 1.5-second time constant in real time) at a vertical scale of 200 ppm/cm for the first 10 cm, 400 ppm for the next 10 cm, and 800 ppm to the top of the chart.

  - Channels 3 and 12 are plotted, without the filter, at vertical scales of 400 ppm/cm and 200 ppm/cm respectively.

  - Channel 20 (sampied inside the primary field pulse) at a vertical scale of 2000 ppm/cm.

  - The primary EM field monitor at a vertical scale of 240 000 ppm/cm.

  - The earth's field monitor at a vertical scale of 100 000 microvolts/cm.

  - The total magnetic field at vertical scales of 20 and 500 nT/cm on Flight 1 and at 50 and 500 nT/cm on Flight 2.

  - Fourth difference of the total magnetic field at a vertical scale of 10 nT/cm.

  - The radar altitude at a vertical scale of 50 feet/cm.

  - The barometric altitude at a vertical scale of 24 millibars/cm, increasing downward.

- 60 Hz powerline monitor at a vertical scale of 150 000 microvolts/cm.

- Time (fiducial) markers, ticked every 2 seconds and labelled every 20 seconds.

- Absolute values of the magnetic total field and both altimeters are printed every 40 seconds.

6. Ground Computer Installation

- Compaq III microcomputer with a 40 Mb hard disk and Dell 310 micro-computer with a 110 Mb hard disc using GMAPS software developed by Geoterrex.

- Digi-Data, 9-track 1600-bpi tape drive, model 1649.

- Zeta plotter, model Zeta 8A.

- Epson LX-800 printer.

- Gentian table-top digitizer.

7. Diurnal Variation Monitor Equipment

- A Scintrex single-cell, split-beam, cesium vapour magnetometer measuring the total magnetic field at 0.1 nT sensitivity with a 0.5-second sample rate.

- A Madacs digital acquisition system, based on an Interdata 6/16 microcomputer, recording time and the output from the magnetometer.

- A Digi-Data tape recorder.

- A Seiko heat-sensitive analog recorder, displaying the total magnetic field at 2.9 nT/cm on 7-cm chart paper, run at 1.45 min/cm.

The base station was set up near the Victoria Inn, on the outskirts of Flin Flon.

8. Pre-Survey Tests

a) Figure of Merit

The aircraft is put through a series of pitches (± 5°), yaws (± 5°), and rolls (± 10°), to examine the noise induced in the magnetometer resulting from aircraft manoeuvres (due to the eddy currents generated by the aircraft itself plus the changes in orientation of the sensor with regard to the earth's field). This test shows how well the instrument is compensated.

The results of the Figure of Merit obtained on January, 1991, at Red Lake, are presented in Table 2.

TABLE 2 FIGURE OF MERIT RESULTS (with GEOTEM® system on)

Manoeuvre Direction	Roll	Pitch	Yaw	Totals (nT)
North	0.10	0.18	0.12	0.40
South	0.10	0.15	0.10	0.35
East	0.05	0.13	0.05	0.23
West	0.13	0.25	0.30	0.68
			Figure of Merit	1.66
			Average noise per manoeuvre	0.14

b) Lag Tests (Magnetic and Electromagnetic)

The camera on board the aircraft records its position, A, relative to the ground at time t_0. In fact, the sensor will arrive over A at time $t_1 > t_0$. Furthermore, because of electronic delays, the reading performed at time t_1 will be recorded on the magnetic tape at time $t_2 > t_1$. The difference $t_2 - t_0$ represents the "lag" between the actual position of the aircraft and the position of the corresponding reading on the magnetic tape.

The test is performed by flying the aircraft at survey altitude in opposite directions over a well defined magnetic and electromagnetic anomaly. The difference in the position of the anomalies, recorded in both directions, is equal to twice the lag. The following lag values were thus determined in the field.

- Magnetometer = 0.67 s (equal to 4 EM sample intervals)
- GEOTEM® EM = 4.1 s (equal to 25 EM samples)

These lag values were taken into account at the processing stage by shifting the digital values correspondingly back in time.

c) Altitude Calibration

The calibration of the radar altimeter is factory-set so as to display the aircraft's height above ground in feet. No further calibration is required. The linearity of the instrument output onto the analog chart was confirmed in September, 1989, by flying at heights of 300, 400, 500, 600 and 750 m.

d) Magnetic Cloverleaf Test

A cloverleaf test was flown in June 1990 to verify the heading differences of the magnetometer. The test consisted of flying in the four cardinal directions over a common point on the ground and examining the differences in the magnetic readings (normalized to a common datum). Table 3 gives the results of the test.

TABLE 3 CLOVERLEAF RESULTS JUNE 1990

Direction	Radar Altimeter	Diurnal	Air mag.	Air mag. corrected for diurnal and altitude (@1nT/100′)
West	457′	60237.49 nT	60470.85 nT	233.36 nT
South	366′	60239.39 nT	60474.10 nT	234.71 nT
East	405′	60240.08 nT	60471.75 nT	231.67 nT
North	395′	60239.45 nT	60470.60 nT	231.15 nT
Difference North-South = 3.56 nT				
Difference East-West = 1.69 nT				
Difference Average North South - Average East West = 0.67 nT				

e) **GEOTEM® EM System**

The GEOTEM® EM system benefits from a completely digital receiver which monitors continuously (i.e. six times a second) the current in the transmitter and the amplitude of the primary field, as seen at the bird-receiver. This feature permits an automatic internal calibration to parts per million and, therefore, pre-survey calibrations are not required (see Appendix A). However, a compensation is required because of the residual signal after the transmitter pulse. This residual results from a number of sources which include transmitter imperfection, aircraft response and receiver bandwidth limitations.

Compensation is carried out at the beginning and end of each flight and after two hours into any flight exceeding two hours. The EM signal is measured at flying heights well above the point where the ground response can be detected. The observed response can then be attributed to deviations of the system from ideal. This allows measurement of the peak transmitter amplitude, A^0_p, and the residual signal at off-time observation window n, A^0_n. Window n is assumed to be located at time t_n after the transmitter is turned off. A^0_p and A^0_n are averaged over 1 to 100 seconds depending on the particular survey design and ambient noise conditions. The resulting values of A^0_p and A^0_n are saved in the digital receiver for compensation of survey data.

The compensation process is applied as follows. The instantaneous peak primary received field, A^i_p, is measured for data stack, i. The signal in window, or gate, n, is measured for each data stack i to be A^i_n. The compensated value of A^i_n, denoted as W^i_n, is expressed as:

$$W_n^i = A_n^i - \left(\frac{A_p^i}{A_p^o}\right) A_n^o$$

9. Survey Specifications

Lines were reflown if any of the following limits were exceeded.

a) Navigation

Flight line spacing cannot exceed the nominal line spacing (100 m) by more than 80% for more than 3 km.

b) Altitude

Altitude must not exceed + 20 m of the prescribed 120 m terrain clearance for more than 3 km, unless required for safety.

c) EM Noise Level

Noise level must not exceed ± 20 ppm, as monitored on the late channels of the analog, with a 1.5-second time constant, over a distance of 3 km or more. Atmospheric disturbances must not become so frequent that their distortion of the signal cannot be accurately removed.

d) Magnetic Noise Level

Noise level must not exceed ± 0.5 nT over a distance exceeding 3 km. This is monitored on the analog fourth difference trace where 0.5 nT noise will be expanded to 5.0 nT.

e) Magnetic Diurnal Conditions

Magnetic storms were defined as exceeding 10 nT departures over a 2-minute chord.

10. Field Operations

The following Geoterrex personnel were present in the field:

R. Smith	Project Manager. Data Compiler/Processor.
R. Pedersen	Geophysicist.
S. Hay	Pilot.
A. Capyk	Co-Pilot/Aircraft Maintenance Engineer.
A. Proulx	Electronics Technician.
D. Cox	Electronics Technician.

The crew was based in Flin Flon from 19 to 23 February, 1991. The two production flights were on 20 and 22 February.

III. DATA PROCESSING

1. Flight Path Recovery

The flight path was recovered in the field by identifying points from the video tracking film onto the photomosaics, at a scale of 1:10 000. These points were then digitized on a flat-bed digitizer table, directly from the photomosaics.

After checking for errors by calculating the average speed of the aircraft between picked points, the flight path was automatically plotted at a scale of 1:10 000. The flight path coordinates were recovered in UTM metres, using the Clarke 1866 Spheroid projection with a central meridian of 99°W, a false easting of 500 000, a false northing of 0 and a scale factor of 0.9996.

Both the Doppler and GPS flight paths were also recovered and merged with the visual flight path by updating to the picked points, thus gaining more accurate positioning between the picked points, as well as an additional quality check on the accuracy of the picked points.

2. Magnetic Data

a) Editing of Air Data

After reformatting the field tapes, the flights were broken into individual lines and the total magnetic intensity, radar altimeter and time fiducials were verified for continuity and validity by generating a statistical listing of maximum, minimum, mean, standard deviation, and variance. This will locate any major busts or gaps in the data.

Following this, obvious errors in the digital records of the raw total intensity were detected by creating an error listing using the fourth difference of the raw total intensity values. Such defects as spikes or missing values were automatically corrected by the program or simply flagged and corrected manually when outside the limits of the program.

b) Editing of Diurnal Records

The ground station analogs were initially examined to identify cultural disturbances such as anomalies created by passing vehicles. Once identified, these disturbances were removed from the digital data by fitting a curve to the data based on the best polynomial fit (via the use of a graphics terminal).

The digital data were then verified and edited in the same manner as the airborne data. That is, the data were first examined for busts or gaps using the statistical analysis. It was then edited using the same fourth difference routine as used on the air data, with any bad values corrected down to the same thresholds.

c) Smoothing the Data

Digital smoothing was applied as follows:

Data Recorded	Type of Filter	Amplitude Threshold	Designed to smooth events of less than $\underline{x}$ samples
Ground Station Magnetometer	Triangular Convolution	0.50 nT	5
Airborne Magnetometer	Triangular Convolution	0.75 nT	3
Radar Altimeter	Triangular Convolution	20 feet	4

d) Subtraction of the Diurnal Field

The degree to which the diurnal signal was being seen on the airborne records was carefully examined. The short period diurnal events were not seen in the air records. Thus, only the long period diurnal events were removed from the airborne magnetics; this

improves the levelling of the data prior to contouring. A triangular filter removed all diurnal events shorter than approximately 50 seconds.

To maintain the recorded airborne magnetic values in their proper regional range, the mean diurnal value of 60 378 nT was added back to the air data after subtraction.

e) Interpolation of the Data

The magnetic data, which were originally recorded at the rate of 1 sample per second, were then expanded to 6 samples per second by interpolating a fourth-order polynomial curve between sample points. This was done to allow merging the magnetic data with the electromagnetic data, which was originally recorded at 6 samples per second.

f) Correction for Lag

The magnetic digital values were shifted back in time by 0.67 s (corresponding to 4 EM samples) to make them coincide with their true positions over the ground.

g) Contouring

The magnetic data used as input to the contours were the total field after editing of bad values and noise filtering.

In order to contour the magnetometer data, the values from the lines and tie-lines were levelled together. This was done automatically by comparing the values of the total field at the intersection of each line and tie-line. The differences were analyzed and a compensation was calculated at each intersection in order to provide a pattern of smoothly varying adjustments along each line and tie-line. Erratic differences, implying an error in the intersection location, were carefully checked and corrected.

The values were then sorted and gridded along a 25-m grid, which at the map scale of 1:10 000 is equal to 2.5 mm. The gridded values were then automatically contoured using an interval of 5 nT.

Descriptions of the automatic levelling technique, and the sorting and gridding routine are found in Appendices B and C. A generalized flow chart of airborne acquisition and processing can be found in Figure 2.

3. GEOTEM® Electromagnetic Data

After reformatting the field tapes, the data were verified and edited to produce files representing continuous EM coverage of the area flown. Statistics were generated (minima, maxima, mean, standard deviation and variance) on a line-by-line basis for each channel of the raw data recorded in order to verify the data content and check for any irregularities.

A lag of 4.1 s (25 digital samples) was then applied to the data to align EM anomaly peaks caused by "typical" near-vertical, narrow to moderately-wide conductive horizons. See Appendix D for further discussion on response patterns.

The data were then inspected for the presence of EM spherics (electrical discharges in the atmosphere). In a routine involving up to four separate passes, spherics are located on the basis of anomaly width, decay rate, and reversal. Any data corrupted by spherics are removed and replaced by interpolated values.

The frequency distribution and noise amplitudes of the data were studied by amplifying selected lines on a VGA graphics screen. The derived information was used to design filters which separate the high frequency instrumental noise from the true signal.

GEOTEM® data are subjected to minimal base level drift and are automatically normalized to ppm. The very slight drift that does occur, most often restricted to the earlier channels, was easily identified and corrected by reviewing the channel base levels as recorded during the pre-, mid- and post-flight compensation/calibration intervals.

Geoterrex uses the University of Toronto Plate program (originally written by A.P. Annan) with some modifications, to compute the theoretical secondary field response produced by various common geological models. Using these results, nomograms were developed for each of the models relating amplitude and decay rate of the secondary field to the conductivity, thickness and depth of the causative body.

GENERALIZED AIRBORNE SURVEY FLOW CHART

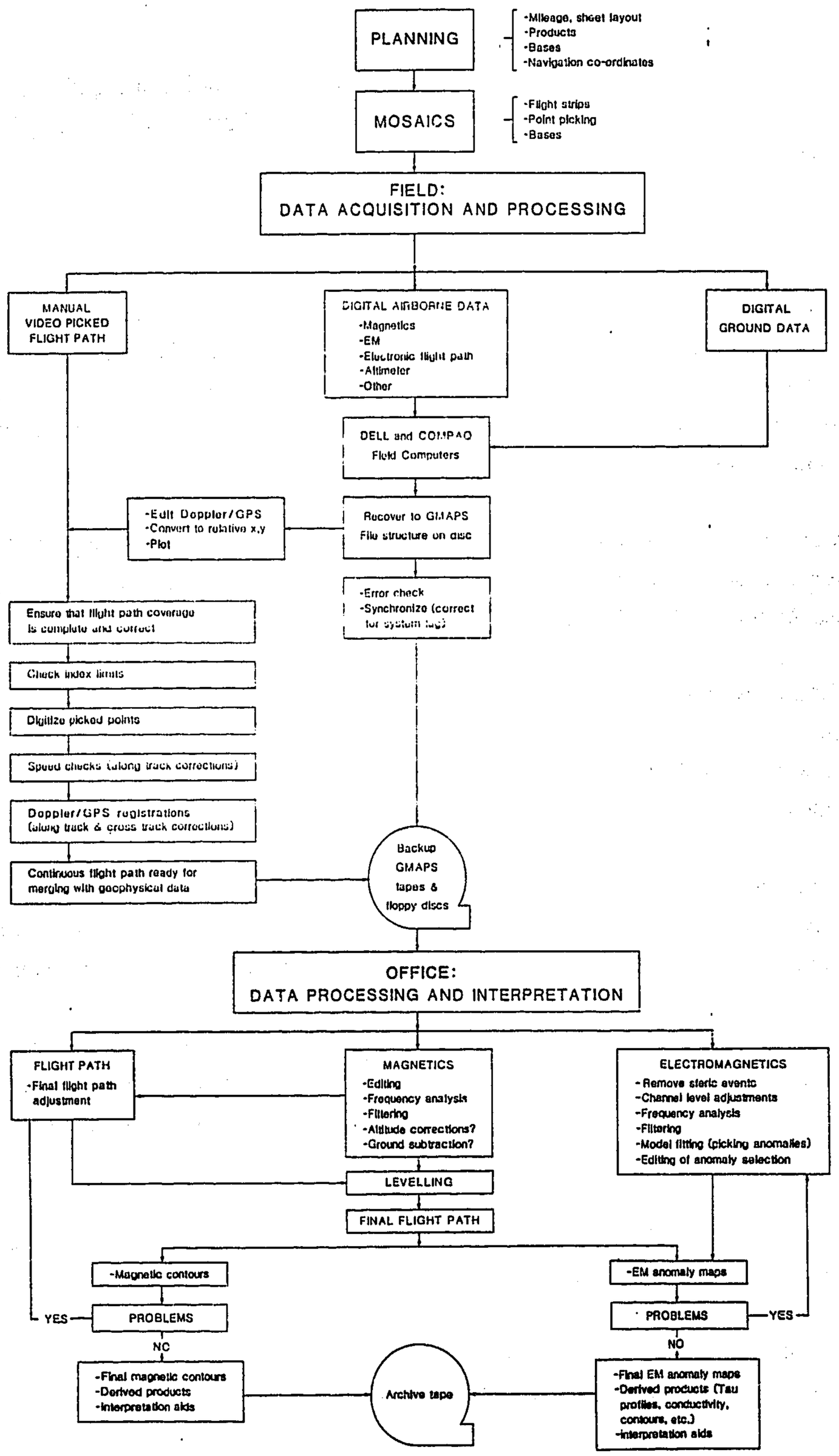


FIGURE 2

For this project, the appropriate channels of electromagnetic data were fitted automatically to the vertical plate model (600 m strike length x 300 m depth), locating anomalies on specific channels and correlating peaks from one channel to another. These results were used in conjunction with Geoterrex's anomaly selection routine to produce the EM anomaly map.

The anomaly selection routine scans the amplitude, width and decay of each anomaly simultaneously. If the anomaly fits the criteria of narrow width, predetermined amplitude and normal rate of decay, it is selected as a significant anomaly. This routine computes the conductivity-thickness product of a theoretical vertical plate and the depth to the top of the plate below surface. A more complete description of the plate fitting algorithm is found in Appendix E.

With reference to a provisional EM plan map, the data are then studied on a VGA graphics screen by an experienced geophysicist to confirm that all valid anomalies have been selected. Any errors in the automated anomaly selection are corrected directly via a graphic screen editing routine. Note that in this project virtually all EM anomalies have been plotted, no matter how weak or seemingly insignificant, the motive being to display as completely as possible the conductive pattern on one map.

4. Products

The common information to all maps (items a, b and c) is simply the UTM co-ordinates, with crosshairs every 1000 metres within the data area. All three maps are produced at a scale of 1:10 000 and the area is divided into four sheets.

Each sheet is delivered as a translucent mylar and two paper copies.

a) Electromagnetic Anomaly Map

The following geophysical information is displayed on the GEOTEM® electromagnetic anomaly map sheets.

- Flight path
- Anomaly centres

- Number of channels affected
- Anomaly letter identifier
- Apparent conductance (in siemens)
- Channel 4 amplitude (in ppm)
- Qualifying interpretation code (if needed)

The planimetry appearing on this map was supplied by the client.

b) Magnetic Contour Map

A total magnetic field contour map was produced using a contour interval of 5 nT.

The contours are drawn on a clear base, with only the above-mentioned UTM information appearing on the map.

c) Electromagnetic Interpretation Map

The GEOTEM® electromagnetic qualitative interpretation map illustrates the interpreted conductor axes, limits of wider conductive bands, and identifies by number those conductors specifically discussed in Section IV. In addition, some magnetic interpretation is shown on this map. The interpretive information is superimposed on the identical detail as shown on the electromagnetic anomaly map.

d) Machine-drawn Profiles

Each survey profile has been plotted on a separate sheet of cm-grid paper at a horizontal scale of 1:10 000. Each data point is plotted horizontally according to its true x and y coordinate such that the profile can be matched directly with the corresponding flight line shown on the maps. The following information is displayed on the machine-drawn profiles:

- Traces 1 to 12 GEOTEM® EM channels 1 to 12, at a vertical scale of 200 ppm/cm.

- Trace 13 GEOTEM® primary field, at a vertical scale of 25 000 ppm/mm.

- Trace 14 Total magnetic field (coarse), at a vertical scale of 200 nT/cm.

- Trace 15 Total magnetic field (fine), at a vertical scale of 20 nT/cm.

- Trace 16 Radar altimeter, at a vertical scale of 20 m/cm.

- Trace 17 EM noise monitor, at a vertical scale of 150 mV/cm.

The fiducials are seconds after midnight times 10. They are ticked at 10-second intervals and labelled every 50 seconds.

e) Digital Archives

The digital data is archived on a 9-track, 1600-bpi magnetic tape, coded in ASCII. It includes electromagnetic, magnetic, altimeter and position information in profile form. A full format description is included with the tapes and in Appendix F.

In addition, a floppy with the grid file of the total magnetic field, in binary GEOPAK format, was supplied.

f) Anomaly Listing

A list of all the electromagnetic anomalies displayed on the maps, showing identifier, fiducial position, channel amplitudes, number of channels affected, aircraft altitude, CTP and depth is included as Appendix G.

g) Field Data

Air and ground analogs, flight logs, flight path video, photo mosaic, etc.

IV. GEOTEM® INTERPRETATION

Under the overall supervision of J. Lemieux, several Geoterrex personnel were involved in the office processing and interpretation of the EM and magnetic data. Pre-survey map preparations etc. was done by J. Taggart. Computer programming expertise was provided by M. O'Connell. Digital processing was handled by R. Lyall. The magnetic interpretation was carried out by J. Lemieux. R. Pedersen did the EM interpretation. E. Sloat looked after the preparation of the final maps and S. Annable typed the report.

In general, except for the knowledge that the survey area is underlain by Archaean rocks of the Churchill Province, no specific geological maps were consulted by the author. However, the client's field representative, T. Campbell, described a hypothesis wherein the "cabin" anomalies on the northeast shore of Sourdough Bay were fault-displaced, and probably deeper, under the lake between that shore and the abandoned mine located on the peninsula jutting into Sourdough Bay from the western shore.

The following geophysical interpretation, therefore, is based virtually entirely on the EM and magnetic data. There is, of course, focused attention in the general vicinity of the abandoned mine.

The interpretation map has been made as self-explanatory as possible. To be able to illustrate the total conductive pattern in as much detail as possible, nearly all the GEOTEM® anomalies have been plotted, even the very weak. This has been done so that if the client is directed to various locations in the survey area by other data, it will be possible to view rapidly the conductive picture with minimal reference to the profiles. Note, however, any site-specific ground studies should be preceded by a study of the profiles.

Because of the thorough presentation of the EM responses, and the added qualitative magnetic interpretation, little need be said here that is not evident on the interpretation map. In general, the stronger conductors (certainly those with a magnetic relationship) are most likely due to bedrock sources while the weaker ones are probably caused by superficial material. It will be noted in the detail zone discussions, however, that the best conductors are not necessarily the best targets so one should not be too dogmatic in rejecting weak conductors as uninteresting simply because they are weak.

By and large, the criteria used in the GEOTEM® interpretation and target selection are as described in Appendix D. A slight variation has been adopted in this report whereby the probable origin (bedrock, surficial or cultural) is not noted in the heading of each selected zone but can be, if not specifically mentioned, easily surmized by the content of the text, with reference to the interpretation map.

Targets chosen for further consideration are divided into three groups as to their recommended ground followup priority (first, second or third) with the objective being to rank them as to their probability of reflecting sulphide mineralization.

Zone 1 **Sheet 2** **Priority 2**

Line 127 Anomaly A
Line 128 Anomaly D

Zone 2 **Sheet 2** **Priority 2**

Line 129 Anomaly A

Subtle though they may be, these two selections are included for discussion because of their coincidence with equally subtle magnetic anomalies, thereby supporting the probability of bedrock sources.

A word of caution: Man-made activity is present in the area, but the EM responses are not at all typical of cultural conductors.

If due to bedrock conductivity, the causative material is probably deep in both cases.

Zone 3 **Sheet 2** **Priority 3**

Line 106 Anomaly B

The conductive trend in the northeast corner of the survey area is weak and probably reflects lake-bottom sediments. Anomaly B, however, is noticeably displaced from the general pattern. Leading-edge effect undoubtedly can account for this but note that other lines flown in this direction do not exhibit the phenomenon.

Proximity to a fault and contact (as deduced from the magnetic data) is considered favourable.

Also on the isomagnetic contour map note the localized high centred on Line 111. This feature, as a matter of interest, is located immediately east of a cleared area at the end of a road (mine site?). There is no conductive response directly coincident with the magnetic high.

Ground investigation at Anomaly B, or elsewhere along the weak conductive trend, needs support from other data (e.g., geology, geochemistry) and is left to the discretion of the client.

Zone 4 **Sheet 2** **Priority 2**

Line 106 Anomaly A
Line 107 Anomaly B

These two anomalies are located along a road thereby suggesting a man-made source. Why there is response along only a short portion of the road, however, ought to be investigated. Note, also, the different character of the anomalies on the profiles. It is possible that both a geological and a cultural conductor is present, with the anomaly on Line 106 looking more "geological" in this case.

Should culture be eliminated, this zone is an attractive target.

Zone 5 **Sheet 2** **Priority 2**

Line 108	Anomaly B
Line 109	Anomaly B

This selection has similar characteristics to Zone 4 in that they both fall on (opposite) flanks of a magnetic high, and the difference between the two anomalies in each are strikingly similar (one is broad, with small channel amplitudes while the other is narrow, with large channel amplitudes).

Furthermore, though not clearly evident on Line 108, a man-made conductor may be the source of the conductivity. The Line 109 anomaly stands a strong chance of being related to Zone 6, the north portion of which falls along a road.

The second priority rating applies if culture is eliminated as the sole cause of the conductivity.

Zone 6 **Sheet 2** **Priority 2**

Line 110	Anomaly B
to	
Line 115	Anomaly C

Zone 6 is a hybrid. It appears most likely that the anomalies from Lines 110 to 113 are due to the man-made construction along the lake shore. They are not identified as cultural anomalies because of the chance there may be some geological source present as well.

The responses on Lines 114 and 115, on the other hand, are of a totally different character and a strike direction between the two cannot easily be established, hence the switch to conductive limits on the map. A geological source is virtually certain.

Sorting out the true conductive/geological picture by ground studies could prove problematic so field crews must be particularly careful not to write off conductors just because of nearby culture. Also, they should be prepared for variable strike direction.

Zone 7 **Sheet 2** **Priority 2**

Line 116	Anomaly C
Line 117	Anomaly B
Line 118	Anomaly C

The three anomalies making up this short conductor, set in area of clearings and trails, have small amplitudes. The response of Line 118, in fact, is near the picking limits.

A surficial source, weaking towards the southwest, or a deeper source, possibly of bedrock origin, plunging to the southwest, could both produce the recorded anomalies.

Viewing only the airborne data a second priority followup is assigned, however, with additional knowledge, the client will be in a better position to decide the followup potential.

Zone 8 **Sheet 2** **Priority 2**

Line 117	Anomaly C
Line 118	Anomaly B

The two GEOTEM® responses making up Zone 8 are very subtle indeed. They amount to little more than swells on the flanks of larger amplitude responses. What definitely adds to their attraction is that they are virtually coincident with a 6-gamma "roll" on the magnetic profile, manifested as a pull in the contours.

That these responses, both EM and magnetic, could emanate from the same deep source is probable.

It is recommended that this locality be investigated with due diligence, particularly as to how it may be related to Zones 9B and 10.

Except for the subtle nature of the geophysical responses, this would be considered a first priority target.

Zone 9A **Sheet 2** **Priority 3**

Line 111 Anomaly C

Zone 9B **Sheet 2** **Priority 2**

Line 117 Anomaly D

Anomalies 9A and 9B are two locations along a conductive trend that is possibly reflecting lake-bottom sediments. We draw attention to them because of the proximity to known mineralization. Zone 9B, in particular, is somewhat enigmatic in that its relationship to Zones 8 and 10 is not entirely clear. A strike sub-parallel to the flight line direction is possible.

Investigation near Anomaly 9A should only be considered if there is other supporting data.

Zone 10 **Sheet 1** **Priority 1**

Line 119 Anomaly B
Line 120 Anomaly A
Line 121 Anomaly B
Line 122 Anomaly B

The short strike length, strong conductivity, and the near one-to-one magnetic correlation features of this zone are the historic hallmarks of a prime massive sulphide target. If this conductor is not positioned over the objective of the earlier mining activity, it most

certainly needs to be thoroughly investigated. Even if this was the area of exploitation, care must be taken to account for the full length of the conductivity and, as mentioned in the Zone 8 and 9B discussions, ascertain any possible relationships to them.

Mention should be made of Anomaly B on Line 124 even though a continuation of the conductor to this location is very tenuous. Also, this anomaly is very subtle.

Zone 11 **Sheet 1** **Priority 3**

Line 113 Anomaly D
to
Line 116 Anomaly A

The anomalies in this zone have very low amplitudes. A weakly conductive, shallow source or deeper, stronger conductor are the two options to account for this type of response.

Because this may be an offset section of what is presumed to be a favourable geological horizon, a ground check is advisable.

Zone 12 **Sheet 1** **Priority 3**

Line 117 Anomaly E

A truly isolated conductor does merit some consideration even though, as in this case, the anomaly is not particularly attractive. Nor is there any distinctive magnetic signature in the vicinity.

One possible explanation for this response can be found in model studies. See Appendix D. Three simple situations (vertical plate, dipping plate and vertical ribbon) all produce "phantoms" preceding the definitive peak.

The response on Line 117, together with the interpreted cultural anomaly to the northwest, could be produced by a plate dipping, say, 70 to 75 degrees southeast.

The obvious counter argument to this explanation is that the "definitive" peak is most likely due to culture and therefore should not be paired with Anomaly E. Or can it? This would require perfect positioning of a geological and the cultural source - a situation that would necessitate careful ground investigation.

Favourable geology and/or other supportive data will influence the client's followup decisions and plan of attack.

See discussions for Zone 15, and Zones 16A and 16B:

Zone 13 Sheet 1 **Priority 1**

Line 123 Anomaly A

to

Line 128 Anomaly C

With regard to the isomagnetic contours, it is quite clear that a discrete geological horizon lies virtually coincident with the narrow peninsula. They also indicate a fault-type truncation of the horizon at the southwest end.

Conductivity is recorded along the point but with interference from the major transmission line, plus the probability of man-made conductors on shore, it is rather difficult to assess the character of the presumed geological response.

Note the change in the GEOTEM® responses southwest of the postulated geological break. The net result is that ground investigation (if the mining operation records shed no light on the geological setting) will have to be done with great care.

Zone 14 **Sheet 1** **Priority 2**

Line 133	Anomaly A
Line 134	Anomaly C
Line 135	Anomaly B

These three anomalies are in the central portion of a longer, intermittent conductor.

Lake-bottom sediments come to mind when viewing the EM responses but the near-coincident magnetic high of similar dimensions argues for a bedrock source.

The initial impression is that this conductor represents an offset, but deeper, continuation of Zone 13 and, as such, must be investigated further.

It is extremely tenuous but Anomaly E, Line 141 may be a weakly conductive section of the same horizon further to the southwest.

Zone 15 **Sheet 1** **Priority 2**

Line 139 Anomaly C

The same can be said of this selection as for Zone 12 except that the Line 139 anomaly is a more attractive response in its own right and the potential partner (in a phantom/real pair) is a geological conductor.

Zone 16A **Sheet 1** **Priority 2**

Line 142 Anomaly C
Line 143 Anomaly E

Zone 16B **Sheet 1** **Priority 2**

Line 148 Anomaly A

These two locations are noted not so much as to attract attention to them specifically, but to identify disruptions in a long formational-type conductor. GEOTEM® anomaly characteristics are more variable on the southwestern portion of the trend.

Because "anomalous" geological settings can be favourable to mineral development this general area is recommended for further study. Failing other guidelines these selected EM anomalies can be starting points.

To the northeast (Line 124) the trend blends into the man-made conductor running along the road. Just how far the geological horizon continues is open to question but one can't help but wonder if Zone 12 indicates just how far it might extend.

Zone 17 **Sheet 3** **Priority 2**

Line 154 Anomaly C

Anomaly C is much like the other responses along a 900-metre conductor. Its chief attraction is that it falls near an isolated magnetic high. There may be something different about the conductor here.

Note that this is not meant to imply that the EM and magnetic anomalies are from the same source but that their proximity to each other may be indicative of an environment favourable for mineral development.

Zone 18 **Sheet 3** **Priority 2**

Line 163 Anomaly D

Anomaly D is a representative response of a conductor stretching from Lines 159 to 166 where it is suggested that ground examination could begin.

The fault-bounded conductor is nearly coincident with a magnetic anomaly of similar dimensions, thus setting it apart from other trends in the vicinity.

Zone 19 **Sheet 3** **Priority 3**

Line 171 Anomaly B

to

Line 176 Anomaly E

Zone 19 is a portion of a longer conductor extending southwest out of the survey area. To the northeast, the trend ends at a postulated fault.

The responses within this selection indicate a narrower, possibly more vertical section correlating with a magnetic unit. The latter, however, appears to be due to a deeper source.

An abandoned mining site is noted on the topographic map approximately 2.5 kilometres to the southwest. With the data to hand it is not possible to determine if this is on strike with the conductive horizon containing Zone 19.

No particular EM anomaly is favoured over the others in terms of initial followup (if desired).

Zone 20 **Sheet 3** **Priority 3**

Line 185	Anomaly G
Line 186	Anomaly B
Line 187	Anomaly F

The apparent conductivity of this short zone is low, but its nearness to a magnetic anomaly (albeit a longer one) gives some support for a relationship to bedrock.

Support from geologic or other data would elevate the priority rating.

Zone 21 **Sheet 3** **Priority 1**

Line 183	Anomaly B
Line 184	Anomaly D
Line 185	Anomaly A

One-to-one correlation of a short conductor and a magnetic anomaly demands ground investigation.

The target is interpreted to be limited by faults. The much weaker conductivity to the southwest, therefore, would appear to be unrelated to Zone 21: lake-bottom sediments being the presumed cause.

Zone 22 **Sheet 4** **Priority 3**

Line 182	Anomaly D
Line 183	Anomaly A

As indicated by the magnetic data, a fault may be present nearby, thus raising the possibility of a conductive shear. Nevertheless, if the geology is deemed favourable, Zone 22 merits further consideration even if the apparent conductivity is weak.

Zone 23 **Sheet 4** **Priority 2**

Line 170 Anomaly A
to
Line 174 Anomaly A

This is a similar situation to Zone 24, except for the important fact that the conductivity and the magnetic high are superimposed. Note, however, that the magnetic feature is larger, extending towards the northeast, curving and apparently continuing off the survey area.

Presuming there is a common source for both the magnetic and EM anomalies, there may be some significance to the fact that conductivity is present only at one end of the magnetic anomaly. Is the geological unit weathered only here, or are there different constituents (mineralization?) at one end only?

Anomaly A, Line 167 may be reflecting a re-emergence of the rock type(s) present at Zone 23.

Zone 24 **Sheet 4** **Priority 3**

Line 161 Anomaly B
to
Line 166 Anomaly E

The line-to-line peak stagger of this conductor is typical of broad, flat-lying sources, often surficial in nature. See Appendix D.

What is curious is that there is no distinctive feature on the photo coincident with this zone, e.g., swamp, lake, clearing, etc. This raises the possibility that this is the weathered product from a localized basic geological unit, perhaps the one identified to the east by the magnetic data.

Zone 25 **Sheet 4** **Priority 3**

Line 156	Anomaly F
Line 157	Anomaly A
Line 158	Anomaly F

This is a conductor of possible interest but first two factors have to be resolved. For one, there is man-made construction in the area so culture has to be eliminated as a source.

Secondly, because the zone is at the survey boundary its full size is unknown. It may be a long, formational-type conductor, in which case interest in this area would be diminished.

If due to a geological source the horizon is probably wide, perhaps flat-lying.

V. SUMMARY OF SELECTED TARGETS

Conductors discussed in this report are summarized in Table 4. Besides grouping them into their followup priority, they are further subdivided as to any magnetic correlation as follows:

M : direct, probable common source
m : association, possible structural relationship
- : none evident

TABLE 4 SUMMARY OF SELECTED TARGETS

Priority 1			Priority 2			Priority 3		
M	m	-	M	m	-	M	m	-
10	nil	nil	8	1	4	nil	19	3
13			18	2	5		20	9A
21				14	6		22	11
				16A	7			12
				16B	9B			24
				17	15			25
				23				
TOTALS:								
3	0	0	2	7	6	0	3	6
3			15			9		
27								

VI. CONCLUSIONS AND RECOMMENDATIONS

The GEOTEM® electromagnetic qualitative interpretation map (including magnetic interpretation) illustrates the analysis of the conductive and magnetic data collected in this survey. Virtually all of the EM responses are shown on the plan.

Targets suggested for further investigation were selected based almost entirely on the airborne geophysical data, with more detailed study in the general vicinity of the abandoned mine and the postulated extension of the "cabin" anomalies in Sourdough Bay.

Because the survey area is in an established mining camp more targets than usual have been selected resulting, at times, in picking anomalies near the limits of reliability. A word of caution on this point. Ground investigators should be made aware than GEOTEM® has a respectable depth of penetration, implying that equipment and techniques used should be capable of penetrating 400 m, or even more.

Twenty seven locations have been identified for further consideration. They are summarized in Table 4. It is recommended that the client compare the EM targets with all other available data and re-assign, if necessary, the followup priority.

Feedback of ground truth to the airborne data is essential in any followup program. Should ground evidence prove, for example, that magnetic correlation is a definite asset then followup could focus on Priority 3, subdivision 'm' zones, before investigating Priority 2 targets lacking any apparent magnetic relationship.

We trust this interpretation will assist your exploration program and we welcome any questions or comments you may have concerning this survey.

Respectfully submitted,

Rolf N. Pedersen

Rolf N. Pedersen

geoterrex ltd.

APPENDIX A

GEOTEM® Electromagnetic System

GEOTEM [R1] ELECTROMAGNETIC SYSTEM

General

The operation of a towed-bird time-domain electromagnetic (EM) system involves the measurement of decaying secondary electromagnetic fields induced in the ground by a series of short current pulses generated from an aircraft-mounted transmitter. Variations in the decay characteristics of the secondary field (sampled and displayed as channels) are analyzed and interpreted to provide information about the subsurface geology. The response of such a system utilizing a vertical-axis transmitter dipole and a horizontal-axis receiver coil has been documented by various authors including Palacky and West (1973, Geophysics, v. 38, p. 1145-1158).

The principle of sampling the induced secondary field in the absence of the primary field (during the "off time") gives rise to an excellent signal-to-noise ratio and an increased depth of penetration compared to conventional continuous wave (frequency domain) electromagnetic systems. Such a system is also relatively free of noise due to air turbulence.

Through free-air model studies using the University of Toronto's Plate and Layered Earth programs it may be shown that the "depth of investigation" depends upon the geometry of the target. Typical depth limits would be 250 m below surface for a homogeneous half-space, 350 m for an inductively thin sheet or 200 m for a large vertical plate conductor. These depth estimates are based on the assumptions that a significant response is recorded 1.4 ms after the primary field is turned off and that the overlying or surrounding material is resistive. If a pre-selected range of channels is deemed adequate to detect or resolve a given target, then the depth of investigation increases significantly.

In addition to substantial penetration, time-domain systems respond to a wide range of conductors. With measurements taken during the off time, significant effects are seen for conductors with conductance of 0.8 S or greater, thus responding to the majority of geological features deemed relevant in most exploration projects.

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[1] GEOTEM[R]: Registered Trade Mark of Geoterrex Limited.

The method also offers very good discrimination of conductor geometry. The ability to distinguish between flat-lying and vertical conductors combined with excellent depth penetration results in good differentiation of bedrock conductors from surficial conductors.

Most of the preceding discussion concerns theoretical responses for all time-domain installations of similar geometry. The factor which distinguishes the various systems is their ability to faithfully and completely represent the secondary field response.

Equipment and Procedure

GEOTEM (GEOterrex Transient ElectroMagnetic system) is a time-domain towed-bird electromagnetic system incorporating a high-speed digital EM receiver. The primary electromagnetic pulses are created by a series of discontinuous sinusoidal current pulses fed into a three-turn shielded transmitting loop surrounding the aircraft and fixed to the nose, tail and wing tips. The pulse repetition rate is typically 150 Hz (300 bipolar pulses per second), 125 Hz, 90 Hz or 75 Hz. At 150 Hz, as used in this survey, each current pulse can last 1030 μs followed by 2303 μs off-time. Present peak current through the loop is 600 A resulting in a primary magnetic dipole moment of $4.5 \times 10^5 A.m^2$.

The receiver is a wire coil with a ferrite core. It is mounted horizontally in a bird which is towed by the aircraft on a 135-metre cable. The cable is demagnetized to reduce noise levels. Mean terrain clearance for the aircraft is 120 m with the bird situated 56 m below, and 123 m behind, the aircraft. The geometry of the system is displayed in Figure 1.

For each primary pulse a secondary magnetic field is produced by decaying eddy currents in the ground. These in turn induce a voltage in the receiver coil which is a measure of the electromagnetic field. Figure 2 gives a graphical display of the GEOTEM signal.

The measured signals pass through anti-aliasing filters and are then digitized with an A/D converter at sampling rates of up to 40 kHz. The digital data flows from the A/D converter into an array processor where all the numerically intensive processing tasks, such as Fourier analysis, are carried out. The array processor is under the control of a multi-tasking minicomputer which provides all of the software management.

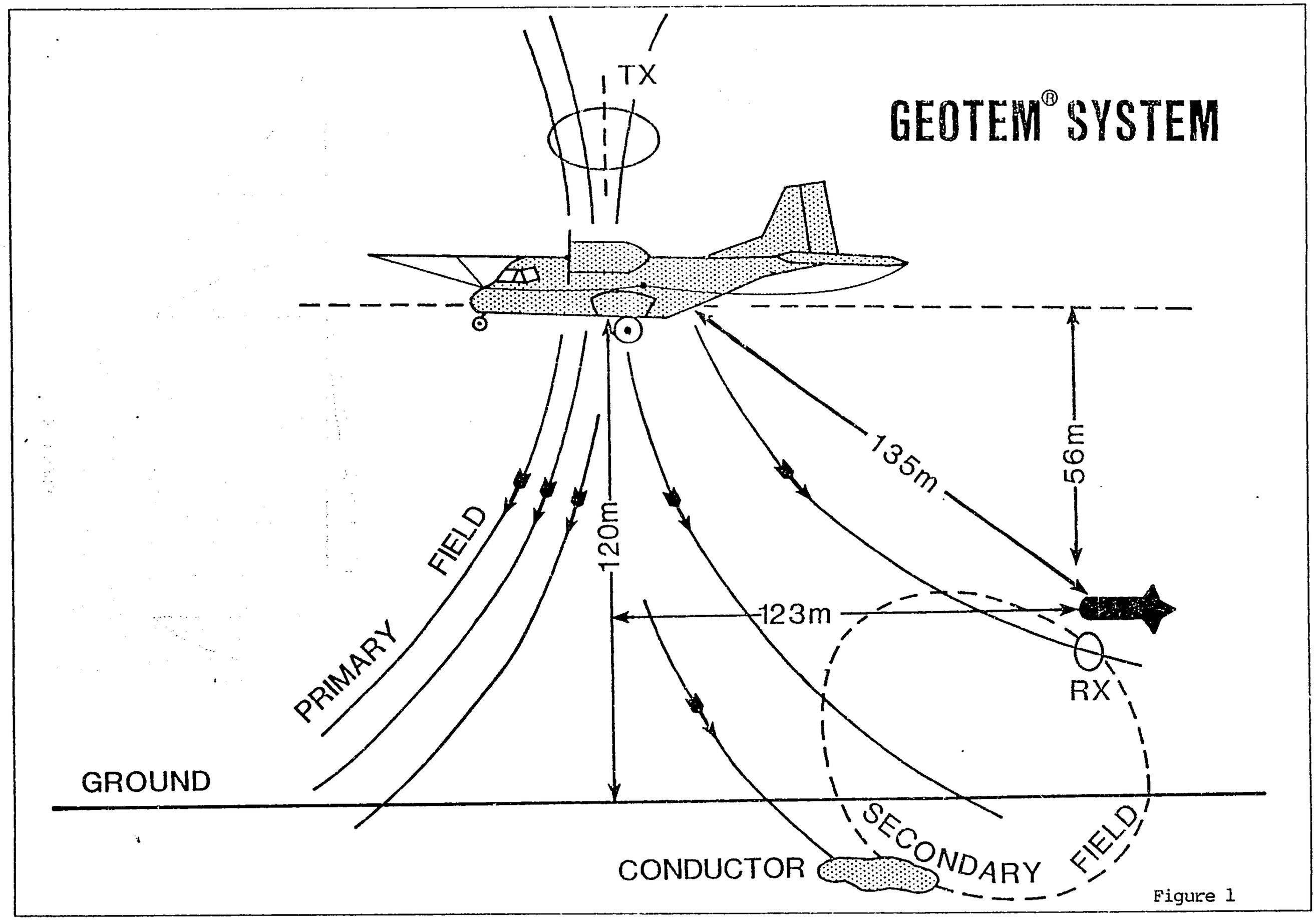

GEOTEM® SYSTEM
TX
PRIMARY FIELD
120m
135m
56m
123m
RX
GROUND
CONDUCTOR
SECONDARY FIELD

Figure 1

GEOTEM SIGNAL

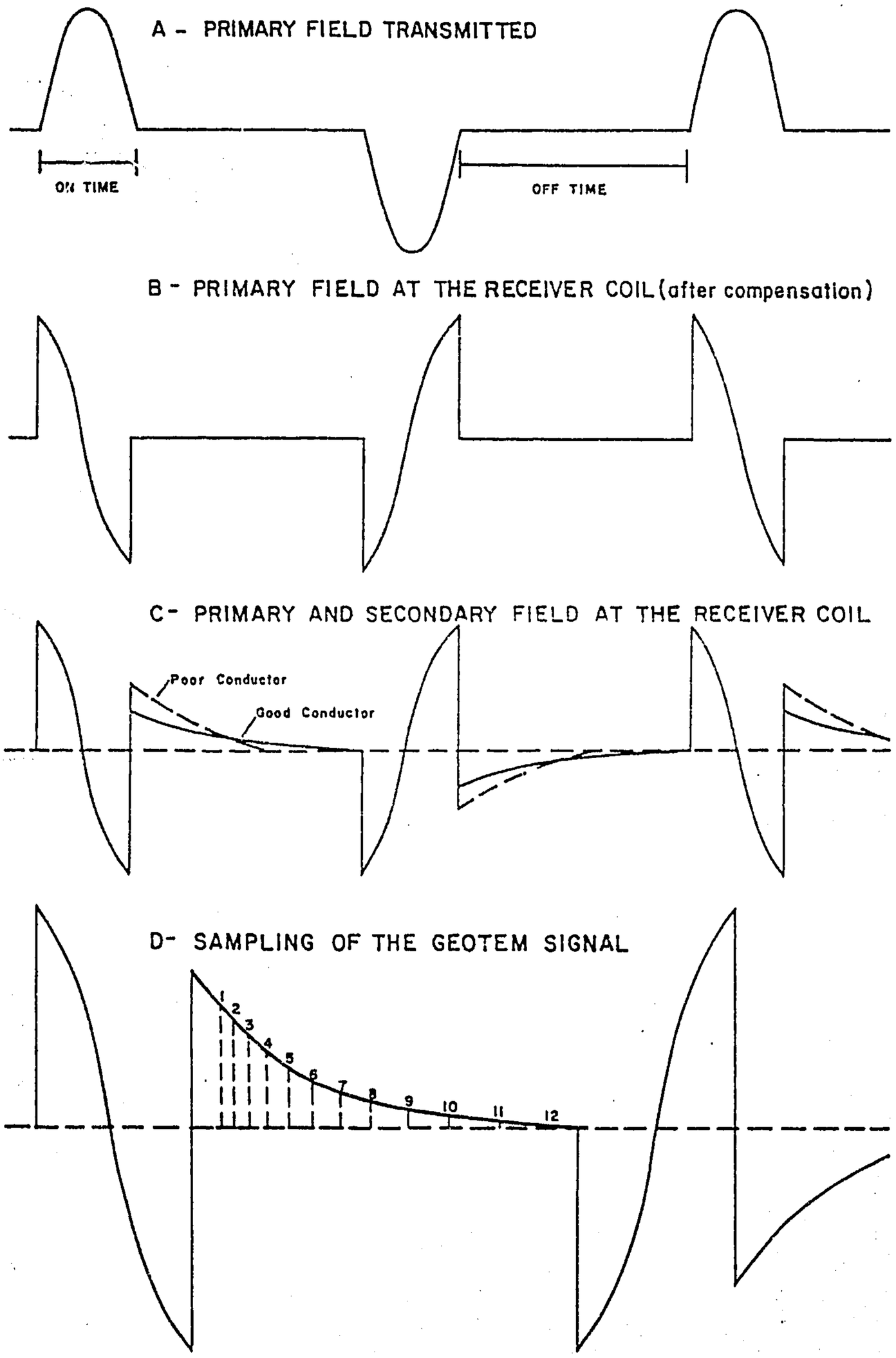


Figure 2

Operations which are carried out in the receiver are:

1. Compensation. During flight the transmitter creates eddy currents within the structure of the aircraft and these have a measurable effect at the bird. Compensation for this signal is effected numerically within the receiver by a statistical analysis of the signal detected at the bird in the absence of ground response. This is achieved by flying at an altitude such that no ground response is measurable (usually in excess of 600 m above ground level). The observed signal is used to define a compensation signal which is subtracted from the observed to produce a null and thus effectively buck out any response due to the aircraft.

2. Normalization. All EM response channels are automatically calibrated and reduced to parts per million (ppm) of the primary field in the receiver. This is achieved by dividing the measured voltage by the voltage induced by the primary field at the bird.

3. Transient Analysis. Harmonic analysis permits the separation of specific types of noise from the signal in real time.

4. Digital Stacking. Stacking is carried out to reduce the effect of broadband noise on the data.

5. Windowing of Transient Data. The GEOTEM digital receiver samples the secondary and primary electromagnetic field and stores the signal in up to 20 time gates whose centres and widths are software selectable and which may be placed anywhere within or outside the transmitter pulse. This flexibility offers the advantage of arranging the gates to suit the goals of a particular survey, ensuring that the signal is appropriately sampled through its entire dynamic range.

One of the major roles of the GEOTEM digital EM receiver is to provide diagnostic information on system functions and to allow for identification of noise events, such as spherics, which may be selectively removed from the EM signal.

The receiver automatically calibrates its received signal with reference to the primary field in ppm and hence compensates for the transmitter drift. Due to the fact that the receiver is digital, the receiver drift is minimal. These factors result in more reliable resistivity mapping where base level shifts can dramatically affect results.

GEOTEM's high digital sampling rate yields maximum resolution of the secondary field. The absence of an analog system time-constant filter results in minimal signal distortion and, therefore, superior representation of the anomaly amplitudes and shapes.

APPENDIX B

Magnetic Data Levelling Procedures

MAGNETIC DATA LEVELLING PROCEDURES

1. INTRODUCTION

The lines and tie-lines of an aeromagnetic survey form a network, and the points where they cross one another are called intersections. At each intersection, it is easy to interpolate the magnetic value on the line and on the tie-line from adjacent values. In theory, the two magnetic values at the intersection should be identical. In practice, they will usually be different as a result of:

1. Time variation of the magnetic field. The major part of these diurnal differences may be removed by subtracting ground from airborne magnetic measurements.
2. Heading effects. If a cloverleaf has been flown, corrections for heading effects can be applied.
3. Altitude differences. Since the earth's magnetic field varies with altitude above the ground, any difference in flight altitude will cause a difference in magnetic value. For surveys flown at constant height above sea level, a partial correction can be made, using a constant vertical magnetic gradient.
4. Position errors. These have little effect in areas of low magnetic gradients, but can introduce large differences in steep gradients.

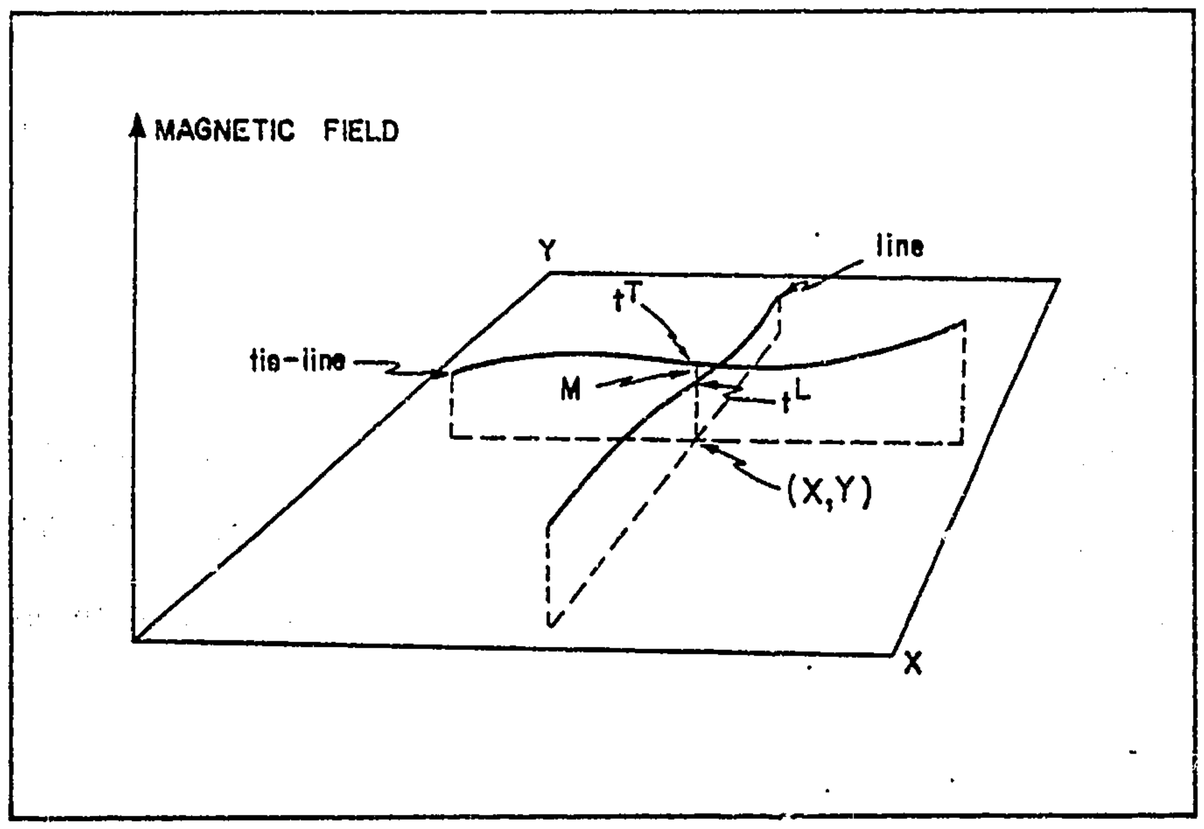
In the levelling process, it is assumed that most of the required level adjustments will vary smoothly along each line or tie-line, in the same manner as the time variations of the magnetic field. Even if ground magnetic measurements have been subracted from the airborne, we cannot be sure that the time variations at the aircraft and the ground station were identical. There may be some intersections which cannot be fitted with

smooth level adjustments on both line and tie-line. These are usually attributed to errors in the aircraft position, and the flight path is adjusted to change the L-T (line minus tie-line) value to one which can be fitted by smooth adjustments.

Even after correction of the magnetic measurements for the above effects, L-T differences in the magnetic values at the intersections will still be present. Before the data can be contoured these L-T misclosures must be resolved, as the ultimate purpose of the levelling process is to reduce all misclosures to zero.

II. MATHEMATICAL ANALYSIS

The network of lines and tie-lines are assumed to lie in the X-Y plane. The position of an intersection "i" is then characterized by the coordinates (x,y) and times t^L and t^T. The measured magnetic field is characterized by a value on the vertical axis (Z axis) perpendicular to the X-Y plane. The difference between the magnetic field values on the line and the tie-line (the L-T difference) at intersection "i" is the misclosure M.



PARAMETRIC REPRESENTATION AT INTERSECTION "i"

FIGURE 1

II.1 OUTLINE OF PROCESS

The first stage of the levelling process is the calculation of the line and tie-line level adjustment at each intersection. These vary smoothly along a line or tie-line and define the levelled baseline of the magnetic profile. The line and tie-line level adjustments (A^L and A^T respectively) account for the diurnal. The level adjustments are calculated with two averaging operations, MOYA and MOYB (MOY is from the French word MOYENNE, meaning average). MOYA removes the slowly varying component of the misclosures, and MOYB removes the rapidly varying component. After MOYA and MOYB, at the "i" intersection, the misclosure remaining after adjustment, R, is given by

$$R = M + A^L - A^T. \qquad \ldots(1)$$

The next stage consists in tilting the line baseline by a maximum allowed tilt of T to reduce the misclosure R to zero.

If $|R| \leq T,$ ...(2)

then $M + AA^L - A^T = O$ ...(3)

where $AA^L = A^L - R$ ...(4)

is the new line level adjustment.

If the remaining misclosure R cannot be reduced to zero within the maximum allowed tilt T, the position of the intersection instead is shifted in the X-Y plane to the point closest to the intersection (within a maximum allowed displacement) where the relation

$$R + D^L - D^T = O \qquad \ldots(5)$$

is satisfied. D^L and D^T are the differences, (or magnetic value at the new intersection position minus the magnetic value at the original intersection position). The initial misclosure M is then corrected to give

$$M_{corr} = M + D^L - D^T \qquad \ldots(6)$$

such that

$$M_{corr} + A^L - A^T = O \qquad \ldots(7)$$

If the remaining misclosure R cannot be reduced to zero within the maximum allowed displacement, the maximum allowed tilt is increased and the tilting calculation (equations 2 to 4) is reapplied. If R is still not reduced to zero, the maximum allowed displacement is also increased and a tilt and shift are applied simultaneously to the intersection. The position of the intersection is now shifted in the X-Y plane to a point where the relation

$$\left| R + D^L - D^T \right| \leq T \qquad \ldots(8)$$

is satisifed. The intersection can be moved to the closest point or to the point with the smallest tilt which satisfies equation (8). The first option is usally preferred. After tilting and shifting of the intersection, the misclosure and line compensations are corrected to give

$$M_{corr} + AA^L - A^T = O \qquad \ldots(9)$$

where $$AA^L = A^L - (R + D^L - D^T) \quad ...(10)$$

is the new line level adjustment, and

$$M_{corr} = M + D^L - D^T \quad ...(11)$$

is the corrected misclosure.

The intersection is flagged if it is closed using condition (8) (relaxed specfications). If the misclosure R at the intersection still cannot be reduced to zero under relaxed specfications, it is specially flagged as a "bad" intersection. This requires checking of the flight path recovery. The data set can then be relevelled automatically or the bad intersection can be closed manually.

The levelling process can thus be summarized as follows:

Compensation:	MOYA on the tie-lines (run 1)
	MOYA on the lines (run 1)
	MOYA on the tie-lines (run 2)
	MOYA on the lines (run 2)
	MOYB on the lines
	MOYB on the tie-lines (twice)
If necessary,	Tight specifications:
	Tilt the line baseline, or
	Shift the position of the intersection
	Relaxed specifications:
	Tilt the line baseline, or
	Shift the intersection and tilt the line baseline
If $M \neq O$:	Bad intersection.

APPENDIX C

Sorting and Gridding Routine

SORTING AND GRIDDING ROUTINE

I. INTRODUCTION

In general, the geophysical data processing (i.e., magnetic or radiometric survey data) will be presented as contour maps. Preliminary contours may be used for error analysis such as synchronization of digital data, levelling, filtering and subtracting of regional effect, etc. The final contour map along with the profiles may be used by the geophysicists for interpretation of geological features.

The contouring package at Geoterrex is designed for airborne surveys. The data of a field operation are represented by digital data on magnetic tapes, and positions are recorded on film in the tracking camera. For processing purposes, the data is broken up into lines and tie-lines (control lines). The tie-lines are usually perpendicular to the lines. The two types of lines form a network. This sparsely formed network can not be used to produce high quality contours directly. The first step is to establish small scaled grids over the whole area. For simplicity, we have chosen square grids.

By interpolating information provided by the lines, the geophysical values are calculated at all grid vertices. Searching through these fine grids, we can then trace contour curves at different levels.

I.1 Terminology

For clarity, terminologies used frequently are defined as follows. (We assume that the x-axis is parallel to the lines, this can be done by a simple rotation of the axes.)

1) Bands: In the sorting stage, the whole area is divided into vertical strips. They are called bands.

2) Cells: In the gridding stage, each band is again cut into blocks for further processing. These subregions are called cells. They do not have to be square, but we have used only square cells so far.

3) Grids: Inside each cell, the area is divided into grids. For example, the small square PQRS in Figure 1 is a grid.

4) Side of Grid: PQ, QR, PS, SP are the four sides of the above grid.

5) X-Direction Grid Divisions: the horizontal lines which divide the grids, e.g., $\overline{UU}$ or $\overline{WW}$ in Figure 1.

6) Y-Direction Grid Division: The vertical lines which divide the grids, e.g. $\overline{VV}$ in Figure 1.

7) Grid Corner or Grid Point: The intersections between any Y-Direction grid divisions and any X-Direction grid divisions, e.g., P, Q, R, S, in Figure 1.

8) Data Points: These points are on the lines or tie-lines with the field data recorded. They are denoted by "."'s in Figure 1.

9) Band Boundaries: The grid divisions used to divide the cells i.e., the first row, last row, first column and last column of each cell.

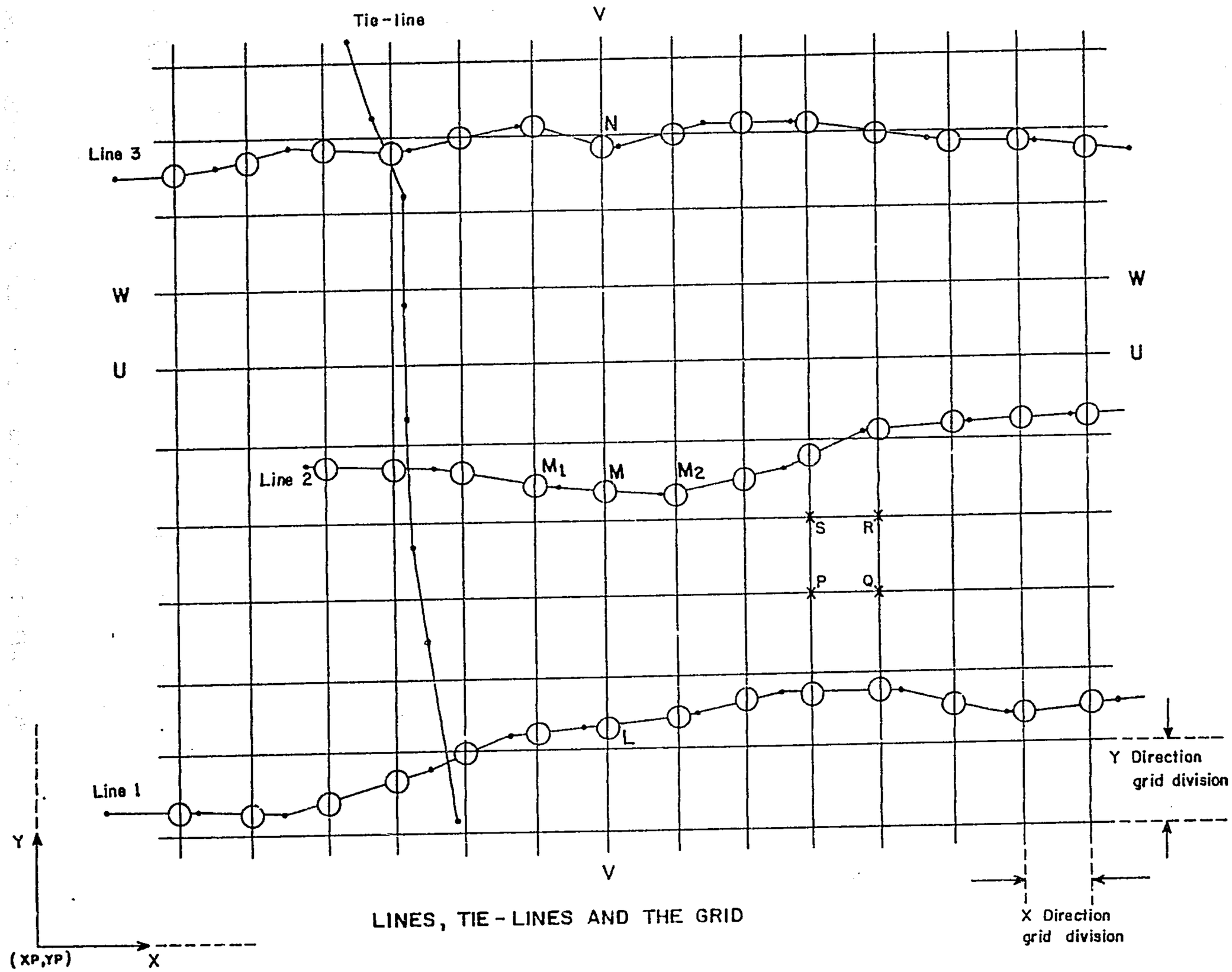
2. SORTING

Sorting is the first step in the contour package. Before carrying out the sorting, grids and bands must be set up.

2.1 Grids and Bands:

The grids are set up with the lower left corner point of the first grid (xp, yp) as the origin. The required grid interval is defined as INC. Starting from the origin, equally spaced (incremented by INC each time) horizontal lines (x-direction grid divisions) and vertical lines (y-direction grid divisions) are drawn until the upper right corner point of this area is reached.

The procedure of dividing the area into bands and subdividing the bands into cells (during the gridding) is necessary because the



LINES, TIE-LINES AND THE GRID

FIGURE 1

contour density varies from area to area. Usually a job will have some flat areas and other areas having steep gradient. Dividing the whole area into cells, we can then avoid unnecessary searching for the nonexisting contours in the flat gradient region.

2.2 Sorting

The idea of sorting is to interpolate values at all the intersections (denoted by "O"s in Figure 1) of the lines with the y-direction grid divisions and then store the interpolated values on various disc files for different bands. This procedure is described step by step by the following example.

Proceeding along line 2, we see that this line intersects a y-direction grid division ($\overline{VV}$) at point M in Figure 1. The nearest data point on each side of M is M_1 and M_2. Let the corresponding data values and their coordinates be (T_1, X_1, Y_1) and (T_2, X_2, Y_2). Hence the geophysical value at M could be linearly interpolated by

$$T = T_1 + (T_2 - T_1) * \frac{X-X_1}{X_2-X_1}$$

and the Y-coordinate is

$$Y = Y_1 + (Y_2 - Y_1) * \frac{X-X_1}{X_2-X_1}$$

where X is the x-coordinate of the grid division $\overline{VV}$, (i.e. $\overline{VV} = X$).

After all lines are sorted, there will be a data value T and

a y-coordinate Y at every point denoted by "O" in Figure 1. These interpolated values are then stored in various disc files according to the bands to which they belong. The index of each disc file identifies the band.

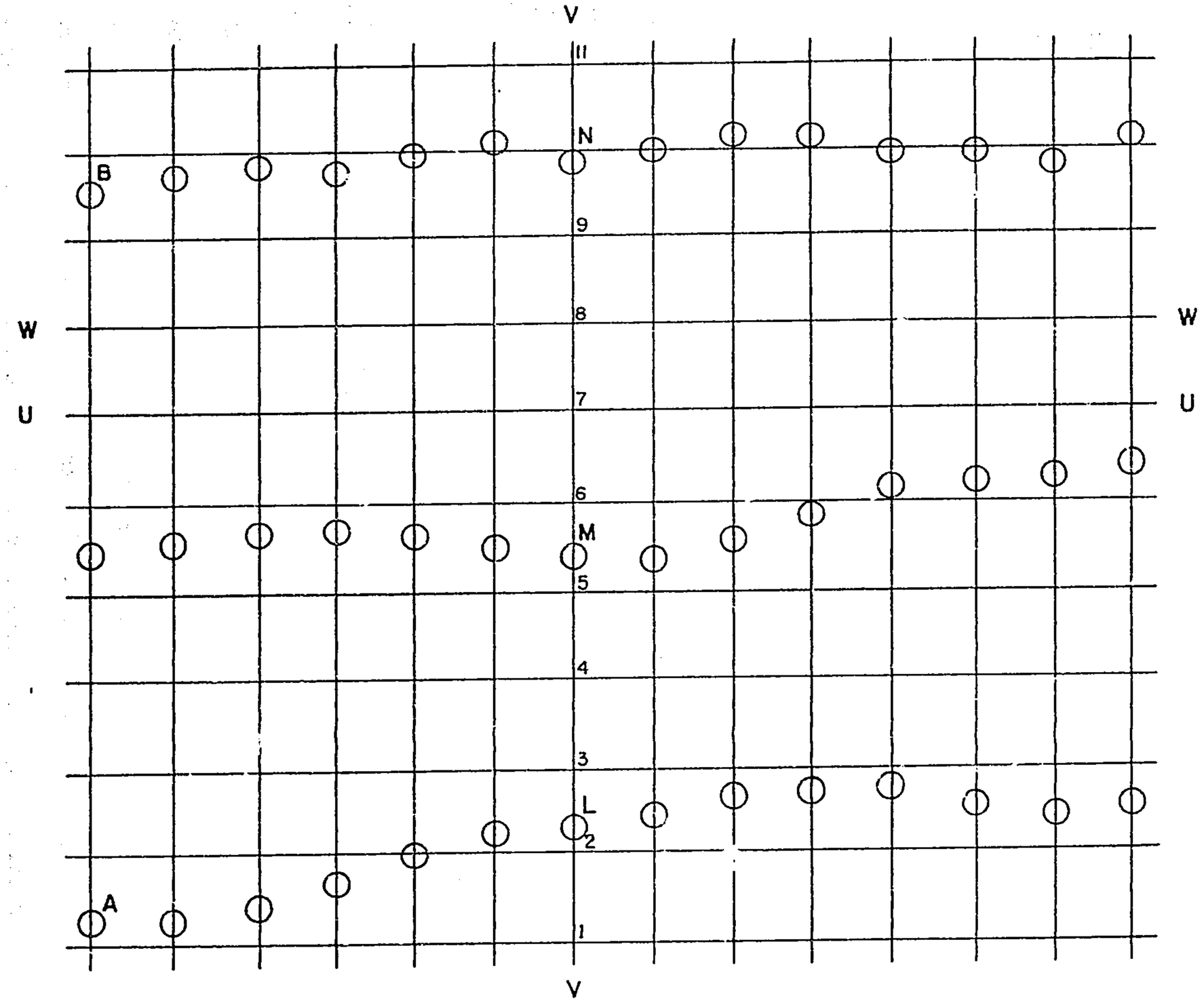
Along the band boundary, the same set of data will be stored for both bands. For example, see Figure 1 or Figure 2, if the grid division $\overline{VV}$ is used to divide the area into 2 bands. Then the values for points on $\overline{VV}$, e.g., L, M, N, will be used by band 1 as well as band 2 to ensure continuity.

3. GRIDDING

The purpose of gridding is to calculate data values on all grid corners and write them onto tape, cell by cell. The gridding is proceeded band by band.

3.1 Gridding

First, the program reads all sorted values on one band into memory from disc files. The data are then processed from the left most y-grid division to the right most y-grid division for every band. When all the data along one y-grid division are selected, such as pointL, M, N on $\overline{VV}$ in Figure 2, from them, values are interpolated for all grid corners on this grid division (see section 3.3). If there is only one intersection value output, or none, on a y-grid division by the previous sorting processing, the values at all grid corners on this grid division are set to zero.



SORTED DATA

FIGURE

When all the grid point values are defined for this band, the gridded data are written onto a magnetic tape, cell by cell. This process is repeated for each subsequent band.

3.2 Interpolation

In the sorting stage, linear interpolation is sufficiently accurate, since the data points on lines are very close. The distance between them is usually the same order as the grid interval. However, the distance between the lines is much larger than the interval of the grids. Interpolation perpendicular to the lines has to be performed more carefully to obtain the maximum accuracy. Hence a modified Akima's method is used. Four points are used to interpolate the curve between the centre two points. Assuming that there are four points, denoted as (T_1, Y_1), (T_2, Y_2), (T_3, Y_3) and (T_4, Y_4) in Figure 3, with the magnitude of the data plotted against the y-coordinates. Now two assumptions are made to recover the data between point 2 and point 3:

i) The equation of the curve between those two centre points, is part of a third order equation.

ii) The tangent of the curve at a point is the average of the two slopes in either side of the point.

Hence we have

$$T = C_0 + C_1 Y + C_2 Y^2 + C_3 Y^3; \qquad Y_1 \leq Y \leq Y_4$$
$$= f(Y) \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3-1)$$

and

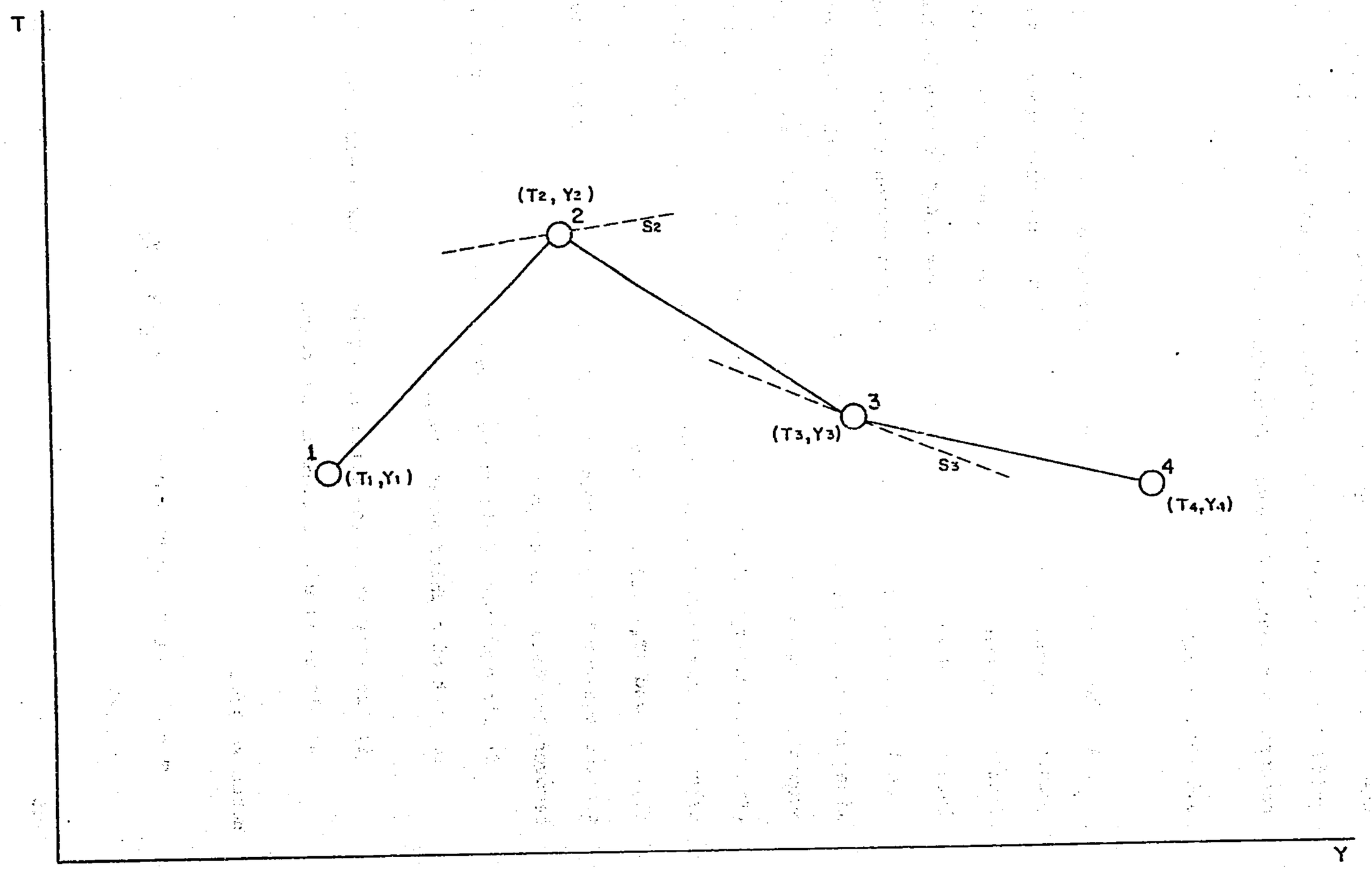


FIGURE 3

$$S_2 = \frac{1}{2}\left(\frac{T_2 - T_1}{Y_2 - Y_1} + \frac{T_3 - T_2}{Y_3 - Y_2}\right) \quad \ldots\ldots\ldots (3\text{-}2)$$

$$S_3 = \frac{1}{2}\left(\frac{T_3 - T_2}{Y_3 - Y_2} + \frac{T_4 - T_3}{Y_4 - Y_3}\right) \quad \ldots\ldots\ldots (3\text{-}3)$$

Under the boundary conditions:

$$T_2 = f(Y_2)$$

$$T_3 = f(Y_3)$$

$$S_2 = f'(Y_2)$$

$$S_3 = f'(Y_3)$$

coefficients in equation (3.1) can be solved

$$C_0 = T_2 \quad \ldots\ldots\ldots (3\text{-}4)$$

$$C_1 = S_2 \quad \ldots\ldots\ldots (3\text{-}5)$$

$$C_2 = \left(3 * \frac{T_3 - T_2}{Y_3 - Y_2} - 2S_2 - S_3\right)/(Y_3 - Y_2) \quad \ldots\ldots\ldots (3\text{-}6)$$

$$C_3 = \left(S_2 + S_3 - 2 * \frac{T_3 - T_2}{Y_3 - Y_2}\right)/(Y_3 - Y_2) \quad \ldots\ldots\ldots (3\text{-}7)$$

Using equation (3.1), with the help of equations (3.2) to (3.7) the values T can be calculated for any point between y_2 and y_3.

There are several salient points that should be mentioned here:

1) This method is superior. Since the fictitious anomalies introduced are considerably less than those introduced by other methods, such as Cubic Spline or Laplace method even when there are sudden changes in slopes.

2) The input points used for interpolation do not have to be equally spaced. However if two points are too close, the average

of these two points is used to avoid a sudden jump of the contour values.

3) The second assumption made, differs from Akima's; his method is simply a curve fitting in an x-y plane, having the x-direction and y-direction in the same scale (isotropic). In this case, the abcissa is the y-coordinate and the ordinate is the geophysical data value which do differ in units. Thus we have to deal with "slopes" instead of "angles", to avoid mixing space with geophysical quantities.

4) Between the first two and last two points, linear interpolation is used. Outside the first and last points, values are also linearly extrapolated to a distance according to the user's specification. The non-interpolated or non-extrapolated grid-corner values are set to zero.

5) Since four points are used to do the interpolation, a local anomaly (or band value) might have effects to a distance of two line spacing on each side of that point, perpendicular to the line.

6) With computer efficiency in mind, integer mode is used in computation whenever possible. Output grid values are also integers. However, to retain accuracy, a multiplication factor, which is determined by the user, is applied to all the input and output values.

881202

APPENDIX F

Comprehensive Archive Description

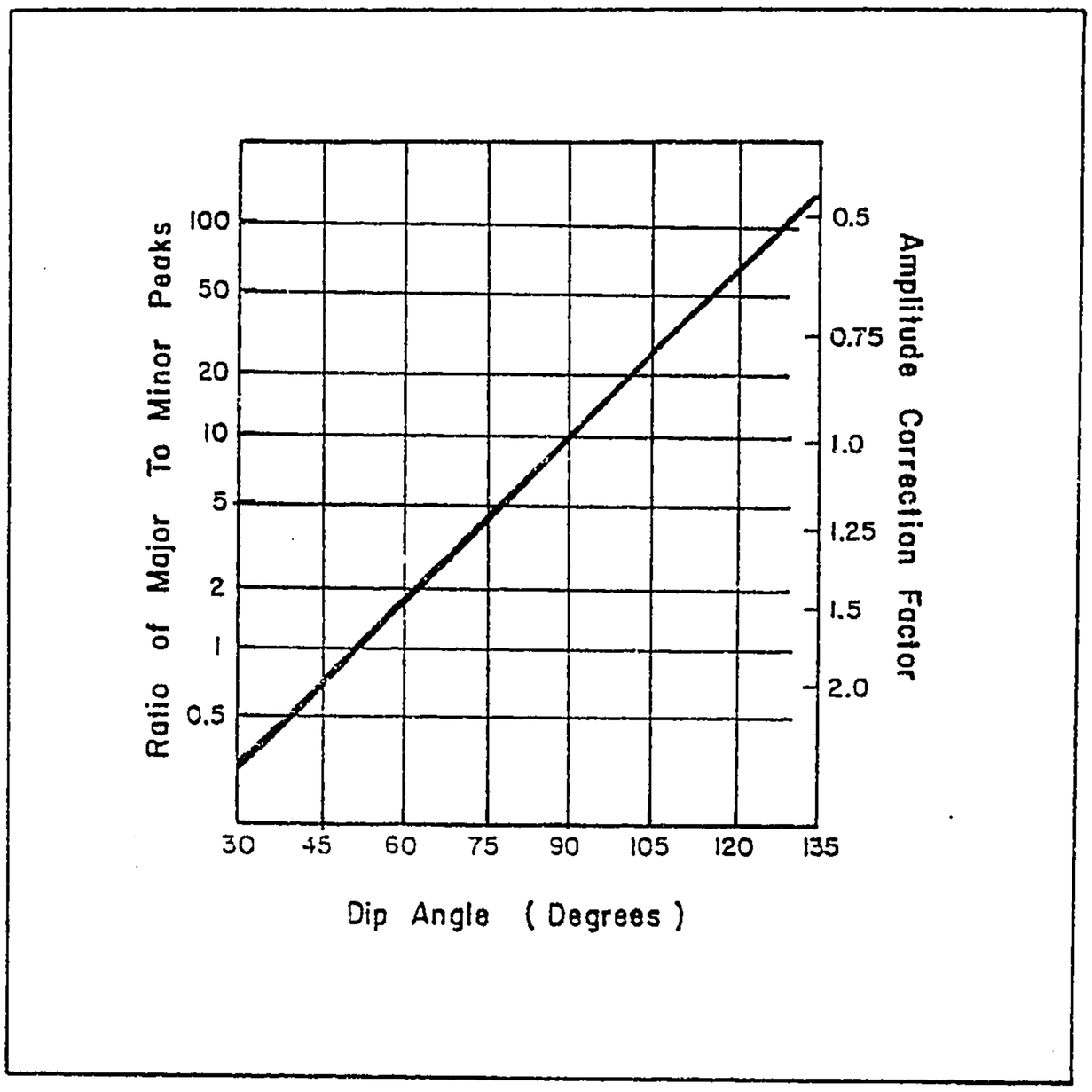


Figure 2. Estimation of dip and amplitude normalization for a dipping plate model.

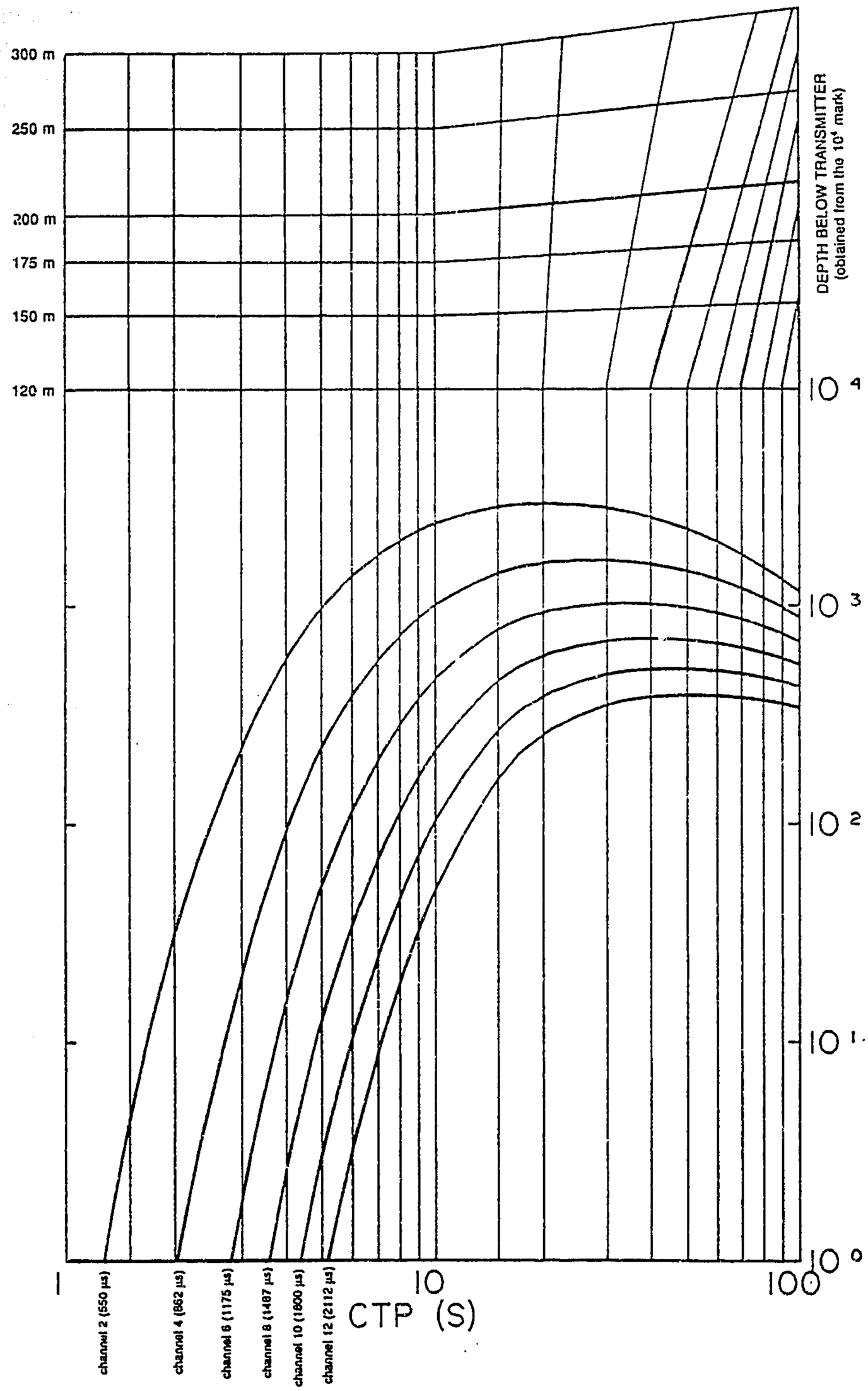
Figure 1 - **GEOTEM VERTICAL PLATE NOMOGRAM**

SYSTEM CONFIGURATION

- *Pulse repetition rate = 150 Hz*
- *Pulse width = 1070 μsec*
- *Height of Tx above ground = 120 m*
- *Rx-Tx horizontal separation = 123 m*
- *Rx-Tx vertical separation = 56 m*
- *Rx axis is horizontal*

PLATE PARAMETERS

- *Length = 600 m*
- *Depth extent = 300 m*
- *Dip = 90°*
- *Strike = 90°*



CALCULATION OF CTP AND DEPTH-TO-SOURCE FROM GEOTEM ANOMALY DECAYS

To provide a means of establishing the quality of each anomalous response, all anomalies were automatically fitted to a large vertically-dipping plate model. The rectangular vertical plate was chosen to best represent the majority of bedrock conductors in the survey environment. The response of such a model is described concisely by the response nomogram shown in Figure 1.

Minimum amplitude thresholds were set for each channel to avoid fitting noise to the nomogram. The thresholds used follow:

Channel	Amplitude (ppm)
1	50
2	40
3	34
4	30
5	28
6	26
7	25
8	24
9	23
10	22
11	21
12	20

When less than four channels exceeded the thresholds no conductivity-thickness product (CTP) or depth-to-source were calculated. When four or more channels exceeded the thresholds, a least-squares fit of the anomaly decay to the plate nomogram resulted in a CTP and depth-to-source. Subtracting the altitude of the aircraft from the depth-to-source gives the approximate depth below surface of the conductor.

It should be noted that the parameters derived from such a model fitting are only as good as the assumption that the anomaly is due to a vertical plate-like conductor. Sources of a different shape or attitude would have modified decay characteristics.

In particular, in the case of a dipping plate which produces two anomaly peaks, a scheme has been arrived at which allows the use of a vertical plate nomogram to derive the parameters of the dipping plate. The ratio of the major to minor peak amplitudes allows the interpreter to deduce the dip from Figure 2. At the same time, application of the corresponding amplitude correction factor to the major peak results in normalization of the major peak amplitude to a vertically-dipping plate response.

APPENDIX E

Calculation of CTP and Depth-to-Source from GEOTEM® Anomaly Decays

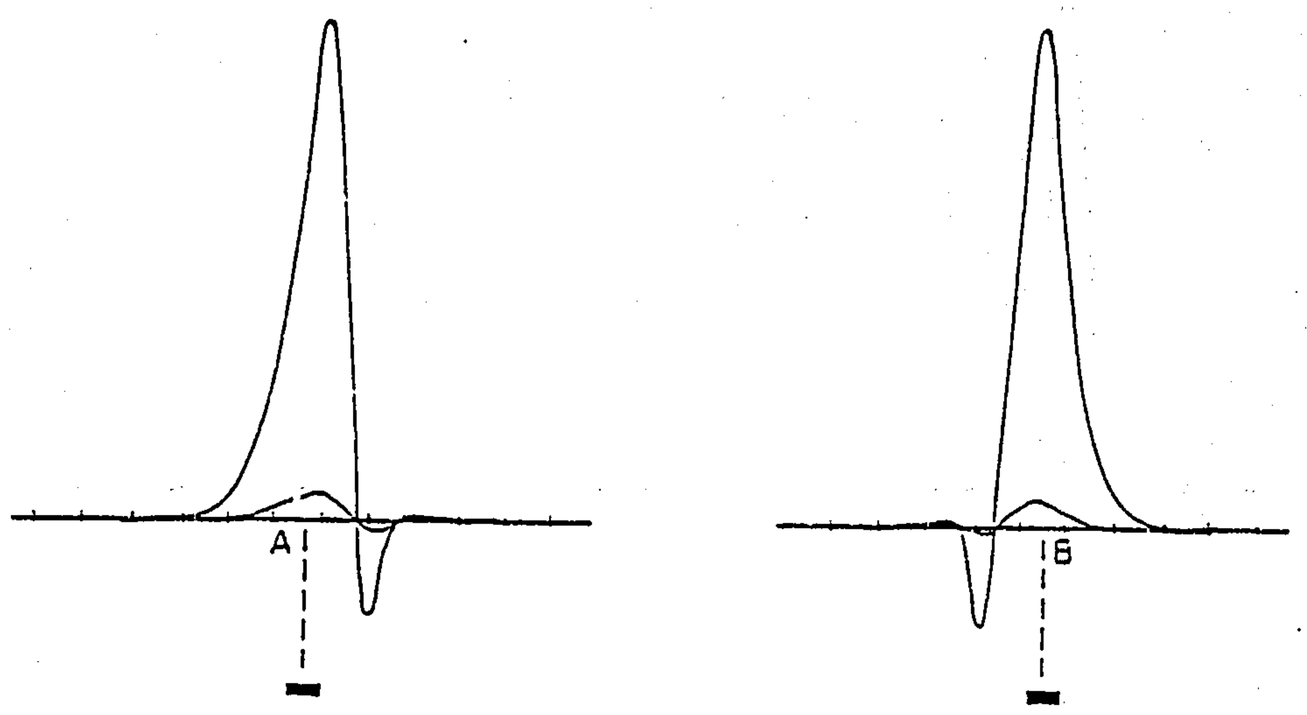
- a short strike length (in general, not exceeding one kilometre), and
- preferably, with a localized magnetic anomaly of matching dimensions.

The selection of targets from within extensive (formational) belts is much more difficult than in the case of isolated conductors. Local variations in the EM characteristics, such as in the amplitude, decay, shape etc., can be used as evidence for a relatively localized occurrence. Changes in the character of the EM responses, however, may be simply reflecting differences in the conductive formations themselves rather than indicating the presence of massive sulphides and, for this reason, the degree of confidence is reduced.

Another useful guide for identifying localized variations within formational conductors is to examine the magnetic data compiled as isomagnetic contours. Further study of the magnetic data can reveal the presence of faults, contacts and other features which, in turn, help define areas of potential economic interest.

Finally, once ground investigations begin, it must be remembered that the continual comparison of ground knowledge to the airborne information is an essential step in maximizing the usefulness of the GEOTEM data.

THE HORIZONTAL RIBBON RESPONSE



ANOMALY MAP PRESENTATION (no lag applied)

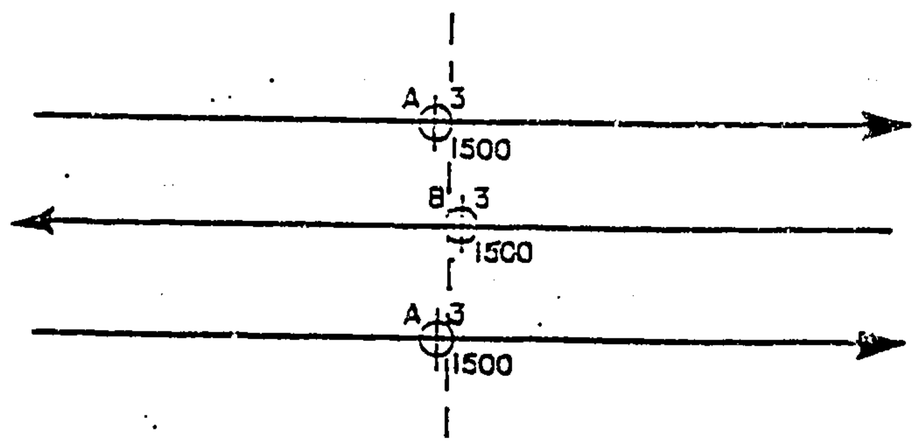
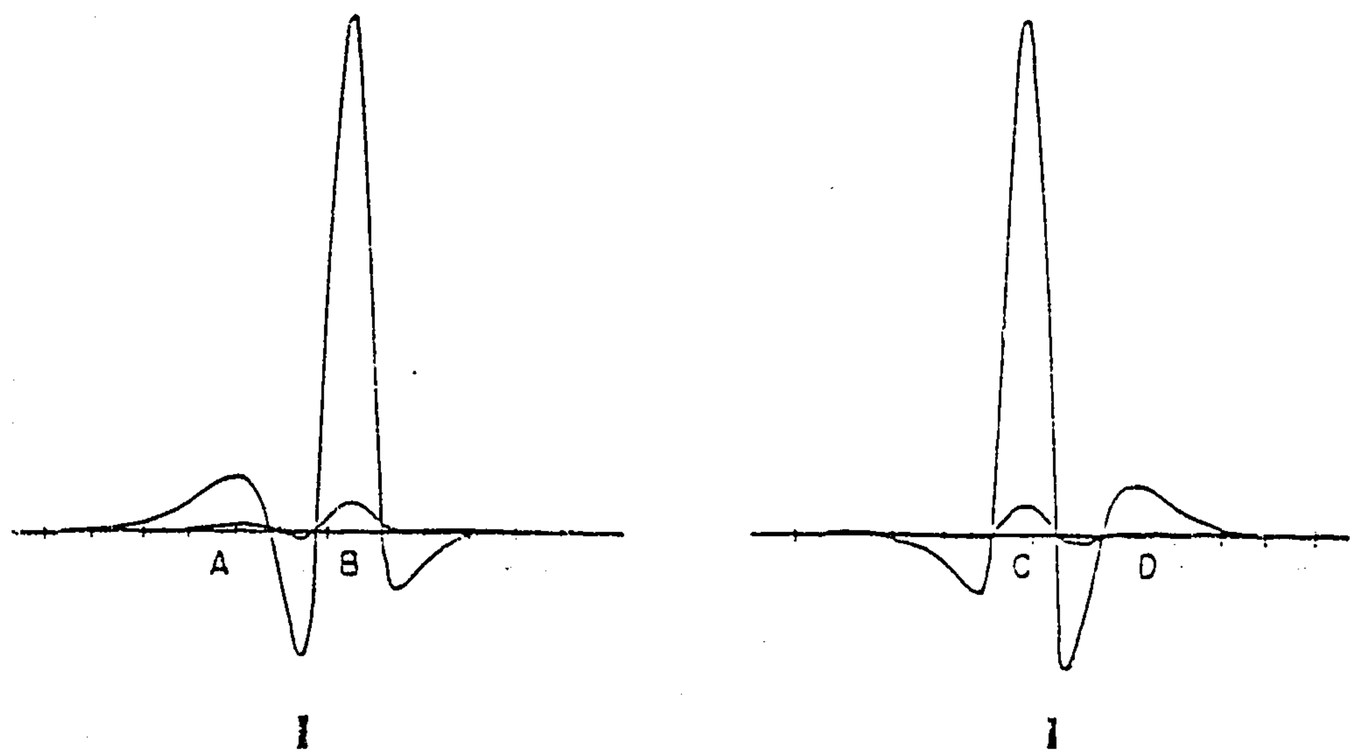


Figure 6

THE VERTICAL RIBBON RESPONSE



ANOMALY MAP PRESENTATION (no lag applied)

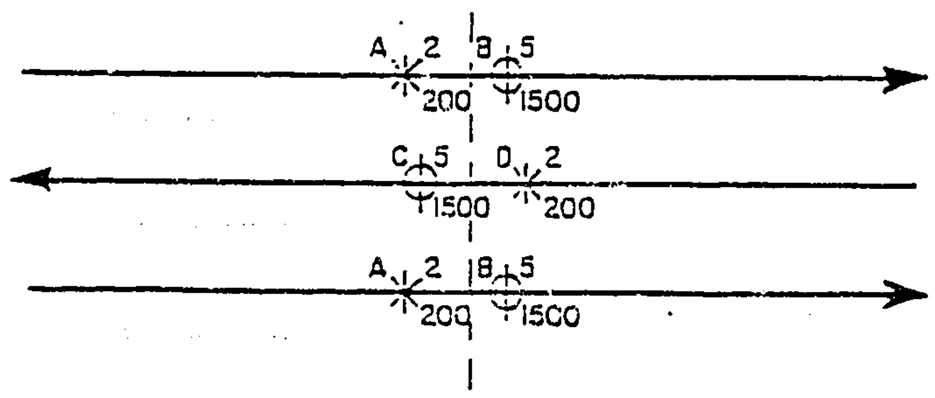
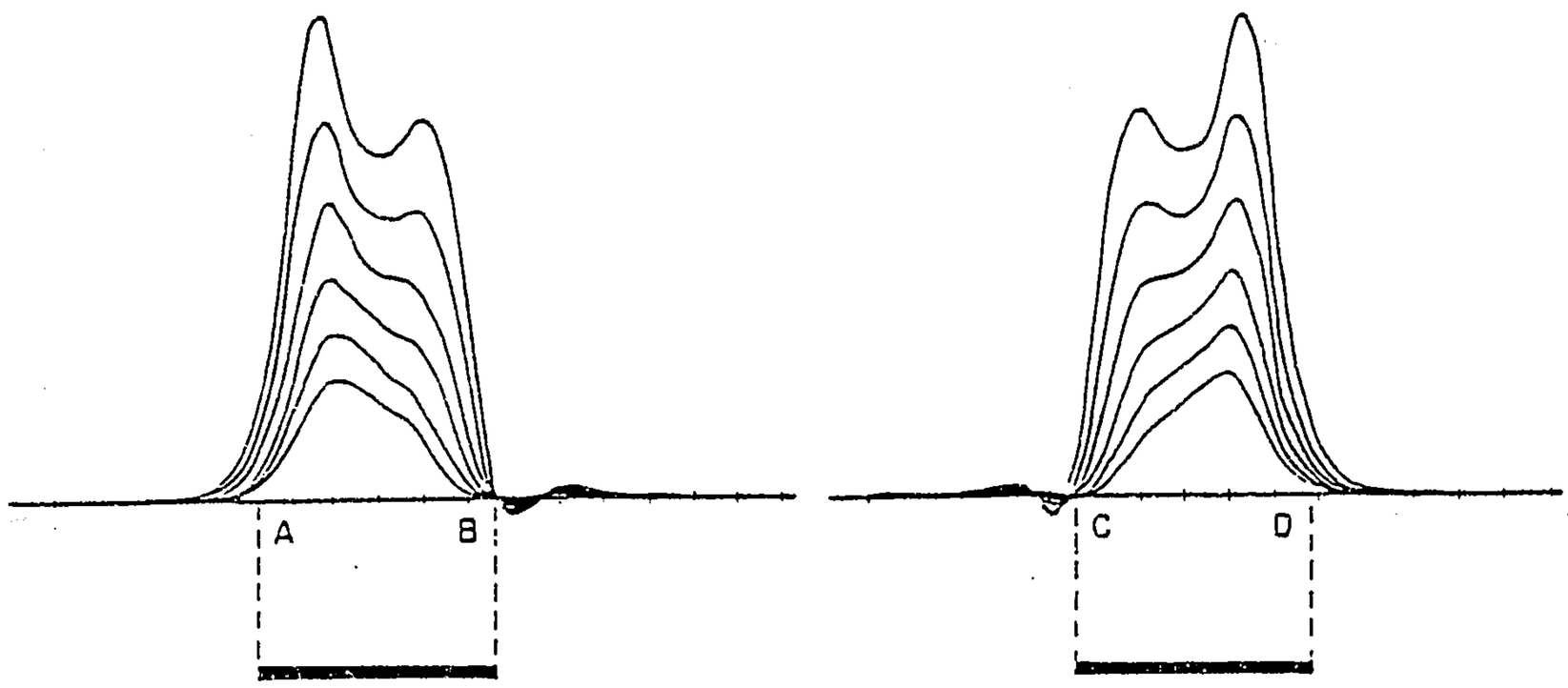


Figure 5

THE HORIZONTAL PLATE RESPONSE



ANOMALY MAP PRESENTATION (no lag applied)

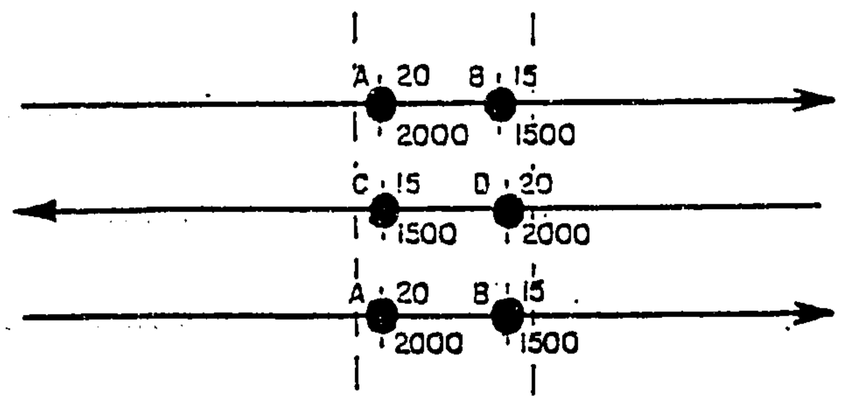
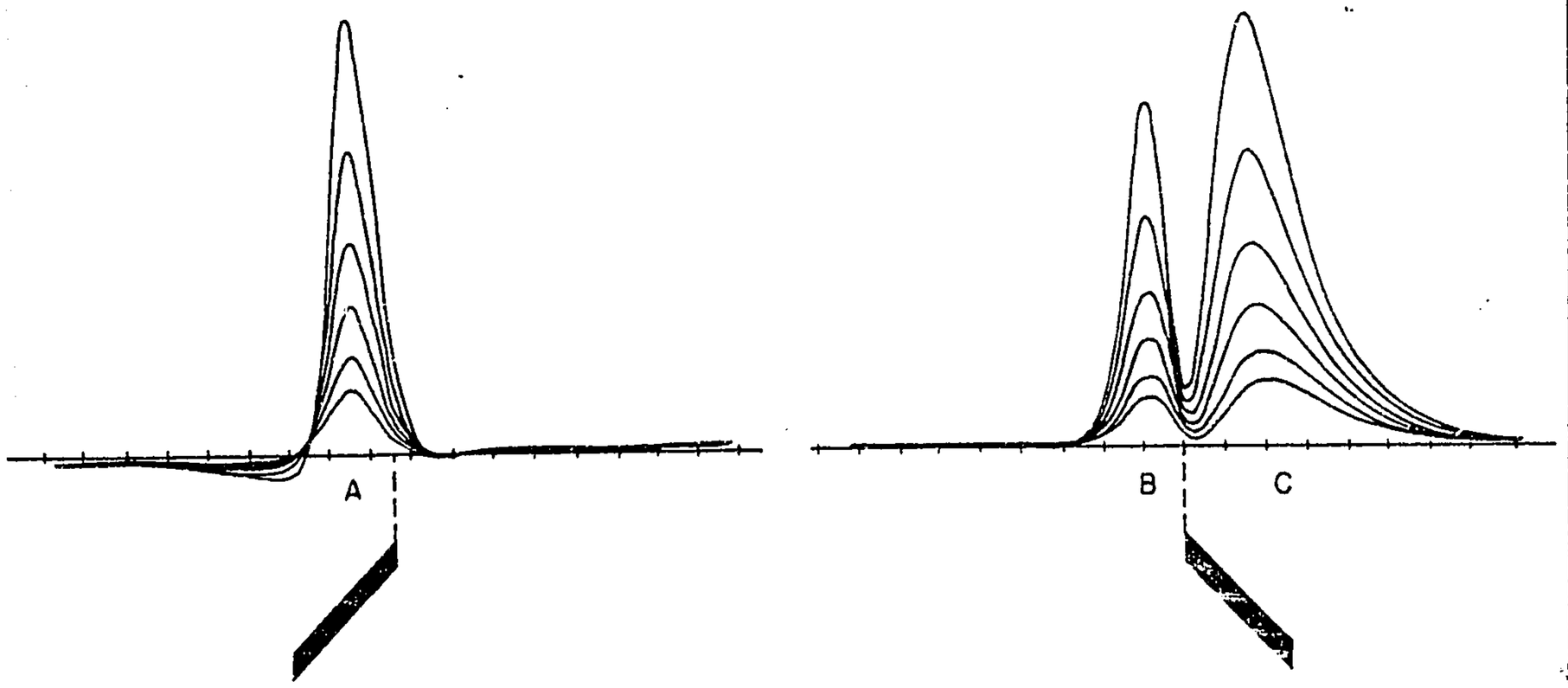
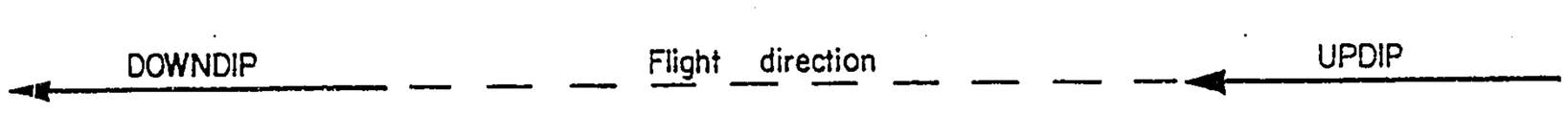


Figure 4

THE DIPPING PLATE RESPONSE





ANOMALY MAP PRESENTATION (no lag applied)

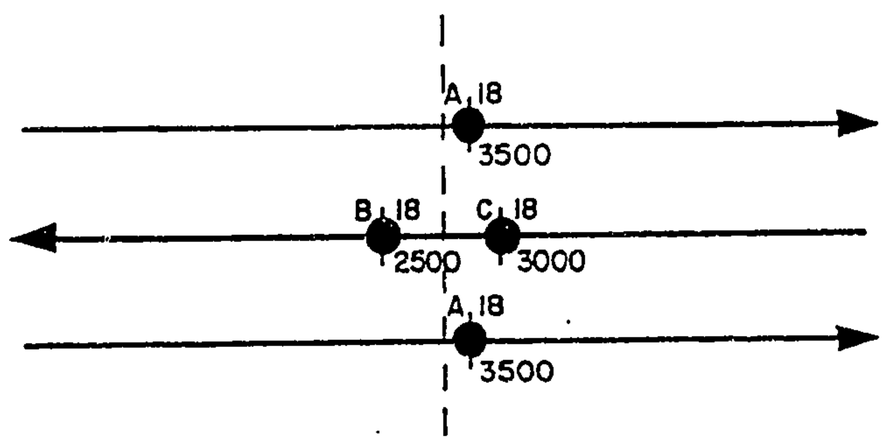
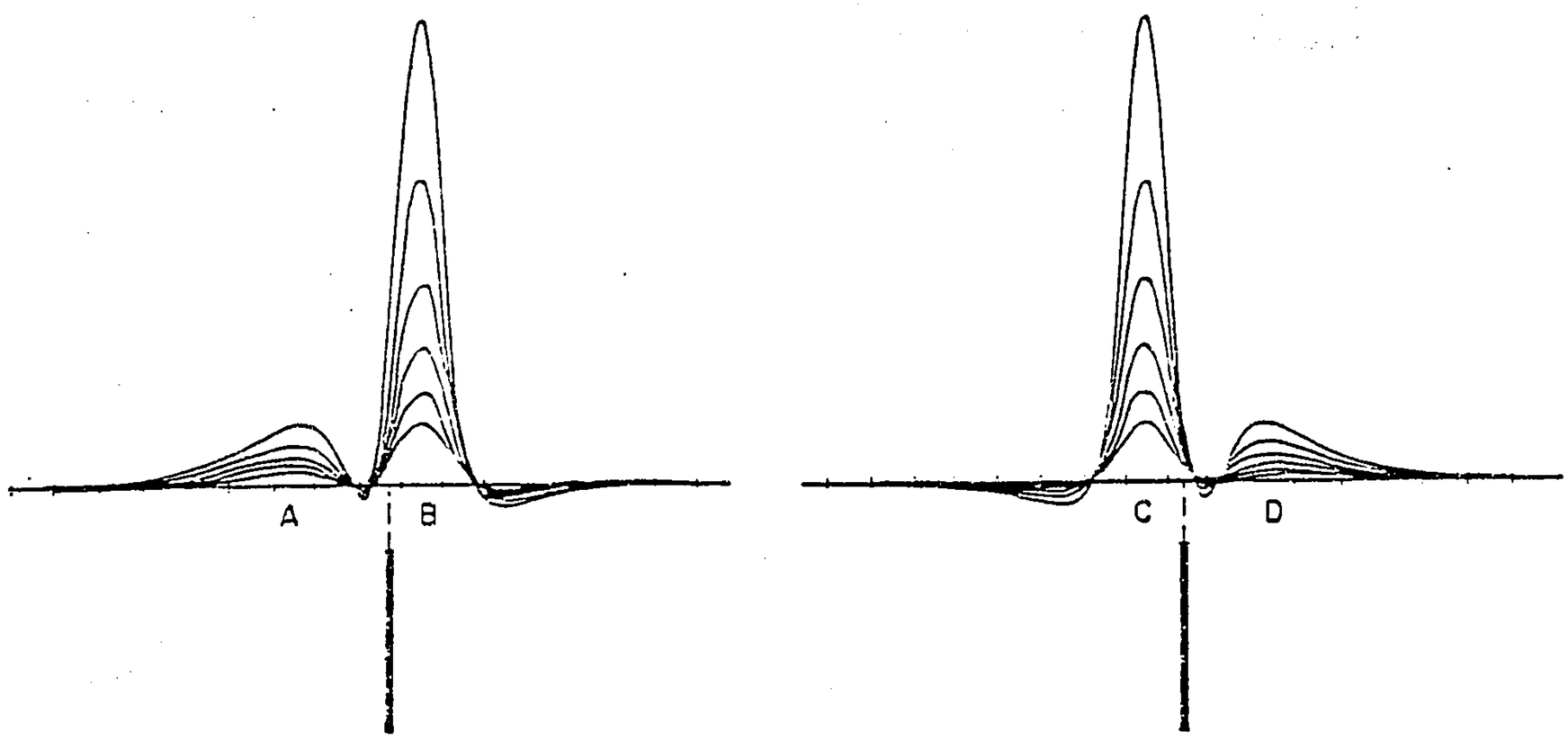


Figure 3

THE VERTICAL PLATE RESPONSE



ANOMALY MAP PRESENTATION (no lag applied)

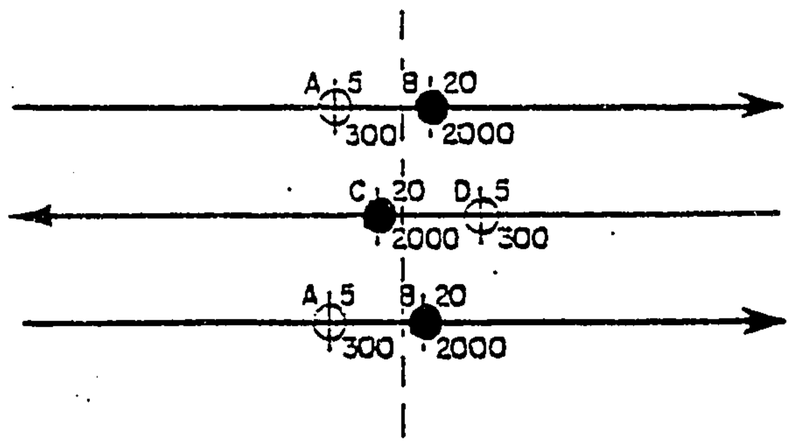


Figure 2

C. Bedrock Conductors

This category comprises those anomalies which cannot be classified according to the criteria established for cultural and surficial responses. It is difficult to assign a universal set of values which typify bedrock conductivity because any individual zone or anomaly might exhibit some, but not all, of these values and still be a bedrock conductor. The following criteria are considered indicative of a bedrock conductor:

1. An intermediate to high conductivity identified by a response with slow decay, with deflections most often present in the later channels.

2. The anomaly should be narrow, relatively symmetrical, with a well-defined peak.

3. There should be no serious displacement of anomaly position or change in anomaly shape (other than mirror image) with respect to flight direction, except in the case of non-vertical dipping bodies. The alternating character of the response as a result of line direction can be diagnostic of conductor geometry. Figures 2 to 6 illustrate anomalies associated with different target models.

4. A small to intermediate amplitude. Large amplitudes are normally associated with surficial conductors. The amplitude varies according to the depth of the source.

5. A degree of continuity of the EM characteristics across several lines.

6. An associated magnetic response of similar dimensions. One should note, however, that those rocks which weather to produce a conductive upper layer will possess this magnetic association. In the absence of one or more of the characteristics defined in 1, 2, 3 and 4, the related magnetic response cannot be considered significant.

Most obvious bedrock conductors occur in long, relatively monotonous, sometimes multiple zones following formational strike. Graphitic material is usually the most probable source. Massive syngenetic sulphides extending for many kilometres are known in nature but, in general, they are not common. Long formational structures associated with a strong magnetic expression may be indicative of banded iron formations.

A bedrock conductor reflecting the presence of a massive sulphide would normally exhibit the following characteristics:

- a high conductivity,
- a good anomaly shape (narrow and well-defined peak),
- a small to intermediate amplitude,
- an isolated setting,

EDGE EFFECT

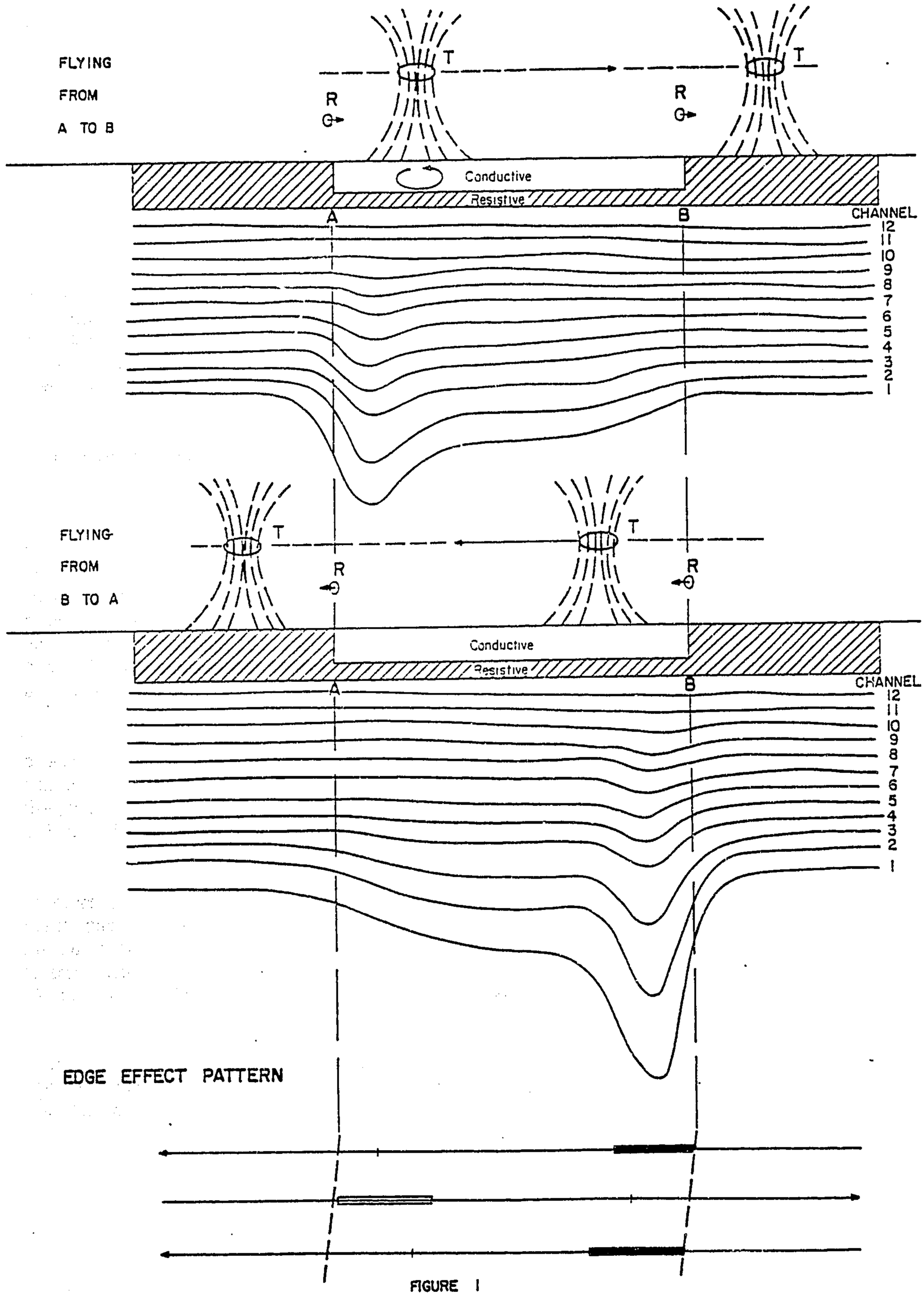


FIGURE 1

In most cases a visual examination of the site will suffice to verify the presence of a man-made conductor. If a second conductor is suspected the ground check is more difficult to accomplish. The object would be to determine if there is (i) a change in the man-made construction, (ii) a difference in the grounding conditions, (iii) a second cultural source, or (iv) if there is, indeed, a geological conductor in addition to the known man-made source.

B. Surficial Conductors

This term is used for geological conductors in the overburden, either glacial or residual in origin, and in the weathered layer of the bedrock. Most surficial conductors are probably caused by clay minerals. In some environments the presence of salts will contribute to the conductivity. Other possible electrolytic conductors are residual soils, swamps, brackish ground water and alluvium such as lake or river-bottom deposits, flood plains and estuaries.

Normally, most surficial materials have low to intermediate conductivity so they are not easily mistaken for highly conductive bedrock features. Also, many of them are wide and their anomaly shapes are typical of broad horizontal sheets.

When surficial conductivity is high it is usually still possible to distinguish between a horizontal plate (more likely to be surficial material) and a vertical body (more likely to be a bedrock source) thanks to the asymmetry of the GEOTEM responses observed at the edges of a broad conductor when flying adjacent lines in opposite directions. The configuration of the system is such that the response recorded at the leading edge is more pronounced than that registered at the trailing edge. Figure 1 illustrates the "edge effect" and the resulting conductive pattern in plan view. In practice there are many variations on this very diagnostic phenomenon.

One of the more ambiguous situations as to the true source of the response is when surface conductivity is related to bedrock lithology as for example, surface alteration of an underlying bedrock unit. At times, it is also difficult to distinguish between a weak conductor within the bedrock (e.g. near-massive sulphides) and a surficial source.

In the search for massive sulphides or other bedrock targets, surficial conductivity is generally considered as interference but there are situations where the interpretation of surficial-type conductors is the primary goal. When soils, weathered or altered products are conductive, and in-situ, the GEOTEM responses are a very useful aid to geologic mapping. Shears and faults are often identified by weak, usually narrow, anomalies.

Analysis of surficial conductivity can be used in the exploration for such features as lignite deposits, kimberlites, paleochannels and ground water. In coastal or arid areas, surficial responses may serve to define the limits of fresh, brackish and salty water.

III. ANALYSIS OF THE CONDUCTORS

The apparent conductivity alone is not generally a decisive criterion in the analysis of a conductor. In particular, one should note:

- its shape and size,
- all local variations of characteristics within a conductive zone,
- any associated geophysical parameter (e.g. magnetics),
- the geological environment,
- the structural context, and
- the pattern of surrounding conductors.

The first objective of the interpretation is to classify each conductive zone according to one of the three categories which best defines its probable origin. The categories are cultural, surficial and bedrock. A second objective is to assign to each zone a priority rating as to its potential as an economic prospect.

A. Cultural Conductors

The majority of cultural anomalies occur along roads and are accompanied by a response on the power line monitor. (This monitor is set to 50 or 60 Hz, depending on the local power grid.) Power lines are the most common source of the anomalies and many are recognized immediately by virtue of phase reversals or an abnormal rate of decay. A certain number yield normal GEOTEM anomalies which could be mistaken for bedrock responses. There are also some power lines which have no GEOTEM response whatsoever.

The power line monitor, of course, is of great assistance in identifying cultural anomalies of this type. It is important to note, however, that geological conductors in the vicinity of power lines may exhibit a weak response on the monitor because of current induction via the earth.

Fences, pipelines, communication lines, railways and other man-made conductors can give rise to GEOTEM responses, the strength of which will depend on the grounding of these objects.

Another facet of this analysis is the line-to-line comparison of anomaly character along suspected man-made conductors. In general, the amplitude, the rate of decay, and the anomaly width should not vary a great deal along any one conductor, except for the change in amplitude related to terrain clearance variation. A marked departure from the average response character along any given feature gives rise to the possibility of a second conductor.

2. Massive sulphides. Massive sulphide deposits usually manifest themselves as short conductors of high conductivity, often with a coincident magnetic anomaly. Some massive sulphides, however, are not magnetic, others are not very conductive (discontinuous mineralization), and some may be located among formational conductors so that one must not be too rigid in applying the selection criteria.

   In addition, there are syngenetic sulphides whose conductive pattern may be similar to that of graphitic horizons but these are generally not as prevalent as graphites.

3. Magnetite and some serpentinized ultrabasics. These rocks are conductive and very magnetic.

4. Manganese oxides. This mineralization may give rise to a weak EM response.

B. Surficial Conductors

1. Beds of clay and alluvium, some swamps, and brackish ground water are usually poorly conductive to moderately conductive.

2. Lateritic formations, residual soils and the weathered layer of the bedrock may cause surface anomalous zones, the conductivity of which is generally low to medium but can occasionally be high. Their presence is often related to the underlying bedrock.

C. Cultural Conductors (Man-Made)

1. Power lines. These frequently, but not always, produce a conductive type of response on the GEOTEM record. In the case of direct radiation of its field, a power line is easily recognized by a GEOTEM anomaly which exhibits phase changes between different channels. In the case of a grounded wire, or steel pylon, the anomaly may look very much like a bedrock conductor.

2. Grounded fences or pipelines. These will invariably produce responses much like a bedrock conductor. Whenever they cannot be identified positively, a ground check is recommended.

3. General culture. Other localized sources such as certain buildings, bridges, irrigation systems, tailings ponds etc., may produce GEOTEM anomalies. Their instances, however, are rare and often they can be identified on the visual path recovery system.

GEOTEM[R1] INTERPRETATION

I. INTRODUCTION

The basis of the transient electromagnetic (EM) geophysical surveying technique relies on the premise that changes in the primary EM field produced in the transmitting loop will result in eddy currents being generated in any conductors in the ground. The eddy currents then decay to produce a secondary EM field which may be sensed as a voltage in the receiver coil.

GEOTEM (GEOterrex Transient ElectroMagnetic system) is an airborne transient (or time-domain) towed-bird EM system incorporating a high-speed digital receiver which records the secondary field response with a high degree of accuracy. Most often the total magnetic field is recorded concurrently.

Although the approach to GEOTEM interpretation varies from one survey to another depending on the type of data presentation, objectives and local conditions, the following generalizations may provide the reader with some helpful background information.

The main purpose of the interpretation is to determine the probable origin of the conductors detected during the survey and to suggest recommendations for further exploration. This is possible through an objective analysis of all characteristics of the different types of conductors and associated magnetic anomalies, if any. If possible the airborne results are compared to other available data. A certitude is seldom reached, but a high probability is achieved in identifying the conductive causes in most cases. One of the most difficult problems is usually the differentiation between surface conductors and bedrock conductors.

II. TYPES OF CONDUCTORS

A. Bedrock Conductors

The different types of bedrock conductors normally encountered are the following:

1. Graphites. Graphitic horizons (including a large variety of carbonaceous rocks) occur in sedimentary formations of the Precambrian as well as in volcanic tuffs, often concentrated in shear zones. They correspond generally to long, multiple conductors lying in parallel bands. They have no magnetic expression unless associated with pyrrhotite or magnetite. Their conductivity is variable but generally high.

---

[1] GEOTEM[R]: Registered Trade Mark of Geoterrex Limited.

APPENDIX D

GEOTEM® Interpretation

Tape Number	:	656
Area	:	Pinebay, Manitoba
Recording Density	:	9 Track, 1600 BPI
Recording Mode	:	ASCII (no labels)
Encoding Format	:	(26 I 8)
Logical Record Length	:	208 Bytes (fixed)
Physical Blocksize	:	13312 Bytes (fixed)

Each physical block consists of 64 logical records of digital archived data. The composition of a single logical record is described below:

Logical Record Contents

Parameter	Characters		Contents
1	1 - 8		Line Number X 100 + Part Number
2	9 - 16	-1-	Fiducial (seconds X 10 past midnight)
3	17 - 24		Easting (metres)
4	25 - 32		Northing (metres)
5	33 - 40		Radar Altimeter (centimetres)
6	41 - 48		Ground Magnetics (nT X 100)
7	49 - 56		Air-Ground Magnetics (nT X 100)
8	57 - 64	-2-	Levelled Air-Ground (nT X 100)
9	65 - 72		EM Channel Number 1 (PPM)
10	73 - 80		EM Channel Number 2 (PPM)
11	81 - 88		EM Channel Number 3 (PPM)
12	89 - 96		EM Channel Number 4 (PPM)
13	97 - 104		EM Channel Number 5 (PPM)
14	105 - 112		EM Channel Number 6 (PPM)
15	113 - 120		EM Channel Number 7 (PPM)
16	121 - 128		EM Channel Number 8 (PPM)
17	129 - 136		EM Channel Number 9 (PPM)
18	137 - 144		EM Channel Number 10 (PPM)
19	145 - 152		EM Channel Number 11 (PPM)
20	153 - 160		EM Channel Number 12 (PPM)
21	161 - 168	-3-	EM Channel Number 13 (PPM)
22	169 - 176	-3-	EM Channel Number 14 (PPM)
23	177 - 184	-3-	EM Channel Number 15 (PPM)
24	185 - 192	-3-	EM Channel Number 16 (PPM)
25	193 - 200		EM Noise Monitor (microvolts)
26	201 - 208		EM Total Field (percent primary)

Notes:

1. The fiducial value is the time in seconds X10 past midnight. Each second of data is archived as 6 successive data samples, with each of the samples for one second having the same fiducial number.

2. Levelled air-ground magnetics consists of the air-ground magnetics plus a compensation value.

3. EM channels 13 to 16 have been edited for sferics only and have not been noise filtered.

4. When the data for a line terminates in mid-block, the remainder of the block is zero filled.

5. Archived data terminates with a single end of file.

LIST OF ARCHIVE CONTENTS

Identifier	First Fiducial	Last Fiducial	First Block	Last Block	Number of Records
10001	495890	496920	1	10	619
10101	498170	499220	11	20	631
10201	500320	501340	21	30	613
10301	502540	503600	31	40	637
10401	507220	508240	41	50	613
10501	510420	511510	51	61	655
10601	512610	513630	62	71	613
10701	514790	515860	72	82	643
10801	517050	518060	83	92	607
10901	519190	520260	93	103	643
11001	521460	522470	104	113	607
11101	523620	524690	114	124	643
11201	525880	526920	125	134	625
11301	528130	529210	135	145	647
11401	530310	531360	146	155	631
11501	532540	533620	156	166	649
11601	539700	540800	167	177	661
11701	541900	542990	178	188	655
11801	544200	545270	189	199	643
11901	546390	547460	200	210	643
12001	548690	549770	211	221	649
12101	550960	552010	222	231	631
12201	553310	554390	232	242	649
12301	555580	556640	243	252	637
12401	557890	558960	253	263	643
12501	560020	561060	264	273	625
12601	569540	570630	274	284	655
12701	571700	572760	285	294	637
12801	573880	574980	295	305	661
12901	576020	577120	306	316	661
13001	578310	579400	317	327	655
13101	580510	581590	328	338	649
13201	582680	583760	339	349	649
13301	584850	585950	350	360	661
13401	587000	588060	361	370	637
13501	589120	590220	371	381	661
13601	591350	592390	382	391	625
13701	593500	594590	392	402	655
13801	595600	596630	403	412	619
13901	597720	598820	413	423	661
14001	600000	601050	424	433	631
14101	602200	603280	434	444	649
14201	604490	605570	445	455	649
14301	606690	607760	456	466	643
14401	608940	610020	467	477	649
14501	611160	612220	478	487	637
14601	613330	614420	488	498	655
14701	615480	616540	499	508	637
14801	617710	618790	509	519	649
14901	619890	620970	520	530	649
15001	622060	623130	531	541	643

15101	624240	625330	542	552	655
15201	626440	627480	553	562	625
15301	628520	629620	563	573	661
15401	630680	631730	574	583	631
15501	632800	633900	584	594	661
15601	306960	307920	595	604	577
15701	309230	310410	605	616	709
15801	312580	313560	617	626	589
15901	314790	315970	627	638	709
16001	317030	318000	639	648	583
16101	319240	320420	649	660	709
16201	321490	322460	661	670	583
16301	323690	324840	671	681	691
16401	325920	326910	682	691	595
16501	330040	331190	692	702	691
16601	332260	333280	703	712	613
16701	334510	335660	713	723	691
16801	336780	337820	724	733	625
16901	339010	340180	734	744	703
17001	343150	344290	745	755	685
17101	347010	348050	756	765	625
17201	349270	350400	766	776	679
17301	351440	352470	777	786	619
17401	353660	354800	787	797	685
17501	355960	356990	798	807	619
17601	358270	359400	808	818	679
17701	360510	361530	819	828	613
17801	362810	363930	829	839	673
17901	365080	366090	840	849	607
18001	367250	368380	850	860	679
18101	376370	377490	861	871	673
18201	378600	379600	872	881	601
18301	380770	381940	882	892	703
18401	383050	384080	893	902	619
18501	385350	386500	903	913	691
18601	387600	388620	914	923	613
18701	389770	390930	924	934	697
18801	391960	392990	935	944	619
18901	394120	395280	945	955	697
19001	396310	397330	956	965	613
50001	398940	400540	966	981	961
50101	402800	404440	982	997	985

... End of File ...

APPENDIX G

Anomaly Listing

geoterrex ltd.

FLIGHT 1 LINE 100 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	496570	175	36	--	--	--	--	3	114		

FLIGHT 1 LINE 101 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	498...5	180	--	--	--	--	--	2	108		

FLIGHT 1 LINE 102 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.

NO ANOMALIES FOUND ON THIS LINE

FLIGHT 1 LINE 103 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.

NO ANOMALIES FOUND ON THIS LINE

FLIGHT 1 LINE 104 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	507903	194	56	37	--	--	--	6	112	44	129

FLIGHT 1 LINE 105 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	510791	592	--	--	--	--	--	2	111		
? B	511246	79	35	--	--	--	--	3	134		

FLIGHT 1 LINE 106 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
?	A	512911	296	119	--	--	--	--	4	132	0	109
	B	513233	985	51	44	--	--	--	5	110	0	131

FLIGHT 1 LINE 107 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A	515145	521	66	39	--	--	--	6	109	29	165
	B	515535	2104	544	243	147	80	--	9	121	24	59
C	a	515606										

FLIGHT 1 LINE 108 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a	517293										
?	A	517323	863	133	63	44	--	--	8	138	15	99
	B	517408	255	101	57	--	--	--	6	135	25	118
	C	517756	165	52	--	--	--	--	3	118		
	D	518030	174	--	--	--	--	--	2	114		

FLIGHT 1 LINE 109 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A	519540	248	66	41	--	--	--	5	110	0	143
	B	519878	3667	708	292	173	122	70	12	119	22	57
	C	519955	507	91	48	--	--	--	6	126	13	118
C	a	520035										

FLIGHT 1 LINE 110 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a	521650										
	A	521756	1056	34	--	--	--	--	3	136		
	B	521830	1096	175	76	--	--	--	6	126	9	71

?	C	522041	73	--	--	--	--	--	2	111		
	D	522193	124	60	--	--	--	--	4	115	0	82
	E	522403	164	--	--	--	--	--	2	120		

FLIGHT 1 LINE 111 PART 1 CODE 0

TYPE/ ORDER		FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A	523938	384	62	--	--	--	--	3	116		
?	B	524290	3097	526	216	123	82	63	11	119	30	72
	C	524371	651	97	38	--	--	--	6	125	9	104
C	a	524500										

FLIGHT 1 LINE 112 PART 1 CODE 0

TYPE/ ORDER		FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a	526063										
	A	526196	1539	83	--	--	--	--	3	130		
?	B	526278	1062	176	101	58	38	--	10	121	19	98
	C	526631	209	38	--	--	--	--	3	121		

FLIGHT 1 LINE 113 PART 1 CODE 0

TYPE/ ORDER		FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A	528451	500	54	32	--	--	--	6	112	18	174
	B	528785	1597	272	107	81	52	33	12	128	15	62
	C	528871	1112	142	67	39	--	--	7	122	11	94
	D	528941	156	69	--	--	--	--	4	115	0	101
C	a	529023										

FLIGHT 1 LINE 114 PART 1 CODE 0

TYPE/ ORDER		FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a	530498										
	A	530588	87	58	35	--	--	--	5	117	0	26
	B	530650	2455	53	--	--	--	--	3	123		
	C	530753	274	88	33	--	--	--	5	125	0	18
	D	531071	296	--	--	--	--	--	2	124		
	E	531275	88	--	--	--	--	--	1	118		

FLIGHT 1 LINE 115 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	532723	111	34	--	--	--	--	3	114		
B	532848	631	61	36	--	--	--	5	106	0	37
C	533185	875	155	83	--	--	--	6	128	14	92
D	533280	1251	155	70	53	--	--	7	124	10	81
E	533345	292	117	71	--	--	--	6	116	26	128
C a	533441										

FLIGHT 1 LINE 116 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	539893										
? A	539991	66	--	--	--	--	--	1	111		
B	540046	3202	40	--	--	--	--	3	120		
C	540185	904	178	72	28	--	--	7	127	9	73
D	540455	339	--	--	--	--	--	2	112		
E	540626	76	--	--	--	--	--	1	120		
F	540716	104	--	--	--	--	--	1	123		

FLIGHT 1 LINE 117 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	542205	364	64	33	--	--	--	5	114	0	86
B	542490	612	66	32	25	--	--	7	108	14	161
C	542571	1057	81	55	47	--	--	8	117	48	105
D	542620	1229	176	90	--	--	--	6	115	14	99
E	542756	1709	700	317	147	55	28	11	113	11	43
C a	542796										

FLIGHT 1 LINE 118 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	544400										
A	544536	1197	--	--	--	--	--	1	121		
B	544588	393	68	--	--	--	--	4	120	0	1
C	544673	146	45	--	--	--	--	3	111		
D	544960	207	--	--	--	--	--	2	112		
E	545066	108	--	--	--	--	--	1	118		

FLIGHT 1 LINE 119 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	546678	146	42	--	--	--	--	4	112	0	9
B	547093	1381	225	115	80	51	34	12	121	31	94
C	547135	549	136	80	45	--	--	8	117	14	108
C a	547261										

FLIGHT 1 LINE 120 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	548808										
C b	548845										
C c	548890										
A	549053	1687	330	138	92	67	38	12	113	25	90
B	549295	98	--	--	--	--	--	1	120		

FLIGHT 1 LINE 121 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	551265	92	--	--	--	--	--	2	114		
B	551655	1957	421	215	118	90	64	12	121	54	64
C a	551816										

FLIGHT 1 LINE 122 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	553506										
C b	553525										
? A	553611	224	147	--	--	--	--	3	123		
B	553670	1663	305	127	90	58	28	12	124	12	48
C	553908	47	--	--	--	--	--	1	131		
D	554023	40	--	--	--	--	--	1	120		

FLIGHT 1 LINE 123 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
? A	556311	3803	1053	403	192	105	56	12	124	13	30
C? a	556438										
B	556591	8884	3308	1590	895	535	345	12	130	22	-8

FLIGHT 1 LINE 124 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C? a	558081										
C b	558155										
? A	558215	1402	249	132	68	48	--	9	129	16	79
B	558251	628	102	61	27	--	--	7	122	8	95

FLIGHT 1 LINE 125 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	560508	81	--	--	--	--	--	2	126		
? B	560746	2882	575	221	119	66	54	11	153	14	17
C a	560768										
? C	560871	2330	1023	589	377	276	174	12	138	21	5
C b	560885										
D	561015	9030	3756	2000	1180	727	479	12	131	24	-16

FLIGHT 1 LINE 126 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	569713										
A	569733	3246	1432	823	519	354	212	12	133	23	3
C b	569863										
? B	569888	1246	339	199	105	60	--	9	147	28	48

FLIGHT 1 LINE 127 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	571875	102	--	--	--	--	--	2	122		
C a	572386										
? B	572440	2675	492	124	48	--	--	8	138	10	48
C	572563	2353	904	489	317	209	133	12	133	21	17
C b	572593										
D	572703	8329	3509	1888	1129	712	462	12	124	20	-12

FLIGHT 1 LINE 128 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	573931	3136	1383	767	471	313	233	12	127	50	16
C a	574051										
B	574078	2282	992	550	347	228	166	12	137	39	18
C	574206	1459	154	--	--	--	--	4	124	0	31
C b	574281										
D	574785	111	55	--	--	--	--	4	124	0	31

FLIGHT 1 LINE 129 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	576266	115	58	32	--	--	--	6	113	23	170
B	576470	115	38	--	--	--	--	4	131	0	152
C a	576676										
C	576798	998	229	63	--	--	--	6	125	7	49
D	576913	2218	855	431	274	165	128	12	134	24	24
C b	576951										
E	577060	7362	3071	1638	957	604	380	12	120	22	-1

FLIGHT 1 LINE 130 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	578350	5024	1835	926	543	339	252	12	124	51	16
C a	578478										
B	578503	2944	1153	600	375	249	160	12	124	23	22
C	578650	498	87	--	--	--	--	4	119	0	27
C b	578791										

FLIGHT 1 LINE 131 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	580958	137	--	--	--	--	--	1	124		
C a	581076										
B	581291	764	164	65	36	--	--	7	137	8	53
C	581383	1594	655	370	230	161	127	12	140	66	21
C b	581420										
D	581521	5025	1885	930	546	339	237	12	125	29	14

FLIGHT 1 LINE 132 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	582730	3959	1505	773	455	305	221	12	126	53	19
C a	582846										
B	582866	1901	706	376	252	172	122	12	139	29	23
C	583006	359	66	--	--	--	--	3	136		
C b	583213										
D	583313	90	--	--	--	--	--	1	135		

FLIGHT 1 LINE 133 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	585360										
A	585628	940	183	73	37	25	--	9	129	13	94
B	585721	2151	879	488	316	197	144	12	125	33	33
C b	585746										
C	585838	1551	625	342	216	139	92	11	136	22	31
D	585858	2017	791	423	264	167	110	11	137	24	22

FLIGHT 1 LINE 134 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	587048	3200	1137	541	299	188	128	12	122	34	39
C a	587165										
B	587190	2809	1027	528	322	217	135	12	132	21	17
C	587273	854	37	--	--	--	--	3	115		
D	587306	581	104	--	--	--	--	4	119	0	30
C b	587620										

FLIGHT 1 LINE 135 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 589356	80	36	--	--	--	--	3	111		
C	a 589526										
	B 589891	1802	254	81	40	--	--	8	123	13	87
	C 589993	2729	1135	555	314	169	94	12	121	12	8
C	b 590013										
	D 590141	740	315	162	111	69	40	11	131	38	66

FLIGHT 1 LINE 136 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 591378	1444	498	262	160	109	69	12	136	29	44
C	a 591515										
	B 591531	4795	1627	756	404	234	220	12	124	48	22
	C 591646	659	74	--	--	--	--	4	124	0	22
	D 591938	84	--	--	--	--	--	1	137		
C	b 592063										
?	E 592136	144	97	--	--	--	--	4	123	0	23

FLIGHT 1 LINE 137 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a 593730										
	A 593978	172	46	--	--	--	--	3	130		
	B 594301	1514	253	98	47	--	--	8	138	12	70
	C 594400	2765	1174	577	335	230	170	12	131	38	22
C	b 594411										
	D 594530	597	230	134	99	65	41	12	116	31	94

FLIGHT 1 LINE 138 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a 595766										
	A 595781	7047	2568	1104	530	260	147	12	121	12	-2
	B 595881	1113	111	28	--	--	--	5	120	0	-1
	C 596196	93	36	--	--	--	--	3	121		
C	b 596446										

FLIGHT 1 LINE 139 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	597833										
A	598221	528	58	--	--	--	--	4	117	0	1
B	598520	2681	326	112	46	--	--	8	115	9	63
C	598583	3008	777	368	194	116	65	12	104	13	44
D	598615	6086	2352	999	449	256	160	12	110	16	23
C b	598630										
E	598745	303	176	83	--	--	--	6	121	13	94

FLIGHT 1 LINE 140 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	600063	847	194	90	60	29	--	9	138	16	80
C a	600186										
B	600201	9305	2466	801	326	164	90	12	119	10	1
C	600293	1070	125	29	--	--	--	5	117	0	2
D	600541	753	54	45	--	--	--	6	129	38	127
E	600628	181	--	--	--	--	--	2	109		
C b	600996										

FLIGHT 1 LINE 141 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	602618	403	60	33	--	--	--	5	103	0	153
B	602648	399	64	33	--	--	--	5	104	0	152
C	602730	211	65	--	--	--	--	4	136	0	120
D	602991	3177	330	106	47	--	--	8	106	8	64
E	603016	1843	372	129	49	--	--	7	104	6	39
F	603085	2566	790	302	148	90	36	12	127	8	-4
C a	603100										
G	603236	551	135	69	--	--	--	6	129	18	103

FLIGHT 1 LINE 142 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	604535	471	126	64	31	--	--	7	123	12	104
B	604561	327	119	71	48	24	--	9	113	19	124
C a	604663										
C	604690	7014	1637	549	233	116	79	12	109	24	62

	D	604770	1077	146	48	---	---	---	6	118	8	84
	E	605038	1043	54	31	---	---	---	5	127	0	75
	F	605125	139	--	--	---	---	---	1	115		
	G	605398	67	--	--	---	---	---	1	115		

FLIGHT 1 LINE 143 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 607073	316	53	--	--	--	--	3	115		
	B 607126	927	79	36	--	--	--	6	103	14	167
	C 607221	293	43	--	--	--	--	3	124		
	D 607495	2757	246	71	36	---	---	7	115	6	42
	E 607558	2681	764	287	129	77	52	12	117	22	70
C	a 607588										
	F 607700	252	130	75	---	---	---	5	116	0	82

FLIGHT 1 LINE 144 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 609015	365	140	73	---	---	---	6	116	11	108
C	a 609106										
	B 609158	2884	265	89	53	34	---	9	109	23	118
	C 609210	1671	278	102	59	---	---	8	106	12	91
	D 609498	837	50	31	---	---	---	5	113	0	84
	E 609568	212	--	--	---	---	---	1	104		
	F 609645	92	38	--	---	---	---	3	116		

FLIGHT 1 LINE 145 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 611546	381	--	--	--	---	---	2	116		
	B 611600	950	59	29	---	---	---	5	107	0	90
	C 611686	326	63	34	---	---	---	5	119	0	78
	D 611951	2947	193	48	---	---	---	6	116	7	53
	E 612003	513	207	86	49	---	---	7	121	12	86
C	a 612066										
	F 612156	557	248	145	100	72	---	10	122	33	79

FLIGHT 1 LINE 146 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	613363	690	190	86	51	36	--	9	111	16	108
B	613395	455	176	67	--	--	--	6	120	9	82
C a	613488										
C	613571	2776	127	34	--	--	--	6	116	6	67
D	613613	1545	308	114	75	29	--	9	117	9	63
E	613898	718	47	--	--	--	--	3	126		
F	613991	188	47	30	--	--	--	5	112	0	68

FLIGHT 1 LINE 147 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	615911	1229	62	47	--	--	--	5	111	0	69
B	615993	368	65	37	--	--	--	5	115	0	65
C	616263	2355	248	88	52	39	--	10	118	12	78
D	616311	656	291	145	91	43	--	9	125	15	70
C a	616385										
E	616478	132	--	--	--	--	--	2	117		

FLIGHT 1 LINE 148 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	617868										
A	617921	1926	569	261	150	82	42	11	112	15	59
B	617998	1903	331	133	74	32	--	10	115	12	74
C	618258	1271	73	41	--	--	--	6	104	15	156
D	618331	326	41	--	--	--	--	3	110		

FLIGHT 1 LINE 149 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	620335	1040	35	--	--	--	--	3	108		
B	620426	453	81	29	--	--	--	5	114	0	146
C	620685	1012	256	117	63	--	--	8	121	10	60
D	620733	711	294	145	92	48	26	11	124	15	67
C a	620805										

FLIGHT 1 LINE 150 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	622230										
A	622290	332	109	55	--	--	--	6	121	19	123
B	622371	1328	272	105	--	--	--	6	119	8	57
C	622591	1094	69	38	--	--	--	5	109	0	67
D	622653	127	57	--	--	--	--	4	108	0	68

FLIGHT 1 LINE 151 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
? A	624258	142	62	--	--	--	--	4	110	0	66
B	624696	419	50	--	--	--	--	3	113		
C	624748	1261	70	42	--	--	--	5	102	0	74
D	624786	600	97	44	32	--	--	7	103	15	144
E	625013	1012	172	74	--	--	--	6	117	9	81
F	625048	680	221	93	57	23	--	9	117	15	96
G	625083	509	204	111	63	43	23	11	116	16	96
C a	625151										

FLIGHT 1 LINE 152 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	626468	878	109	--	--	--	--	4	117	0	84
C a	626598										
B	626708	626	86	29	--	--	--	5	119	0	82
C	626758	1148	334	145	76	43	--	9	114	16	88
D	626920	2172	85	29	--	--	--	5	106	0	96
E	626938	603	86	--	--	--	--	4	105	0	97
F	627028	49	--	--	--	--	--	1	115		

FLIGHT 1 LINE 153 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	628991	249	--	--	--	--	--	1	110		
B	629088	773	128	38	--	--	--	5	113	0	89
C	629273	1829	430	201	124	--	--	7	124	14	51
D	629338	530	154	70	--	--	--	6	121	7	69
C a	629448										

FLIGHT 1 LINE 154 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	630725	659	68	--	--	--	--	4	118	0	85
C a	630846										
B	630965	1105	171	56	29	--	--	7	123	7	62
C	631011	2684	826	323	168	113	71	12	119	16	44
D	631083	448	--	--	--	--	--	1	112		
E	631193	1068	124	32	--	--	--	5	105	0	58

FLIGHT 1 LINE 155 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	632941	39	--	--	--	--	--	1	110		
B	633235	121	--	--	--	--	--	2	115		
C	633356	1274	151	40	--	--	--	6	107	7	85
D	633431	545	--	--	--	--	--	2	107		
? E	633480	333	98	54	--	--	--	6	110	24	139
F	633550	3243	708	340	177	102	57	12	124	15	36
G	633616	538	140	58	--	--	--	6	121	8	86
C a	633723										
H	633863	272	--	--	--	--	--	2	108		

FLIGHT 2 LINE 156 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	307011	342	83	33	--	--	--	5	135	0	32
C a	307110										
B	307221	2414	213	76	37	26	--	9	119	18	120
C	307266	2430	936	440	216	129	62	11	115	12	27
D	307341	192	--	--	--	--	--	1	119		
E	307436	1141	135	42	--	--	--	6	116	6	64
? F	307870	209	107	57	29	--	--	7	120	12	124

FLIGHT 2 LINE 157 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	309281	183	88	42	--	--	--	6	110	12	145
B	309706	141	39	--	--	--	--	4	117	0	138
C	309821	2176	218	82	--	--	--	6	109	6	46
D	310023	7599	1427	580	287	166	101	12	109	16	38

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
		E 310091	729	180	88	47	--	--	7	120	11	85
C	a	310211										
		F 310358	214	--	--	--	--	--	2	110		

FLIGHT 2 LINE 158 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
		A 312663	248	50	32	--	--	--	5	121	0	83
C	a	312745										
		B 312843	5124	768	305	166	111	90	12	118	17	44
		C 312860	4607	650	245	132	71	52	12	117	13	46
		D 312901	2647	1055	543	218	106	--	9	112	10	20
		E 313076	1288	113	42	--	--	--	6	115	8	91
?		F 313496	73	36	--	--	--	--	3	121		

FLIGHT 2 LINE 159 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
		A 315366	2215	247	85	39	25	--	9	105	13	109
		B 315540	4337	934	411	208	129	77	12	116	14	31
		C 315563	8361	1316	506	270	158	87	12	113	14	29
		D 315631	2015	904	447	303	187	138	12	124	21	28
C	a	315763										
		E 315881	122	--	--	--	--	--	2	110		

FLIGHT 2 LINE 160 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
		A 317131	233	73	--	--	--	--	4	125	0	11
C	a	317191										
		B 317300	6818	1293	521	281	170	111	12	126	23	31
		C 317375	957	267	156	84	34	--	9	121	10	54
		D 317488	4352	81	30	--	--	--	5	117	0	58
		E 317518	488	120	67	36	--	--	7	115	11	114

FLIGHT 2 LINE 161 PART 1 CODE 0

	TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
		A 319330	80	65	39	--	--	--	5	107	0	122
		B 319445	164	65	--	--	--	--	3	113		

	C	319788	5594	251	73	45	--	--	7	101	7	59
		D 319835	643	228	84	31	--	--	8	109	10	100
		E 319991	2410	590	252	128	84	--	9	118	13	49
		F 320011	2549	470	185	104	63	--	9	124	16	62
		G 320078	1517	754	417	269	177	126	12	124	21	30
	C	a 320223										

FLIGHT 2 LINE 162 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 321615	412	88	--	--	--	--	4	131	0	37
C	a 321643										
	B 321775	2784	694	264	144	94	--	9	126	14	39
	C 321846	1285	397	171	86	--	--	7	120	9	47
	D 321960	3868	116	29	--	--	--	5	111	0	56
	E 322003	541	136	--	--	--	--	4	111	0	56
	F 322250	214	65	--	--	--	--	4	113	0	54

FLIGHT 2 LINE 163 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
	A 323896	715	248	126	81	--	--	7	118	13	80
	B 324245	2300	253	91	--	--	--	6	113	7	51
	C 324291	591	174	60	--	--	--	6	117	7	63
	D 324411	2099	659	310	191	103	71	11	120	15	42
	E 324498	1491	485	237	111	86	57	12	127	42	64
C	a 324660										

FLIGHT 2 LINE 164 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a 326075										
	A 326211	2863	969	452	254	152	121	12	124	23	36
	B 326290	1116	372	189	119	61	--	10	117	13	53
	C 326403	3462	65	--	--	--	--	3	114		
	D 326438	1121	152	54	26	--	--	7	107	9	95
	E 326698	369	132	87	49	26	--	9	116	13	100
	F 326876	134	35	--	--	--	--	3	128		

FLIGHT 2 LINE 165 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	330241	266	106	73	43	--	--	7	125	26	116
B	330380	97	--	--	--	--	--	2	106		
C	330611	2911	301	91	46	27	--	9	108	13	101
D	330661	1055	185	68	35	30	--	9	111	14	112
E	330758	854	309	169	103	64	--	9	122	22	73
F	330840	5201	2086	1109	660	384	255	12	123	25	10
C a	331006										

FLIGHT 2 LINE 166 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	332416										
A	332565	1788	622	307	192	140	94	12	125	22	43
B	332643	479	140	67	--	--	--	5	123	0	45
C	332745	2425	52	--	--	--	--	3	119		
D	332793	766	174	60	--	--	--	6	116	9	86
E	333078	87	59	30	--	--	--	5	128	0	74

FLIGHT 2 LINE 167 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	334553	176	69	40	28	--	--	7	112	22	158
B	334808	99	39	--	--	--	--	3	103		
C	335070	3288	258	76	29	--	--	8	119	10	86
D	335130	971	219	81	--	--	--	6	116	8	64
E	335295	2601	790	422	247	188	113	12	121	18	28
F	335406	53	37	--	--	--	--	3	118		
C a	335490										

FLIGHT 2 LINE 168 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	336913										
A	337101	1885	563	260	165	100	66	11	118	18	56
B	337135	2207	359	140	97	63	35	12	125	16	67
C	337246	3489	77	34	--	--	--	5	109	0	83
D	337315	1084	202	48	--	--	--	6	107	6	59

FLIGHT 2 LINE 169 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	339595	3348	208	53	--	--	--	5	126	0	40
B	339653	1335	219	99	44	32	--	9	115	15	103
C	339793	2375	669	320	193	127	--	10	120	21	49
D	339813	2527	874	435	261	170	--	10	117	36	44
? E	339951	70	--	--	--	--	--	1	113		
C a	340025										

FLIGHT 2 LINE 170 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	343255	209	81	--	--	--	--	3	112		
B	343706	4263	209	47	--	--	--	6	110	5	27
C	343770	1487	287	103	50	--	--	8	106	10	86
D	343891	2202	486	205	117	80	53	12	128	17	50
E	343925	1691	582	306	181	126	74	12	120	19	46
C a	344126										

FLIGHT 2 LINE 171 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	347163										
A	347341	1538	397	161	111	46	35	11	107	15	84
B	347380	4033	790	303	138	72	33	11	114	16	61
C	347480	2814	117	46	38	--	--	8	103	35	150
D	347538	699	119	46	--	--	--	6	110	8	97
E	347923	305	107	79	53	38	33	11	126	49	90

FLIGHT 2 LINE 172 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	349388	249	103	70	47	32	--	9	116	32	117
B	349805	3650	182	53	--	--	--	5	109	0	124
C	349895	2492	351	122	53	--	--	8	112	8	62
D	349983	2840	712	283	135	90	49	12	124	11	21
E	350036	617	279	174	120	83	--	9	112	36	82
F	350165	107	--	--	--	--	--	1	128		
C a	350221										

FLIGHT 2 LINE 173 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	351606										
A	351776	1128	306	143	75	49	--	9	113	13	76
B	351818	4336	1010	373	171	98	56	12	121	14	36
C	351900	2219	127	50	--	--	--	5	109	0	48
D	351976	821	125	59	--	--	--	6	113	7	81
E	352326	233	76	--	--	--	--	3	122		

FLIGHT 2 LINE 174 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	353791	121	--	--	--	--	--	2	113		
B	354205	2217	107	39	--	--	--	6	120	6	57
C	354295	3446	352	110	47	--	--	7	112	6	22
D	354375	1966	582	254	153	112	56	12	128	15	37
E	354433	280	128	95	64	45	--	9	122	35	101
C a	354603										
F	354736	54	--	--	--	--	--	1	117		

FLIGHT 2 LINE 175 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	356153										
A	356306	818	213	106	50	29	--	9	114	12	88
B	356348	3720	466	190	112	--	--	8	117	15	64
C	356418	1454	165	77	42	--	--	7	110	14	105
D	356500	1009	76	--	--	--	--	4	114	0	101
E	356788	91	--	--	--	--	--	1	117		

FLIGHT 2 LINE 176 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	358506	117	39	--	--	--	--	3	120		
B	358641	158	39	--	--	--	--	4	115	0	100
C	358811	1744	134	50	--	--	--	6	108	6	73
D	358901	4954	355	82	--	--	--	6	108	4	1
E	358973	734	334	191	115	73	54	12	129	51	64
F	359023	526	154	108	67	53	--	9	118	33	99
C a	359181										

G 359336 35 -- -- -- -- -- 1 131

FLIGHT 2 LINE 177 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	360710										
A	360823	379	86	--	--	--	--	4	118	0	115
B	360905	2540	275	122	85	36	--	9	137	20	73
C	360960	1025	149	73	--	--	--	6	127	7	57
D	361043	800	61	--	--	--	--	4	121	0	63
E	361293	79	36	--	--	--	--	3	116		

FLIGHT 2 LINE 178 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	362975	55	--	--	--	--	--	1	113		
B	363200	225	--	--	--	--	--	2	116		
C	363345	1261	117	45	--	--	--	5	115	0	69
D	363441	4524	292	70	--	--	--	5	118	0	66
E	363495	598	321	161	117	86	60	12	124	17	54
F	363551	187	49	--	--	--	--	3	126		
C a	363693										

FLIGHT 2 LINE 179 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	365310										
A	365476	4323	378	161	76	--	--	8	120	15	73
B	365525	1103	165	73	34	--	--	7	112	7	67
C	365618	643	59	--	--	--	--	3	120		
D	365903	103	58	--	--	--	--	4	118	0	61

FLIGHT 2 LINE 180 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	367526	111	--	--	--	--	--	2	125		
B	367640	623	52	--	--	--	--	4	119	0	60
C	367770	896	89	--	--	--	--	4	117	0	62
D	367890	4452	253	75	26	--	--	7	127	5	-1
E	367935	562	278	163	92	--	--	8	125	27	74

C a 368103

FLIGHT 2 LINE 181 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	376623	131	--	--	--	--	--	1	124		
B	376758	1216	34	--	--	--	--	3	107		
C	376881	884	104	--	--	--	--	4	116	0	105
D	376995	6093	310	75	--	--	--	5	120	0	101
E	377040	625	409	204	128	--	--	8	117	16	66
C a	377195										

FLIGHT 2 LINE 182 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	378853										
? A	378916	272	93	--	--	--	--	4	123	0	84
B	378996	5711	473	190	94	--	--	8	122	12	51
C	379153	655	--	--	--	--	--	2	115		
D	379548	157	70	30	--	--	--	5	111	0	62

FLIGHT 2 LINE 183 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	380811	135	54	--	--	--	--	3	111		
B	380961	330	130	44	--	--	--	5	117	0	56
C	381078	155	--	--	--	--	--	2	115		
D	381218	1310	--	--	--	--	--	2	105		
E	381338	401	86	39	--	--	--	5	123	0	50
F	381433	6946	274	--	--	--	--	4	114	0	59
G	381486	1136	546	279	137	96	54	12	117	12	35
C a	381625										
H	381823	40	--	--	--	--	--	1	122		

FLIGHT 2 LINE 184 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	383086	377	97	35	--	--	--	5	125	0	61
C a	383331										
B	383463	6506	667	187	99	--	--	7	114	6	6

C	383625	755	40	--	--	--	--	4	117	0	3	
D	383900	878	314	162	113	66	40	12	120	13	46	

FLIGHT 2 LINE 185 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	385546	324	132	71	25	--	--	7	123	11	100
B	385633	156	--	--	--	--	--	2	121		
C	385803	721	--	--	--	--	--	2	117		
D	385883	644	92	--	--	--	--	4	112	0	111
E	386005	4331	156	37	--	--	--	5	112	0	111
F	386051	1976	742	316	153	--	--	8	117	11	35
C a	386180										
G	386403	195	83	36	--	--	--	5	118	0	66

FLIGHT 2 LINE 186 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	387646	330	86	28	--	--	--	5	129	0	55
B	387690	152	74	--	--	--	--	4	118	0	66
C a	387881										
C	388001	5581	646	242	89	53	--	10	114	11	51
D	388165	313	38	--	--	--	--	4	115	0	50
E	388453	71	--	--	--	--	--	2	122		

FLIGHT 2 LINE 187 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	389956	174	37	--	--	--	--	3	116		
B	390038	146	52	--	--	--	--	3	114		
C	390296	568	102	--	--	--	--	4	112	0	53
D	390401	2975	83	--	--	--	--	3	114		
E	390456	2053	741	285	117	74	28	11	117	15	58
C a	390581										
F	390818	179	70	36	--	--	--	5	113	0	75

FLIGHT 2 LINE 188 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	392258										
A	392373	4075	597	194	88	--	--	7	110	7	21
B	392528	361	--	--	--	--	--	2	106		
C	392828	183	--	--	--	--	--	2	118		

FLIGHT 2 LINE 189 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	394298	496	--	--	--	--	--	2	117		
B	394348	278	54	--	--	--	--	4	117	0	14
C	394670	503	85	29	--	--	--	5	121	0	10
D	394823	1946	574	210	103	73	--	10	110	15	75
C a	394926										

FLIGHT 2 LINE 190 PART 1 CODE 0

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C a	396595										
A	396706	2179	439	160	74	--	--	8	120	13	65
B	396870	312	40	--	--	--	--	3	117		
C	397135	444	34	--	--	--	--	3	114		

FLIGHT 2 LINE 500 PART 1 CODE 1

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
A	399271	148	84	35	--	--	--	5	124	0	61
C a	399858										
B	400003	24	--	--	--	--	--	1	128		

FLIGHT 2 LINE 501 PART 1 CODE 1

TYPE/ ORDER	FID	CH1 PPM	CH3 PPM	CH5 PPM	CH7 PPM	CH9 PPM	CH11 PPM	NC	ALT M.	CTP S.	D. M.
C	a 403176										
	A 403906	62	--	--	--	--	--	1	123		

STATISTICS OF ANOMALIES

TOTAL NUMBER OF ANOMALIES 516

CHANNELS (IN PERCENT)

CULTURE	1-3	4	5	6	7	8	9	10	11	12
	21	21	8	9	9	6	4	6	2	3	12

DISTRIBUTION BY CTP

1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40
90	45	62	41	28	11	8	8

41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70
2	3	5	0	0	1

1991 AIRBORNE EM AND MAG SURVEY
STATEMENT OF EXPENDITURES

Pine Bay (V-284), 41.9% — 236 Km — **$22,587.00**
Mining Lease-059

Thompson Bay (V-281), 47.9% — 270 Km — **$25,822.00**

Sour 6 = $568.08	Sou 1 = $1087.11
Sour 11 = $668.78	Sou 2 = $436.39
Sour 12 = $276.29	Sou 3 = $291.79
Sour 14 = $839.21	Sou 4 = $743.67
Sour 15 = $562.91	Gar 1 = $4517.15
Sour 19 = $815.98	Gar 2 = $4255.46
Sour 20 = $655.08	Gar 3 = $1172.31
Sour 21 = $671.37	Gar 4 = $1311.75
Sour 23 = $583.57	Gar 5 = $1761.06
Sour 24 = $635.22	Gar 6 = $1169.73
Sour 25 = $596.49	
Sour 28 = $803.06	
Sour 30 = $748.83	
Sour 35 = $650.71	

Crow (V-292), 10.2% — **$5,499.00**
Crow 5 = $3063.00
Crow 6 = $2436.00

Total Project Cost for 564 line km flown. — **$53,908.00**

72637

RPrice

214275

RECORDING OFFICE
MINES
WINNIPEG, MAN.

'93 MAY 25 PM 2 34

APPENDIX C

dd h No

```
LDEN6B0201   284 5-83     NQBQ12AUG91DGM        MAR83          GRD000.00          0119
LPRJPLACER DOME INC.                                  LAKE ATHAPAPUSKOW - SOURDOUGH BAY
D000      0   1250MT   825.09283.00-89.00                    6071349.50 332069.09     291.38
D001   1250   4542     825.09306.72-89.00
S002   4542   6035     825.09351.00-88.44
D003   6035   8443     825.09325.00-88.00
D004   8443  10851     825.09323.00-87.00
S005  10851  12649     825.09328.00-86.50
D006  12649  14448     825.09323.00-85.70
D007  14448  17160     825.09321.00-85.00
D008  17160  18958     825.09313.00-84.70
S009  18958  21336     825.09318.00-84.00
D010  21336  23439     825.09312.00-83.80
D011  23439  25840     825.09313.00-83.00
S012  25840  28560     825.09314.00-82.00
D013  28560  30663     825.09315.00-79.90
D014  30663  32461     825.09319.00-77.80
S015  32461  35753     825.09317.00-77.00
S016  35753  39654     825.09318.00-74.80
D017  39654  42946     825.09313.00-73.70
D018  42946  46238     825.09315.00-73.40
S019  46238  48951     825.09313.00-71.60
D020  48951  51938     825.09317.00-69.40
D021  51938  53157     825.09317.00-66.00
S022  53157  53157     825.09317.00-64.20
D023  53157  56144     825.09317.00-64.20
D024  56144  63063     825.09319.00-62.60
S025  63063  68793     825.09307.20-60.00
S026  68793  76413     825.09310.20-51.00
D027  76413  82509     825.09312.70-45.00
ANAM                                                        QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                        AKTACLLIHEMGPYPRCPSL
ACCL          MT.2PC.0
ICCL              PC.0        LCTM
A001
ANMM                        SAMP
I             0    200       CASE
LISV    200   4955          BRAFPFAC    FGMX6337       MX              P2
I                               5G                 O
I                               MEDIUM GREEN, FINE GRAINED, MASSIVE, SLIGHTLY TO MILD
I                               -LY CHLORITIC DACITE FLOW AND FLOW BRECCIA. THE UNIT
R                               IS DISTINGUISHED BY THE PRESENCE OFGREENISH-PINKISH-W
I                               -HITE, SB-ROUNDED CLASTS (MONOLITHIC, SAME COMPOSITIO
I                               N AS MATRIX). THE CLASTS ARE TYPICALLY 10-15MM IN DIA
I                               -METER, RANDOMLY ORIENTED/DISTRIBUTED. CLASTS ACCOUNT
P                               FOR 40% OF THE MODE LOCALLY. MATRIX IS COMPRISED OF R
I                               -OUNDED AND/OR EQUANT GRAINS OF SUSSERITIZED PLAGIOCL
I                               -ASE SET IN A DOMINANTLY FINE GRAINED MATRIX OF ACTIN
R                               -OLITE. PLAGIOCLASE  GRAINS (<1MM DIAMETER). GRAINS A
F                               -RE EUHEDRAL X'TALLINITY, THAT WOULD BE A PRIMARY IND
F                               -ATION OF FLOW. THE UNIT LOCALLY CONTAINS INTERVALS O
R                               -F ANDESITIC TO DACITIC TUFF. THESE INTERVALS ARE IDE
F                               -NTIFIED BY THEIR FINER GRAINED, SLIGHTLY MORE GRANUL
L     4955   6974       RY/FPFQZ    FGBX9115       MX
I                               5A       MX                C/     24
F                               UNIT IS CREAM-WHITE WITH A GREENISH TINGE. MATRIX, AP
F                               -HANITIC X'TALLINITY, RANDOMLY DISTRIBUTED THROUGHOUT
R                               THE MATRIX ARE SHARD SHAPED QTZ AND ACTINOLITE PHENOC
F                               -RYSTS. GRAINS HAVE A MILD LINEATION AT @ 30 DEGREES
```

TO C.A. QTZ GRAINS (1-12MM, 7-10%), MEAN GRAIN SIZE
2MM IN DIAMETER. ACTINOLITE GRAINS <<1%. MATRIX OF RO
-CK IS CHERTY, MASSIVE. LOCALLY THE UNIT IS BRECCIATE
-D OVER 15-20CM INTERVALS. ORANGE TINGED, CREAMY COLO
-URED FELDSPAR GRAINS (<<1MM, @5%), RANDOMLY ORIENTED
/DISTRIBUTED THROUGHOUT THE CHERTY MATRIX. PLAGIOCLAS
-E CRYSTALLITES/MICROLITES?

5740 6043 XANVCACPF FGFO9114 FO 25 P1
3G 56 O C/ 15 P3
FINE GRAINED, DARK GREEN, MODERATELY FOLIATED, ANDESI
-TIC COMPOSITION TUFF, MODERATELY CHLORITIC. COMPOSED
OF ANGULAR TO SUB-ROUNDED GRAINS OF BLACK ACTINOLITE/
HORNBLENDE AND MILDLY SAUSSERITIZED, ANGULAR TO BLOCK
-Y GRAINS OF PLAGIOCLASE. GRAINS ARE <=1MM IN DIAMETE
-R, ACCOUNT FOR 30% OF MODE. PLAGIOCLASE X'TALS (NON-
MATRIX MATERIAL) 2MM X 1MM, ACCOUNT FOR 5-7% OF MODE,
THESE GRAINS ARE SAUSSERITIZED.

6974 8060 DCVCACHB FGMX8117 MX
5GPF O
UNIT IS TRANSITIONAL FROM DACITIC THROUGH TO RHYOLITI
-C COMPOSITION. MEDIUM TO LIGHT GREEN, FINE GRAINED,
HORNBLENDE GRAINS, NEEDLE-LIKE (1-2MM X 0.2MM, 3%), R
-HYOLITE LITHICS, PINKISH-ORANGE, SUB-ROUNDED (5-6MM,
10-15%), SUPPORTED BY HORNBLENDE-PLAGIOCLASE MATRIX,
NO QTZ GRAINS EVIDENT.

7600 7700 XRYVCPFQZ FGMXX MX
5W O
UNIT GRADES FROM AND INTO DACITIC COMPOSITIONAL TUFF.
NOTE MASSIVE FABRIC, LACK OF VISIBLE BANDING OR
GRAINS FROM WHICH TO CONCLUDE IS A TUFF LEAVES OPEN T
-HE POSSIBILITY THAT IS A FLOW.

8000 8060 X
M2
BROKEN CORE, START OF INTERVAL OF BRECCIATION, FLOW B
-RECCIA? THAT HAS BEEN INTERSECTED IN U6-55,58,62. SA
-MPLE TAKEN FOR THIN SECTION. EPIDOTE REPLACES SOME O
-F THE BRECCIA FRAGMENTS, 40 X 20MM SIZE.

8060 11730 TFBRACQZ BXFG MX
5GCL MX
FINE GRAINED, MASSIVE, DISTINCTIVELY FRACTURED, DACIT
-IC TO POSSIBLY RHYOLITIC COMPOSITION FLOW AS INTERSE
-CTED IN U6-55,58 AND 62. QUESTIONED IN THOSE LOCALE
-S AS TO WHETHER IS FLOW OR TUFF. FRACTURES PRODUCE S
-UB-ANGULAR, "CLASTS" WHICH INTERLOCK ON CM SCALE. EA
-CH ANGULAR FRAGMENT @10MM IN DIAMETER, BOUNDARIES MA
-RKED BY BLACK CHLORITE. QTZ GRAINS EQUANT IN SHAPE,
(2MM, 3%) RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT.
PRESENCE OF EQUANT QTZ GRAINS, WHITE, MAY SUGGEST TUF
-FACEOUS ORIGIN. ***NOTE*** @85M UNIT MAINTAINS FRACT
-URED TEXTURE; HOWEVER CONTAINS FELSIC CLASTS, ELONGA
-TE (40 X 30MM, <10% MODE), INDICATES THAT IS VOLCANI
-CLASTIC/PYROCLASTIC ORIGIN, UNIT MAY BE LAPILLI TUFF
, BLOCK TUFF.

11730 13022 DC/FACPF MXFG MX
3GQZ
MASSIVE LIGHT TO MEDIUM GREEN, CHERTY TEXTURED, PLAGI
-OCLASE MICROLITE-RICH, DACITE FLOW. NO X'TALS OR FRA
GMENTS PRESENT TO INDICATE TUFFACEOUS ORIGIN. MICROLI
-TES (<<1MM, 3-5%). 119.44 TO 119.65M COARSE LAPILLI
TUFF OF DACITIC COMPOSITION.

13022 13923 RY/FPFQZ FGMX MX
3AAC FR
MASSIVE DARK GREEN, GREY-PINK, APHANITIC X'TALLINITY, CHERTY TEXTURED, RHYOLITIC COMPOSITION FLOW. FRACTURI -NG AT IRREGULAR ORIENTATIONS, FILLED WITH CHLORITE, FRACTURES 2-4MM IN THICKNESS.

13923 15086 ANVCPFAC FGXT9115 FO 30
3G FO O
MEDIUM TO DARK GREEN, FINE GRAINED, SLIGHTLY TO MODER -ATELY CHLORITIC, FOLIATED, PLAGIOCLASE X'TAL DACITIC TO ANDESITIC COMPOSITION TUFF. PLAGIOCLASE X'TALS (0. 5-2MM, <2-3%), RANDOM ORIENTATION/DISTRIBUTION. 139.2 3 TO 139.54M UNIT IS INTENSELY CHLORITIZED. UNIT IS G RADATIONAL TO RHYOLITE TUFF, BANDING FOLIATION STILL EVIDENT; HOWEVER UNIT BECOMES MORE CHERTY IN TEXTURE.

15086 16210 TFLPACPF FGCT3668
3G MX 33 O
FINE GRAINED, DARK GREEN, LAPILLI-RICH TUFF. LAPILLI ARE MEDIUM GREY, FINE GRAINED, ANGULAR, RANGE IN SIZE FROM 1-20MM, ACCOUNTS FOR UP TO 60% OF MODE. MATRIX S -UPPORTED. MEAN FRAGMENT SIZE 10MM. MATRIX IS DARK GR -EEN, FINE GRAINED, CHERTY TEXTURE. UNIT IS DACITIC I -N COMPOSITION.

16210 16700 DCVC

16700 17000 DC/FACPF FGMX MX
3G PP
DARK GREEN, FINE GRAINED MATRIX, PLAGIOCLASE SUBHEDRA -L, BLOCKY (3MM,5%), QTZ GRAINS, VITREOIUS GREY TO BL -ACK (1-2MM, <=2%), RANDOMLY ORIENTED/DISTRIBUTED THR -OUGHOUT.

17000 30445 TFLPACPF FGCT3668
3G MX 33 O
UNIT AS PREVIOUSLY INTERSECTED FROM 80.60 TO 117.30M. BRECCIATED VOLCANIC ROCK, INTERPRETED TO BE DACITIC COMPOSITION LAPILLI-TUFF. FRAGMENTS SUB-ROUNDED TO SUB-ANGULAR, MEDIUM GREY, MORE FELSIC (RHYODACITIC) THROUGH TO IDENTICAL COMPOSITION AS MATRIX. FRAGMENTS RANGE IN SIZE FROM 2MM TO 25MM, MEAN DIMENSION 10MM. FRAGMENTS ACCOUNT FOR 50% OF MODE, MATRIX SUPPORTED. HETEROLITHIC NATURE CONFIRMS THAT UNIT IS NOT A FLOW BRECCIA. DISTINGUISHING FEATURE IS WHAT J.F. METAIL T -ERMS FISH SCALE TEXTURE. UNIT CONTINUES ESSENTIALLY UNCHANGED TO 242M.

242M CHANGE FROM NQ TO BQ CORE.

24200 25230 XDCVCACPF FGMX MX
3G P1 A+
FINE GRAINED, NON-BRECCIATED, ANDESITIC TO DACITIC CO -MPOSITION TUFF. GRAINS (<=1MM) OF ACTINOLITE ARE ANG -ULAR TO SUB-ANGULAR, ACCOUNT FOR @50% MODE. INTERSTI -AL TO ACTINOLITE WHITE PLAGIOCLASE. IRREGULARLY SHAP -ED, WHITE TO TAN COLOURED, CALCITE AMYGDULES PRESENT IN UNIT (6MM, 5%). UNIT MAY BE SLIGHTLY CHLORITIZED. HBED 1983 LOGS IDENTIFY UNIT AS A FLOW; HOWEVER ONLY GRADATIONAL CONTACTS PRESENT.

26400 27191 XAN/FACHB FGEM FO 45
3G FO P3
DISTINCTIVE MEDIUM GRAINED, DARK GREEN TO GREENISH-BL -ACK, PLAGIOCLASE AND HORNBLENDE-RICH FLOW, TUFF? WHI -TE BLOCKY PLAGIOCLASE GRAINS (2-3MM, 35%), RANDOMLY ORIENTED/DISTRIBUTED. HORNBLENDE GRAINS, BLOCKY (2MM,

30-40%). PLAGIOCLASE HAS BEEN SAUSSERITIZED TO A LIGH
-T GREENISH TINGE. QTZ GRAINS, VITREOUS, GREY, EQUANT
, UP TO 3MM, ACCOUNT FOR <=7% OF MODE. PRESENCE OF QT
-Z GRAINS, ROUNDED IS DICHOTOMOUS WITH ANDESITE FLOW,
THEREFORE POSSIBLE ANDESITIC TUFF. THIN SECTION TAKEN
. HBED TERMS THE UNIT A QUARTZ-FELDSPAR PORPHYRY - TH
-IS IS AN INCORRECT DESIGNATION.

27191 29120 XDCVCPFQZ FGFO9115 FO 20
5GAC O
UNIT IS GRANULAR TEXTURED, COMPOSED OF FINE GRAINED (
<=1MM), PREDOMINENTLY QTZ AND WHITE PLAGIOCLASE. INTE
-RSTITIAL TO THE SUB-ROUNDED GRAINS IS ACTINOLITE, AC
-COUNTS FOR @25% OF MODE. FINE GRAINED, HOMOGENEOUS,
FEATURELESS UNIT.

28271 28460 A5XDCVCACPF FGFO7227 FO 30
5NQZ CTXT O P3
AS DESCRIBED IMMEDIATELY ABOVE EXCEPT LITHIC FRAGMENT
-S, MEAN DIMENSION 6MM, ACCOUNTING FOR @ 30% OF MODE,
ALIGNED PARALLEL TO FOLIATION. CHLORITIZATION IN THIS
UNIT IS MODERATE TO INTENSE, ROCK IS BLACK.

28536 28564 A5XDCVC
5N P3
MODERATELY CHLORITIZED DACITIC TUFF.

30445 33640 DCVCACPF FGFO FO 40
5G
FINE GRAINED, REALTIVELY MASSJVE, DARK GREEN, CHERTY
TEXTURED, SLIGHTLY FOLIATED UNIT. GRADES FROM THE SUB
-TLE LAPILLI-TUFF, OVERLYING THE UNIT. GRAINS TOO SMA
-LL TO IDENTIFY SPECIFIC MINERALOGIES. FROM 313.41M T
-HE UNIT DEVELOPES A DISTINCTIVE FOLIATION AND COLOUR
COMPOSITIONAL BANDING. LOCALLY BECOMING RHYOLITIC IN
COMPOSITION OVER 10-20CM INTERVALS.

32206 32980 A3XTFLPPFQZ FGCT5556 FO 35 P2
7G O
UNIT IS AS DESCRIBED ELSEWHERE, UNIT IS TYPIFIED BY
SCALLOPED OR "FISH SCALE" TEXTURE PRODUCED BY 1CM DIA
-METER FRAGMENTS. UNIT IS MONOLITHIC, FRAGMENTS ARE S
-AME COMPOSITION AS MATRIX. LIGHTNESS OF COLOUR, DIFF
-ERENT THAN MEDIUM GREEN OF OTHER LAPILLI-TUFF INTERS
-ECTED HIGHER IN THE HOLE, ATTRIBUTEABLE TO SERICITE
CONTENT INCREASING. UNIT IS DACITIC AS ELSEWHERE.

32980 33640 A3XRDVCPFQZ FGFO9114 FO 45 P2
5W O <2
FINE GRAINED, SILICA-RICH, YELLOWISH-WHITE, MODERATEL
-Y FOLIATED. UNIT IS COMPOSED OF SUB-ROUNDED QTZ GRAI
-NS (<=1MM, 50%) WITH INTERSTITIAL PLAGIOCLASE FELDSP
-AR.

33640 43743 TFLPPFQZ FGFO7336 FO 35 P2
5AAC CT 63 O
COMBINATION OF VOLCANIC CONGLOMERATE AND LAPILLI-TUFF
. LOCALLY SERICITIZED, PYRITIZED AND FE-CARBONATIZED.
THE UNIT 'S LIGHT TO MEDIUM GREY, WITH A FINE GRAINED
GREY MATRIX. 30-40% OF THE INTERVAL IS COMPOSED OF SU
-B-ROUNDED GREY CHERTY TEXTURED DACITIC TO RHYODACITI
-C CLASTS. CLASTS ARE EQUANT TO ELLIPTICAL, MEAN DIME
-NSION 15MM, RANGE IN DIMENSION FROM 3-35MM. UNIT IS
PERVASIVELY SERICITIZED. THIS UNIT IS GREY, NONE "FIS
-H SCALED TEXTURED", HAS A HIGH TUFF CONTENT. WELL FO
-LIATED AND BANDED. THIS IS NOT THE SAME TFLP AS INTE
-RSECTED EARLIER ON IN THE HOLE, DISTINGUISHED BY GRE

-ATER BANDING AND GREATER TUFF COMPONENT.

33640 33910 A5X P3
<2
PERVASIVE, MODERATE SERICITE AND FE-CARBONATE ALTERAT
-ION.

33910 34006 A5X P4
D1
HEAVY PYRITE DISSEMINATIONS, MINOR BANDS, INTENSE TO
MODERATE SERICITE ALTERATION.

34500 34750 A3XTFLPPFQZ FGBD BD 40
5A FO FO 40 L3
UNIT AS DESCRIBED EARLIER ON; HOWEVER PYRITE MINERALI
-ZATION AS SUBHEDRAL TO EUHEDRAL GRAINS, RANGING FROM
(<<1MM-2MM), AGGREGATING INTO BANDS 3MM-15MM IN THICK
-NESS. POSSIBLE CHEMICAL PRECIPITATE

34750 34850 A7XDCVC FGMX
3N PX
AS INTERSECTED WITHIN AND IN FOOTWALL AND HANGING WAL
-L OF MASSIVE SULPHIDE FROM CERRO MINING CORP. DDH LO
-GS, CHLORITE ROCK. BLACK, 100% CHLORITE, IN IMMEDIAT
-E STRUCTURAL FOOTWALL TO SEMI-MASSIVE, LAMINATED PYR
-ITE.

35150 35700 A3XDCVCPFQZ FGFO C/ 30 QH3+
5AAC BN FO 30
FINE GRAINED, HOMOGENEOUS, MEDIUM GREY, DACITIC TUFF.
BANDING DEFINED BY BLACK BANDS, 10MM THICK SPACED AT
20-40MM INTERVALS. FELDSPAR AND QTZ GRAINS, ROUND TO
SUB-ROUNDED (2-4MM, <3% TOTAL), RANDOMLY ORIENTED/DIS
-TRIBUTED THROUHGOUT.

36618 37227 XSEDM CTBD5557 BD
73 O J2
UNIT IS TRANSITIONAL/GRADATIONAL FROM THE LAPILLI TUF
-F UNIT. PEBBLES/COBBLES CONSIST OF GREY, APHANITIC
X'TALLINITY CHERT, POSSIBLE ANGULAR FRAGMENTS OF BLAC
-K MUDSTONE. GRAINS RANGE FROM ANGULAR THROUGH TO SUB
-ROUNDED. THE MUDSTONE CLASTS (1-2MM X 5-10MM, 7%)
ARE ANGULAR, LONG AXIS ALIGNED PARALLEL TO BEDDING PL
-ANES. CHERT AND/OR FELSIC CLASTS SUB-ROUNDED, ELLIPT
-ICAL, MEAN CLAST SIZE 15MM. CLASTS (CHERT) ACCOUNT F
-OR 20% MODE.

37227 39925 XDCVCPFQZ FGBD9115 BD 45
5AAC SY O L+
FINE GRAINED, WELL BEDDED, DACITIC COMPOSITION TUFF,
HOMOGENEOUS, ALTERNATING, WITH SYMMETRICALLY BEDDED
MUDSTONE (SUBORDINATE UNIT), UP TO 10-20MM IN THICKNE
-SS AND LOCALLY LAMINATED PYRITE BEDS. UNIT IS DISTAL
TO SOURCE OF BRECCIA FRAGMENTS, LIKELY A COMBINATION
OF SEDIMENTARY AND VOLCANIC COMPONENT. FROM 399.25-
399.75M THE UNIT IS MODERATELY CHLORITIZED.

39925 39977 A5XDCVC FGFO FO
P3
MODERATELY TO HIGHLY CHLORITIZED DACITIC TUFF, NO SIG
-NIFICANT MINERALIZATION, I.E., >5% PYRITE. PYRITE TH
-AT IS PRESENT IS IN THE FORM OF DISSEMINATIONS IN HA
-NGING WALL AND FOOTWALL ROCK.

39925 41160 XDCVCPFQZ FGBD
5A FO L1
FINE GRAINED, WELL BANDED/BEDDED HOMOGENEOUS, GREY,
DACITIC COMPOSITION TUFF, ALTERNATING WITH FINE LAMIN
-ATIONS OF MUDSTONE. PYRITE AS AGGREGATES OF DISSEMIN

-ATIONS THAT FORM BANDS PARALLEL TO THE BEDDING. BAND
-S 1-3MM IN THICKNESS, ACCOUNT FOR @7% OF MODE.

41430 41700 A5XDCVCPFQZ FO 35
7NAC P3
PERVASIVELY CHLORITIZED DACITIC TUFF, FINE GRAINE` H
-OMOGENEOUS, NO X'TALS PRESENT. FROM 416.27 TO 41.. T
-HE DEGREE OF CHLORITI:ATION DECREASES. FROM PERVASIV
-E ALTERATION, CHLORITE IS STRONG ONLY IN FRACTURES P
-ARALLING THE FOLIATION OF THE UNIT.

41700 42272 A3XDCVCPFAC FGXT9115 FO 45 P2
5AQZ FO O P2
FINE GRAINED, DACITIC COMPOSITION, SERICITE +/- CHLOR
-ITE-RICH QTZ X'TAL TUFF. QTZ GRAINS ARE EQUANT, ROUN
-DED, VITREOUS GREY TO BLACK (1-1.5MM, 10%), RANDOMLY
DISTRIBUTED. MATRIX IS COMPOSED IOF ACTINOLITE, ANGUL
-AR GRAINS (1-1.5MM, 40%) AND PLAGIOCLASE INTERSTITIA
-L, ANGULAR LATH SHAPED (<=1MM, 30-40%). THIS UNIT IS
SIMILAR TO THE QTZ PORPHYRY OF CERRO MINING. AS UNIT
APPROACHES 421.34M BECOMES MORE QTZ-RICH, RHYODACITIC
IN COMPOSITION.

42272 43240 A3XRYVCPFQZ FGFO9114 FO 40 P4
7W BN O B*
SERICITE-RICH WHITE RHYOLITIC TUFF WITH WELL DEFINED
BANDING AND FOLIATION. BANDING DEFINED BY <1MM THICK
CREAM-YELLOWISH WHITESERICITE INTERVALS SPACED @6MM
INTERVALS. MINOR DISSEMINATIONS OF PY (<<1%).

43240 43600 A7XRYVC CLXFGMXX 2 C/ 10
3N O PX
INTESELY CHLORITIZED TUFF. ****NOTE**** THE INTTENSIT
-Y OF CHLORITIZATION IS REMINISCENT OF THE "BLACK ROC
-K" INTERSECTED BY CERRO MINING DDH'S IN THE MIDST OF
THE MASSIVE SULPHIDE OR IN CLOSE PROXIMITY TO IT. SAM
-LE TAKEN IN ORDER TO CONFIRM MG ENRICHMENT IN THE UN
-IT.
MGO CONTENT IS 20.53 %

43600 43743 A7XTFLPPFQZ CTFG4666 FO 30
3N FO 75 O P6
INTENSELY CHLORITIZED LAPILLI TUFF, POSSIBLE POURED-I
-N EPICLASTIC, EVIDENSE BEING THE DEGREE OF ROUNDING
OF CLASTS. CLASTS RANGE IN DIAMETER FROM 6MM-15MM, AL
-L WELL ROUNDED, ACCOUNT FOR UP TO 60% OF THE MODE LO
-CALLY. MATRIX IS VERY FINE GRAINED, BLACK, CHLORITIC
.

43743 46630 A3XDCVCPFQZ FGA* FO 20
5G FO P1
GREY-GREEN, FINE GRAINED, MILDLY CHLORITIZED DACITIC
TO RHYODACITIC COMPOSITION TUFF, 437.48-438M, UNIT IS
QTZ AMYGDALOIDAL. QTZ IS EQUANT, 3MM DIAMETER, GREY I
-N COLOUR WITH DISTINCT WHITE RIMS FOR BORDERS, RANDO
-MLY ORIENTED/DISSTRIBUTED, ACCOUNTS FOR UP TO 20% OF
MODE, REMAINDER OF INTERVAL, QTZ GRAINS 10-15% OF MOD
-E. AS PROCEED DOWN INTERVAL, FOLIATION AND BANDING
PROVE VOLCANICLASTIC NATURE.

44445 44546 A3XTFLPPFQZ FGCT FO 50
7N FO P1
RHYODACITIC TO RHYOLITIC COMPOSITION TUFF, CLASTS ARE
TRANSLUSCENT, CHERTY TEXTURED, ELLIPTICAL, SUB-ROUNDE
-D, MAXIMUM DIMENSION 30 X 15MM, CLASTS ACCOUNT FOR U
-P TO 50-60% OF MODE. TOWARD BOTTOM OF INTERVAL, UNIT
BECOMES GREY-GREEN, DACITIC IN COMPOSITION.

45500 45590 A3XTFLPPFQZ FGCT FO 40P5
7A FO C C/ 50 B)
GREY, LIGHT, RELATIVELY WHITE MICA-RICH, RHYODACITIC IN COMPOSITION. CLASTS ARE PALE WHITE, WITH YELLOWISH TINGE. BOUNDARIES DEFINED BY CHLORITE PERVASIVE ALTER -ATION OF MATRIX. MATRIX ACCOUNTS FOR <10% OF MODE. C -LAST SUPPORTED ROCK. POSSIBLE PERVASIVE SILICIFICATI -ON PRESENT.

45590 46630 A7X- -OZCL5FGMX FO 22
-C FO VC 75V=L2P5 L= Q*
-TERVAL OF INTENSELY ALTERED TUFF, LAPILLI-TUFF. TUF -F DEFINED BY ROUNDED, EQUANT QTZ GRAINS (2-3MM, 20-25% OF MODE), RANDOM ORIENTATION AND DISTRIBUTION, ANH -EDRAL PLAGIOCLASE GRAINS, SNOW WHITE, SUB-ANGULAR TO SUB-ROUNDED (0.5-5MM, 30%), MATRIX IS DARK GREY, AGGR -EGATE OF ACTINOLITE AND PLAGIOCLASE. HAS SIMILAR TEX -TURE TO INTERVAL AT 437M. 457.41 TO 458.9M UNIT IS TALCOSE, YELLOWISH-WHITF -N DISTINCT BANDS, LOCALLY B -ANDS ARE WAVEY, INTENSI -HISTOSITY PRESENT WITHIN INTERVAL. 458.9-466.30M, -DOMINENTLY CHLORITE ALTER -ATION EXCEPT WITHIN THIS INTERVAL, BANDS OF PYRITE A -ND VEINS OF ANKERITE AND PATCHES OF SPHALERITE. PYRI -TE FROM 460.40-461M, PYRITE ACCOUNTS FOR 40% OF INTE -RVAL. LARGEST BAND 7CM, @55 DEGREES TO C.A.. ANKERIT -E VEINS CONCENTRATED FROM 461.12 TO 461.6M, VEINS AC -COUNT FOR 30% OF MODE, AT @75 DEGREES TO C.A.. SPHAL -ERITE PATCH 2CM IN DIAMETER AT 462.44M . ALETERATION ALTERNATES BETWEEN MODERATE AND INTENSE FROM 463 TO 4 66M. INTENSE CHLORITIC ALTERATION AT 464 TO 464.4M. U -NIT HAS SIMILARITIES TO BLACK ROCK OF CERRO MINING C -ORP.

46630 49375 A5XTFLPPFQZ FGCT FO 50
5AAC FOBX
RHYOLITIC TO RHYODACITIC COMPOSITION TUFF, TUFF BRECC -IA, LAPILLI-TUFF. CLASTS ARE SUB-ROUNDED TO SUB-ANGU -LAR, CLASTS HAVE MEAN SIZE OF 20MM DIAMETER, LOCALLY CLASTS ARE SUB-ANGULAR AND HAVE IN-SITU BRECCIATION F -EATURES, I.E., CLASTS CAN BE FIT BACK TOGETHER. INTE -RSTITIAL MATRIX MATERIAL IS CHLORITIC.

47700 47882 A5XTFLPPFQZ FGMX MX
5N P6
ZONE OF INTENSE CHLORITIZATION, CORE IS BLACK, MASSIV -E, FINE GRAINED.

48647 49375 A5XTFLPPFQZ FGFO3776 S# 30 P5
5W O C/ 35 P1
FINE GRAINED, TRANSLUSCENT WHITE, EXTREMELY SCHISTOSE RHYOLITIC TUFF IN ALL RESPECTS, IN ALL RESPECTS EASIL -Y TERMED A SERICITE SCHIST. CLOSER EXAMINATION REVEA -LS THAT THE UNIT IS COMPOSED OF SUB-ROUNDED TO SUB-A -NGULAR GREY, GREY-WHITE RHYOLITIC CLASTS FO THE SAME COMPOSITION AS THE MATRIX. CLASTS @10 TO 20MM IN DIAM -ETER, LOCALLY THE UNIT IS CLAST SUPPORTED.

49375 52890 DCVCPFQZ FGFO9115 FO 35 P3
3AAC P1
FINE GRAINED, HOMOGENEOUS, GREY TO LIGHT GREY-GREEN, DACITIC COMPOSITION TUFF, DEVOID OF ANY CRYSTALS. NOT -E THAT UNIT'S SHISTOSITY IS DEVELOPED AS A RESULT OF A HIGH MUSCOVITE AND CHLORITE CONTENT, ALTHOUGH NOT KNOWN WHETHER THIS IS AN ALTERATION PRODUCT.

51808 52287 A3XDCVC P3

INTERVAL OVER WHICH THE AMOUNT OF SERICITE WITHIN THE UNIT INCREASES SIGNIFICANTLY, ACCOUNTS FOR UP TO 60% OF THE UNIT LOCALLY.
THE UNIT IS A TRUE SERICITE SCHIST FROM 521.89 TO 522 .75M.

52340 52354 XCNTZPFAC FGCT FO 40
7N BXFO P3
NARROW INTERVAL OF BRECCIATION WITHIN THE DACITIC TUF -F. BANDING, FOLIATION IS SLIGHTLY DISRUPTED, AN IDEN -TICAL CONTACT IS PRESENT AT 528.90 TO 529.10M. CONTA -CT IS INTRA-UNIT.

52890 54410 A3XRDVCPFQZ FGFO FO 35 P3
7A D/
LIGHT GREY, FINE GRAINED, EXTREMELY WELL FOLIATED, SL IGHTLY TRANSLUSCENT, WITH A BLUISH TINGE, EXTREMELY MICACEOUS UNIT. LOCALLY PYRITE GRAINS PRESENT, <<1%.

52890 52910 XCNTZ FGWB FO 40
VQ 40
CONTACT ZONE BETWEEN DACITIC AND RHYODACITIC COMPOSIT -ION TUFF, CONTACT DEFINED BY IRREGULAR BANDING, QTZ VEINS @2CM IN THICKNESS.

53900 54410 A5XRDVCPFQZ FGFO P4
5W BN L+
DEGREE OF ALTERATION INCREASING. WHITE MICA CONTENT INCREASED PERVASIVELY. PYRITE LOCALLY AS BANDS 2-3CM IN THICKNESS, FORMED FROM AGGREGATES OF DISSEMINATION -S. GRAINS OF PYRITE ARE SUBHEDRAL TO EUHEDRAL, 0.2MM IN DIAMETER

54410 57300 DCVCPFQZ FGFO9114 FO 45
3AAC BN O BN 45>)
DARK GREY, BLUISH TINGED DACITIC TUFF, WELL FOLIATED, FINE GRAINED, WELL BANDED. LOCALLY CONTAINED FE-DOLOM -ITE VEINS SUB-PARALLEL TO FOLIATION. ANKERITE VEIN 4CM THICK AT 5506M AND 552M.

55660 55760 XPPFQPFQZ CGPP MX
5WMS MX D(
DISNCTIVE "RHYOLITIC" QUARTZ-FELDSPAR PORPHYRY, MARKE -R HORIZON. COMPOSED OF COARSE GRAINED SUBHEDRAL THRO -UGH TO EUHEDRAL X'TALLINITY PLAGIOCLASE PHENOCRYSTS. PLAGIOCLASE GRAINS 2-5MM IN DIAMETER, ACCOUNTS FOR @2 0% OF MODE. QTZ GRAINS ARE EQUANT TO ELLIPTICAL, 4-5M M IN DIAMETER, ACCOUNTS FOR @3-5% OF MODE. MATRIX IS A FINE GRAINED AGGREGATE OF WHITE MICA AND PLAGIOCLAS -E.

57300 57870 A3XDCVC FO 45
VC 45<+
SEE INTERVAL 544.10 TO 573.00 FOR DESCRIPTION OF UNIT
THIS INTERVAL COANTAINS NUMEROUS VEINS OF FERROAN DOL -OMITE PARALLEL TO FOLIATION, VEINS HAVE A MEAN WIDTH OF @10MM.

57420 57440 XTFLPPFAC CTFO FO 35 P1
7N O P2
UNIT IS DARK GREY TO BLACK WITH LIGHT GREY ELLIPTICAL CLASTS, CLASTS UP TO 40MM IN LENGTH, MAXIMUM WIDTH 15 MM, CLASTS ACCOUNT FOR 25% OF MODE. BLACK FINE GRAINE -D MATRIX GENERATED BY AGGREGATE OF CHLORITE AND SERI -TE.

57658 57700 XTFLPPFAC FGFO FO 42
7N CT O
AS PREVIOUSLY DESCRIBED ABOVE.

57870 58750 SEDMPFQZ FGFO9113 FO 45
5A BD O BD 45 L*
UNIT IS COMPOSED OF INTERBEDS OF DACITIC TUFF, LOCALL
-Y DACITIC COMPOSITION LAPILLI TUFF (SUBORDINATE) AND
CHERT. UNIT IS FINE GRAINED TO APHANITIC, WELL BEDDED
, ALTERNATING BLACK ARGILLITE/MUDSTONE, BEDS 2-4MM IN
THICKNESS, YELLOWISH-WHITE INTERVALS (1-2MM) OF SERIC
-ITIZED, POSSIBLY TALCOSE TUFF, AND PYRITE BEDS, MAXI
-MUM THICKNESS 3-4MM. PYRITE DISSEMINATIONS OCCUR WIT
-HIN DISTINCT PLANES UP TO 1-2MM IN THICKNESS.

58750 61270 DCVCPFQZ FOBN FO 45 P2
5A P2
THIS UNIT CONTAINS A SIGNIFICANT SEDIMENTARY MUDSTONE
COMPONENT, NARROW BEDS, BLACK MATERIAL, 2-4MM IN THIC
-KNESS, ACCOUNTING FOR @30% MODE. LOCALLY THE UNIT IS
A HOMOGENEOUS, LIGHT GREY DACITIC COMPOSITION TUFF, B
-UT THIS IS RELATIVELY RARE.

58800 58940 XFALT VQ 40>5
FO 45<3
DESCRIBED AS A SHEAR ZONE IN HBED LOGS, POSSIBLE DIAL
-ATION ZONE IN WHICH THERE HAS BEEN QTZ AND FERROAN
DOLOMITE FLOODING. NO ALTERATION OF HANGING WALL/FOOT
-WALL ROCKS, THEREFORE VERY LOCAL FAULT, NOT MAJOR.

59085 59280 XSEDMQZPF BDFO FO 43
5A FG BD 43 L+
CHERTY SEDIMENT WITH SOME NARROW BEDS OF MUDSTONE, BE
-DS TYPICALLY 10MM IN THICKNESS.

60475 60875 XTFLPPFAC FGFO6446 FO 45
3AQZ CT 45 O <)
DISTINCTIVE, HOMOGENEOUS, LAPILLI TUFF, DACITIC COMPO
-SITION, MAY CONTAIN SUBORDIANTE SEDIMENTARY COMPONEN
-T. CLASTS ARE GREY-WHITE, SUB-ROUNDED, CONSISTENT SI
-ZE 4-5MM IN DIAMETER, ACCOUNTS FOR @40% OF MODE, OPE
-N FRAMEWORK.

60875 61270 XDCVCPFAC FGFO8225 FO 40
3AQZ XTBN46 O BN 40<+
THIS IS A WELL FOLIATED, BANDED, DACITIC COMPOSITION
TUFF WHICH REPRESENTS THE TRANSITION INTERVAL BETWEEN
THE OVERLYING LAPILLI TUFF AND THE UNDERLYING RHYODAC
-ITIC COMPOSITION TUFF. NOTE THAT WITHIN THIS INTERVA
-L MICROVEINLETS AND STRINGERS OF FE-DOLOMITE/ANKERIT
-E START TO BE MORE PREVALENT. VEINS ARE SUBPARALLEL
TO THE BANDING AND FOLIATION, LOCALLY UP TO 2CM IN TH
-ICKNESS, BUT MEAN THICKNESS @3MM, ACCOUNTS FOR ABOUT
3-5% OF THE MODE.

61270 62275 RDVCPFQZ FGFO9115 FO 40
5AAC XTBN O <1
FINE GRAINED, HOMOGENEOUS, RHYODACITIC TUFF, WELL FOL
-IATED. RANDOMLY ORIENTED/DISTRIBUTED THROUHGOUT, SUB
-ROUNDED, CARBONATIZED TO A LIGHT ORANGE COLOUR, PLAG
-IOCLASE X'TALS, @2MM IN DIAMETER, 3-5% OF MODE. UNIT
IS GREY-GREEN. LOCALLY IS WELL BANDED, DEFINED BY ALT
-ERNATING PLAGIOCLASE-WHITE MICA-RICH INTERVALS AND A
-CTINOLITE BANDS, 5-10MM IN THICKNESS. ****NOTE****
THE NUMBER OF CARBONATE VEINS IN INCREASING AND A MIL
-D CARBONATE ALTERATION IS NOW PRESENT.

62125 62275 A3XRYVCPFQZ FGFO9115 FO 45
5WAC XT O P1
FINE GRAINED, CREAM COLOURED, RHYOLITIC COMPOSITION T
-UFF, AS DESCRIBED ABOVE, BUT MORE LEUCOCRATIC. POSSI

-BILITY THAT CHANGE IN COLOUR MAY REFLECT GREATER CAR
-BONATE CONTENT.

62275 64185 A5XTFLPPFQZ CTFO6447 FO 45 P2
5AAC 44 O >1
UNIT AGAIN IS TRANSITIONAL FROM OVERLYING RHYODACITIC
AND RHYOLITIC TUFF. UNIT IS RHYODACITIC IN COMPOSITIO
-N, LIGHT GREY. COMPOSED OF RHYODACITIC TUFF BEDS/BAN
-DS, OR MAFIC MATERIAL AS DESCRIBED IN PRINCIPLE INTE
-RVAL 612.7-622.75M. DISTRIBUTED THROUGHOUT BUT IN CO
-NCENTRATED BANDS, ELLIPTICAL, TO IRREGULAR, ANGULAR,
SHAPED RHYODACITIC COMPOSITION CLASTS, LOCALLY UP TO
4-5CM IN DIAMETER. MAXIMUM DIMENSION CLASTS ACCOUNT F
-OR <5% OF MODE. CLASTS 1-2CM IN DIAMETER ACCOUNT FOR
UP TO 20% OF MODE. FERROAN DOLOMITE VEINS, GENERALLY
SUB-PARLLELING FOLIATION, RANGING FROM 4-10MM, ACCOUN
-T FOR 10% OF MODE ON CONSISTENT BASIS.

63310 64185 1VEIN VQ 50
ZONE CONTAINING MACRO QUARTZ+MUSCOVITE+CARBONATE VEIN
-S, MEAN THICKNESS 10CM.

64185 65430 ALXRDVCPFQZ FGFO FO 40 P3
3GAC CTBN >1 P2
THIS UNIT HAS BEEN DESCRIBED AS AN ANDESITIC TUFF IN
HBED LOGS HOWEVER, DISTINCT POSSIBILITY THAT IS A RHY
-ODACITIC TUFF WHICH HAS BEN VARIABLY CHLORITIZED. TE
-XTURALLY DESCRIPTIONS CONSISTENT WITH INTERVAL 612.7
TO 622.75M. CARBONATE ALTERATION IS MAINTAINED, CONSI
-STENTLY MODERATE, LOCALLY INTENSE.

64185 64640 A5X
3G P3

64640 64850 A3X
5G P1

64850 65170 A5X
3G P3

65170 65430 A3X
5G P1

65430 67490 A3XRY/FPFQZ FGMX FB 40
5W FB
UNIT IS A FINE GRAINED, CREAM COLOURED, SLIGHT ORANGE
TINGED. MASSIVE BUT LOCALLY FLOW BANDED. BANDS ABOUT
1CM IN THICKNESS. HOMOGENEOUS.

66725 66815 XRY/FPFQZ FGPP FO 65 P1
5W FO
FELDSPAR-PHYRIC RHYOLITE FLOW? PHENOCRYSTS ARE CREAM
WHITE, SUBHEDRAL, 3MM IN DIAMETER, ACCOUNTS FOR @7%
OF THE MODE, LONG AXIS OF GRAINS ALIGNED PARALLEL TO
FOLIATION PLANE. QUESTIONABLE WHETHER IS A TUFF. MATR
-IX >=90% OF MODE, HAS BEEN PREVIOUSLY ALTERED TO SER
-ICITE, MILD ALTERATION.

67223 67410 A7XDCVCPFAC FGFO9115 FO 50
5N XT O P6
DARK GREEN TO BLACK, FINE GRAINED, FOLIATED, EXTREMEL
-Y CHLORITIC, BUT NOT SCHISTOSE, TUFF, TEXTURALLY IS
VERY SIMILAR TO THE OVERLYING FELSIC TUFF, THUS THE
IDENTIFICATION AS A DACITE, BUT HAS PREVIOUSLY BEEN
LOGGED AS AN ANDESTIC TUFF.

67490 70407 A5XDCVCPFAC FGFO9115 FO 46
3G XT P4
DARK GREEN, FINE GRAINED, MODERATELY CHLORITIC, FELDS
-PAR X'TAL TUFF, DACITIC? IN COMPOSITION. FELDSPAR
X'TALS 1-2.5MM IN DIAMETER, LONG DIMENSIION ALIGNED

PARLLEL TO C.A., ACCOUNTS FOR UP TO 7% OF MODE. FELDS
-PAR GRAINS HAVE A SLIGHT ORANGE TINGE INDICATIVE OF
MILD CARBONATIZATION.

P 70407 71945 RHYLQZPF FGMX MX P1
5W
MASSIVE, CREAM COLOURED RHYOLITE. DIFFICULT TO ASCERT
-AIN WHETHER OR NOT IS FLOW OR TUFF, LACK OF FOLIATIO
-N OR CRYSTALS SUGGEST IS FLOW.

71945 76278 A3XDCVCACPF FGFO9114 FO 50
3A O P2 D)
FINE GRAINED, MILDLY CHLORITIC ANDESITIC TO DACITIC C
-OMPOSITION TUFF, WELL DEVELOPED FOLIATION. LOCALLY A
DARK GREY COLOUR SUGGESTING THE DACITIC COMPOSITION.
SLIGHT GRANULAR TEXTURE. ACTINOLITE, BLOCKY, SUBHEDRA
-L, UP TO 2MM IN DIAMETER, EQUALLY DISTRIBUTED WITH
CREAM TO ORANGE TINGED, ANHEDRAL PLAGIOCLASE GRAINS,
ALL GRAINS ALIGNED PARALLEL TO FOLIATION (<1.5MM, <45
% OF MODE). PYRITE AS DISSEMINATIONS OR AGGREGATES OF
DISSEMINATIONS UP TO 80% OF MODE OVER 1-2CM LOCALLY.
BANDING OF PYRITE IS RARE.
NOTE THE PRINCIPLE INTERVAL HAS BEEN ENTIRELY
SPLIT, AMKING RE-LOGGING VERY DIFFICULT. THE INTERVAL
IS ANDESITIC TO DACITIC IN COMPOSITION, VOLCANICLASTI
-C. GRANGES LOG IS NOW USED INTENSIVELY FOR DESCRIPTI
-ON.

75872 75941 3-4% CPY, 3% PY, FOLIATION AT 55 DEGREES TO C.A.
9.75G/T AG, 1.19% CU, 0.08% ZN

75941 76011 4-5% CPY, 4-5% PY,
29.6 G/T AG, 1.19 % CU, 0.09% ZN

76011 76073 8% CPY, 2-3% PY
7.38 G/T AG, 1.71% CU, 0.08% ZN

75872 76073 XDCVC FGFO FO 55
L=B+
INTERVAL OF AGGREGATES OF PYRITE DISSEMINATIONS INTO
BANDS/LAMELLAE PARALLELING THE FOLIATION. BANDS ARE
UP TO 10MM IN THICKNESS. CHALCOPYRITE IS ALWAYS AS BL
-EBS, 1-3MM IN DIAMETER, RANDOMLY ORIENTED/DISTRIBUTE
-D THROUGHOUT INTERVAL. NOTE THAT THIS INTERVAL IS NO
-T ASSOCIATED WITH ANY QTZ VEINING, THEREFORE COULD B
-E SYNGENETIC WITH THE TUFF.

P 76278 79147 A3XDCVCPFQZ FGFO P2
5A D) D*
A PRINCIPLE INTERVAL WAS DEFINED IN THE GRANGES DD LO
-GS. THE UNIT IS TRANSITIONAL FROM DACITIC TUFF NEAR
THE BEGINNING TO RHYODACITIC THROUGH TO RHYOLITIC LOC
-ALLY. THE MORE FELSIC INTERVALS CONSIST OF A LIGHT
YELLOWISH-GREEN SILICA+MUSCOVITE-RICH ROCK, FREQUENTL
-Y BANDED, ALTERNATING BANDS OF YELLOW-WHITE (MUSCOVI
-TE+QTZ), AND WHITE, MORE QTZ-RICH INTERVALS.

77696 79147 A5XDCVCPFQZ FGFO FO 55 P2
5A P2 L2
DEFINED AS A SHEARED, SERICITIZED, DACITE TUFF. GRANG
-ES - "QTZ BLEBS, (PORPHYROBLASTS?) AND STRINGERS 5-1
0%, EPIDOTE STRINGERS 3-5%, 15-20% PYRITE, TRACE CPY,
TRACE GALENA? AS STRINGERS. SULPHIDE STRINGERS AT 60
DEGREES TO C.A. UNIT IS A MORE ALTERED, SULPHIDIZED

			DACITE TUFF WITH SYNGENETIC LAMINATIONS OF PYRITE. ****NOTE**** THIS IS A CLASSIC STRINGER ZONE TO A MAS -SIVE SULPHIDE, LAMINATIONS OF PYRITE PARALLELING FOL -IATION, BANDS UP TO 2CM IN THICKNESS.
	79147 82509	AN/FACPF FGFO	FO 70
		3G	FINE GRAINED, VERY FINELY FOLIATED, DARK GREEN, ANDES -ITIC COMPOSITION FLOW. DISTINCTIVE FEATURE IS IRREGU -LARLY ORIENTED QTZ VEINS, AND QTZ-CARBONATE VEINS. QTZ VEINS, TRANSLUSCENT WHITE, 5MM IN THICKNESS, CONV -OLUTED, GENERALLY AT @80 DEGREES TO C.A.. QTZ-CARBON -ATE STRINGERS, 1-2MM IN THICKNESS, RANDOM ANGLES THR -OUGHOUT. RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT, L -IGHT ORANGE COLOUR PLAGIOCLASE GRAINS (<1MM, 7%). PO -SSIBILITY THAT THIS IS A TUFF.
	80872 81270	X A*FO	FO 60A=
		3G	INTERVAL WITHIN THE ANDESITIC FLOW WHICH CONTAINS WID -ELY DISPERSED QUARTZ AMYGDULES, UP TO 10MM IN DIAMET -ER, TYPICAL DIAMETER, @5MM.
	81558 81956	XDCVCACPF FGFO	FO 60
		5G	ANDESITIC TO DACITIC COMPOSITION, FINE GRAINED, MILDL -Y FOLIATED. DISTINCTIVE FEATURE IS QTZ AND PLAGIOCLA -SE GRAINS ELONGATED ALONG FOLIATION PLANE. SOME QTZ GRAINS EQUANT, 2MM IN DIAMETER, RANDOM DISTRIBUTION/ ORIENTATION. ANGULAR, ELONGATE PLAGIOCLASE GRAINS, SL -IGHT ORANGE TINGE, CARBOANTE ALTERATION?
	82094 82467	X A*FO	FO 60
			AS DESCRIBED IN THE INTERVAL 808.72-812.70M.
	82467 82509	XDCVCPFAC FGFO	BN 50
		5G BN	ALTERNATING DARK GREEN AND LIGHT PINKISH DACITIC, FIN -E GRAINED TUFF BANDS, UP TO 5CM IN THICKNESS, EACH B -AND IS HOMOGENEOUS, FINE GRAINED, DEVOID OF CRYSTALS

R			
[illegible]001	524	590	D1815
[illegible]001	6138	6265	D1816
A001	12642	12718	D1818
A001	18237	18300	D1819
[illegible]001	24054	24125	D1820
A001	26426	26495	D1821
A001	29714	29791	D1822
[illegible]001	32617	32700	D1823
[illegible]001	35187	35267	D1824
A001	41923	41997	D1551
[illegible]001	42585	42662	D1825
[illegible]001	43422	43500	D1552
A001	46336	46400	D1553
A001	46439	46439	D1554
[illegible]001	51560	51635	D1555
A001	53920	53993	D1556
A001	61640	61710	D1557
[illegible]001	62160	62230	D1558
[illegible]001	64370	64440	D1559
A001	65530	65600	D1560
A001	67970	68040	D1561
[illegible]001	70487	70582	D1562
A001	73210	73310	D1563
A001	78286	78360	D1564
[illegible]001	79900	79980	D1565

IDEN6B0201284 29-67 AXT 28JUL91JFM JUN67 TRIGRD000.00 0119
IPRJPLACER DOME INC.
LAKE ATHAPAPUSKOW - SOURDOUGH BAY
000 0 9144MT 349.91267.50-45.00 6072506.00 332313.00 291.38
S001 9144 18288 349.91267.50-36.00
S002 18288 27432 349.91267.50-29.00
S003 27432 34991 349.91267.50-26.00
NAM QZPFKFEPACHBCZMSCAD:
LNAM AKTACLLIHEMGPYPRCPSL
SCL MT.2PC.0
SCL PC.0 LCTM
A001
AUMM SAMP
0 792 CASE
MSV 792 1182 TFXTQZ PF6XTEM L= L2
6N E1 L1 V*
QUARTZ-FFELDSPAR CRYSTAL TUFF WITH SMALL HEMATITE VEI
-NS. CHLORITE AND SERICITE ALTERATION BUT VERY LITTLE
MINERALIZATION. QUARTZ CRYSTALS, 2% OF ROCK, 0.3 TO 0
.2CM DIAMETER. FELDSPAR CRYSTALS ACCOUNT FOR 4-5% OF
ROCK, 0.2 TO0.05 CM DIAMETER. 1% LAPILLI, SIZE FROM 1
TO 2 CM, CHERT AND RHYOLITE.
P 1182 1703 FR5DCVCQZ PF5BD BD 72
3G AC5 V= D2 V*
DACITE TO RHYODACITE TUFF. CHLORITE ALTERATION BUT VE
-RY LITTLE MINERALIZATION. ROCK IS BRITTLEY FRACTURED
IN PIECES RANGING FROM 5 TO 0.5CM BUT USUALLY 2CM WID
-E. ANKERITE AND HEMATITE STRINGERS.
P 1703 21862 A58RDVCQZ AC6BDXT BD 79 L3
2G PF3 L1 D3 V)
QUARTZ CRYSTAL TUFF OF DACITIC COMPOSITION. CRYSTALS
RANGING FROM 0.1 TO 0.6 CM BUT AFTER METERAGE 53 THEY
ARE OF SMALLER DIAMETER (0.05 TO 0.2CM). THE ROCK IS
HIGHLY CHLORITIZED AND SERICITIZED. X'TALS FORM 1% OF
ROCK.
D 1800 3400 FR8
FR
THE ROCK IS FRAGMENTED WITH THE MAJORITY OF PIECES BE
-ING LESS THAN 1 CM THICK. THERE IS HOWEVER VERY LITT
-LE MINERALIZATION ASSOCIATED WITH THE BRITTLE DEFORM
-ATION.
R 3505 5365 XCASE
NO BEDROCK, CASING.
R 7894 8151 X L4
D2
LARGER QUARTZ CRYSTALS AND MORE ABUNDENT (10% OF ROCK
) WITH SIZE VARYING FROM0.2 TO 0.5CM.
P 8151 8621 XDCVCQZ AC5EM D3
5A PF5 D2
DACITE TUFF WITH SERICITE AND CHLORITE ALTERATION.
R 16261 16970 SHX VC 73
V=
THE ROCK IS SLIGHTLY SHEARED BUT NO MINERALIZATION IS
NOTICEABLE.
21862 22951 TFXTQZ PF3 BN 77 L2
4G AC3FR V+ D=
DACITE TO RHYODACITE TUFF WITH 2 DISTINCT QUARTZ CRYS
-TAL CATEGORIED. 1 - THE CRYSTALS ARE RANGING FROM
0.7 TO 0.2CM. 2 - RANGING FROM 0.1 TO 0.05CM. IN ALL
THE CRYSTALS FORM 20-25% OF THE ROCK. THE CORE IS BRO
-KEN IN 1 TO 20 CM LONG PIECES WITH THE MAJORITY BEIN

```
R
P    22860 22951     FR8                                                  L4
                     -G 5CM LONG. THE ROCK IS ALTERED TO SERICITE.
                     THE ROCK IS FRACTURED IN 1 TO 3 CM LONG PIECES (BREAK
R                    -AGE AT RIGHT ANGLE TO CORE).
P    22951 26309     CL8ANVCQZ  AC4EFXT          BD    77
                     2G  PF6                          V+  D3
                     ANDESITE TUFF WITH QUARTZ CRYSTALS FROM 229.51 TO
R                    241.00. THERE ARE ALSO SOME CHERT BEDS IN THE SAME
                     INTERVAL. THE WHOLE ROCK IS QUITE CHLORITE ALTERED.
L    25207 26309     CLX          MG
                                                          D1
                     THIS SECTION IS MUCH LESS ALTERED TO CHLORITE AND IS
                     COARSER GRAINED (UP TO MEDIUM GRAINED).
P    26309 27764       EPICQZCYPF4BDFZ          BD    70                  V1
L                    5A  AC4
                     REWORKED VOLCANICLASTIC. MAINLY TUFFACEOUS, ANDESITE
                     TO DACITE WITH SOME SMALL (LESS THAN A CM). FEW ROCK
R                    FRAGMENTS (0.5% OF TOTAL UNIT) AND SOME CHERTY LAYERS
                     . MANY (APPROXIMATE 50/METRE) CALCITE VEINLETS AND ST
                     -RINGERS ALL LESS THAN 0.5CM WIDE.
P    27764 30688     PCXTFLPQZ  AC6FZCT          BD    82
L                    1A  PF4FGXT
                     LAPILI TUFF WITH FELDSPAR ZONES AND LOCAL QUARTZ CRYS
                     -TALS (0.05 TO 0.2CM). 40% OF THE LAPILLI ARE CHERT C
R                    -LASTS GENERALLY LESS THAN 2CM. MANY RHYOLITE AND RHY
                     -ODACITE CLASTS (FRAGMENTED).
L    28867 29047     XTFXTACHBPF7XTCG          VC    45                  D1
L                    7U  QZ2                        D3                D(
                     QUARTZ FELDSPAR CRYSTAL TUFF. CALCITE AND SERICITE AL
P                    -TERATION. LITTLE, BUT DISSEMINATED EUHEDRAL PYRITE.
P    30688 30791      SEDMCYQZPF4BDFG55 3      BD    76
L                    7A  AC4                        V*                V(
                     SEDIMENT BEDS MADE OF VOLCANICLASTICS AND CLAY BEDS.
L                    LITTLE ALTERATION, LITTLE MINERALIZATION
P    30791 33360      AN/FQZHBPF5ECMX                              H1      V(
                     8G  AC5                                        D-
                     ANDESITIC FLOW, GABBROIC TEXTURE. VERY LITTLE ALTER
R                    -ATION AND MINERALIZATION.
D    32443 33360     X          EF                                        V)
                     GRAINS BECOMES FINER AND THE COMPOSITION TENDS TO LEA
R                    -D TOWARD ANDESITE.
P    33360 33497      EPICCYQZPF4BDFG55 3
                     7A  AC4
L                    REWORKED VOLCANICLASTICS AND SEDIMENT BEDS. NO ALTERA
R                    -TION OR MINERALIZATION
D    33497 34991      TFLPQZ  PF6CTBD          BD    60                  V=V)
                     6A  AC4
R                    LAPILLI TUFF WITH CLASTS RANGING FROM 0.5 TO 7CM COMP
                     -OSING 5-10% OF THE UNIT. NO NOTICEABLE MINERALIZATIO
                     -N OR ALTERATION.
```

A001	5650	5699	D1861
A001	8268	8351	D1862
A001	10767	10866	D1863
A001	12786	12862	D1864
A001	15542	15605	D1865
A001	18197	18250	D1866
A001	20640	20706	D1867
A001	23661	23722	D1868
A001	25116	25176	D1869
A001	26158	26219	D1870

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A001 30846 30907     D1871
A001 33040 33101     D1872
END
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IDEN6B0201V-203 119-76  BQ  01AUG91JFM   MIDWAUG76      TRIGRD000.00          0119
IPRJPLACER DOME INC.                  LAKE ATHAPAPUSKOW - CABIN ZONE
S000      0  3048MT  306.93310.00-45.00          6071645.00 332492.81        0.00
S001   3048  6096    306.93310.00-41.50
S002   6096  9144    306.93310.00-37.00
S003   9144 12192    306.93310.00-29.00
S004  12192 15240    306.93310.00-25.50
S005  15240 30693    306.93310.00-19.00
/NAM                                                  QZPFKFEPACHBCZMSCAD:
IUAM                                                  AKTACLLIHEMGPYPRCPSL
/SCL          MT.2PC.0
LSCL               PC.0        LCTM
/001
/UMM                        SAMP
P             0    213        CASE
PMSV        213 16423     CL9DCVCQZ   PF[illegible]G          MX
L                                2G      CT                          D+  V2
R                               DACITE TO ANDESITE TUFF. THIS UNIT IS VERY MASSIVE (T
R                               -EXTURE) BUT SOME OCCASSIONAL CLASTS AND OCCASSIONAL
I                               VERY LIGHT BANDING TEND TO INDICATE A TUFF ALTHOUGH T
R                               -HE MASSIVE TEXTURE AND LACK OF NEEDLE-LIKEK GRAINS C
R                               -OULD SIGNIFY A FLOW. SLIGHT ORANGEY COATING DUE TO A
P                               -NKERITE ALTERATION, CHLORITE ALTERATION MOSTLY IN
L                               STRINGERS. CALCITE FILLED VESICLES, VERY ANGULAR, EVE
R                               -NTRIANGULAR, CONCENTRATED IN SOME SECTIONS. THIS UNI
P                               -T VARIES SLIGHTLY IN COMPOSITION THROUGHOUT THE UNIT
I                               . THERE IS A LOT OF LOCAL SILICA BLEACHING. SOME SECT
K                               -IONS ARE MORE ANKERITE ALTERED AND VEINED. SOME CLAS
R                               -TS ARE PRESENT BUT VERY DISPERSED.
M        3297  3957      XDCVCQZ   PF7EFMX          MX
L                                9G  AC3
R                               VERY FINE GRAINED, WHITISH DACITE, ALMOST NON-ALTERED
P                               , NON MINERALIZED.
L        4120  4275      SH9          SH                          +2
R                                                                  +5
P                               SHEAR ZONE FILLED WITH QUARTZ AND CALCITE (ANKERITE S
F                               -TRINGERS) POSSIBEL FAULT ZONE.
R        6980  7163      X                                  $/
D                                                                  L2
I                               ANKERITE ALTERATION IS INCREASING FROM 5% AT THE BEGI
F                               -NNING OF THE INTERVAL TO 30% AT THE END. THE CALCITE
R                               IS IN VEINS AND STRINGERS BUT ALSO AS DISSEMINATIONS.
N        7749  7791      XVEINPFACCA8
I                                5W  QZ1
R                               CALCITE VEIN WITH A BIT OF QUARTZ AND SOME PIECES OF
R                               THE DACITE TUFF ROCK.
M        7833  9205      X
L                                                          $/       D=
R                               ANKERITE VEINING AND STRINGERS ARE MORE ABUNDANT AND
P                               DISTINCTIVE FROM BEGINING OF UNIT (TOIP OF HOLE).
L        9266  9470      X                                                 V=
R                               ABOUT 20 SMALL VEINS (1CM OR LESS IN WIDTH) OF DOLOMI
P                               TE ARE INTERSECTING THE CORE. YELLOW-BROWNISH IN COLO
F                               -UR. THERE IS NO PREFERENTIAL ANGLE TO THOSE VEINS, R
R                               -ANGING FROM 79 TO 28 DEGREES TO C.A..
D       10622 10744      X
I                                                                  J=
F                               BEDS OF PYRITE, VERY SMALL CRYSTALS. THE BEDS ARE DIS
R                               -RUPTED.
N       10825 10859      XVEIN     CA9                VC
```

L				5W QZ1			
				CALCITE VEIN WITH 10% QUARTZ THROUGH IT. NO SHARP CON			
				-TACT, NO MINERALIZATION.			
D	10881 11346	X			$/		A=
				ANKERITE VEINING AND STRINGERS WITH CALCITE FILLED			
				ANGULAR VESICLES, ALL OF THEM SMALLER THAN 1CM.			
	13180 14046	XTFXTQZ	PF6XTFG		BN	69	
L			2G AC3LM			A* V=	
			QUARTZ CRYSTAL TUFF WITH CRYSTALS AVERAGING 0.3CM DIA				
			-METER, COMPOSING 20% OF THE ROCK (AT TOP OF UNIT) DO				
R			-WN TO 5% AT THE END OF THE UNIT, WITH MEAN VALUE OF				
			AROUND 10%.				
	16423 26871	ANVC	PF4MG				
L			2G AC6			V= D3	
R			TUFF WITH COMPOSITION RANGING FROM ANDESITE TO RHYODA				
			-CITE WITHIN CM, SOME SECTIONS BEING 10-20CM LONG. GR				
			-EAT AMOUNT OF ALTERNATING COMPOSITIONS. THE ROCK IS				
R			BRECCIATED FOR SHORT DISTANCES (20-30CM) THEN BECOMES				
			NON-BRECCIATED AGAIN. ANKERITE OR CALCITE SEEM TO BE				
R			FILLING THE FRACTURES OF BRECCIATED ROCK. MANY QUARTZ				
			VEINS RANGING FROM A FEW CM TO 15CM AND A LOT OF BLEA				
R			-CHING IS PRESENT AROUND QUARTZ VEINS. NO PREFFRENTIA				
			-L DIPPING. MANY ANKERITE VEINS AND STRINGERS PRESENT				
R			(ALMOST 5% OF THE ROCK). FOLIATION OR BANDING SEEMS T				
			-O BE CHANGING CONSTANTLY FROM 90 TO ABOUT 50 DEGREES				
R			TO THE C.A.. THE ROCK IS CHLORITIZED (MAINLY WHERE AC				
			-TINOLITE AND FELSPAR ARE PRESENT). VERY LITTLE MINER				
R			-ALIZATION AND WHEN SOME IS NOTICEABLE IT IS IN QUART				
			-Z VEINS. AFTER METERAGE 193.4 THE BRECCIATION IS MUC				
R			-H LESS FREQUENT AND THEREFORE ANKERITE VEINS AND STR				
			-INGERS ARE MUCH MORE RESTRICTED TO QUARTZ VEINS OR C				
R			-ALCITE VEINS. AFTER METERAGE 200 QUARTZ VEINS ARE AL				
			-SO MUCH LESS FREQUENT - BUT BLEACHING IS STILL PRESE				
R			-NT AND VEINS ARE ERRATIC, WITHOUT ANY PREFERENTIAL D				
			-IPPING.				
	25141 25390	X		A*			
			QUARTZ CRYSTAL IN TUFF. CRYSTALS APPROXIMATELY 0.3CM				
			IN DIAMETER. 5% AT TOP OF INTERVAL TO 25% AT THE END.				
P	26871 27119	AL8CHEM		FGBD	BD	68	
				MX		L3	
			CHEMICAL PRECIPITATE WITH SEDIMENTARY CLAY AND SOME				
			VOLCANICLASTIC MATERIAL. MANY (3-4/CM, 1MM THICK) SMA				
			-LL CALCITE VEINS, VERY FINE GRAINED. FINE GRAINED CH				
			-LORITE PROBABLY CHEMICAL.				
	27119 30693	ANVCQZ	AC4MGBD		BD	75	
			4G PF6CT			V+ D3	
R			ANDESITE TUFF WITH SOME SMALL (1-2CM) FRAGMENTS. SMAL				
			-L SILICA-RICH SECTIONS (@20CM). NO MINERALIZATION.				
N	27546 27607	XCHEMCYQZAC3BDFG			BD	76	
			5N PF4			L2 D=D=U(	
R			CHEMICAL PRECIPITATE FORMING DISRUPTED, VERY FINE (<1				
			MM) BEDS. HEMATITE AND MAGNETITE PRESENT. VERY CHLORI				
			-TIC.				
	28157 28339	XCHEMCYQZAC3BDFG			BD		V=
L			5N PF4			L2 D5	
			VERY FINELY BEDDED SEDIMENTS, BEDS BEING BETWEEN 0.5				
			AND 0.05CM. SOME DISRUPTED BEDS. CHLORITE, CALCITE AN				
R			-D ANKERITE ALTERATION. MANY QUARTZ VEINLETS.				
N	29921 29992	XCHEMCYQZAC3BDFG			BD	74	V=
			5N PF4			L3	

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R                         SAME AS PREVIOUS NESTED INTERVAL.
N    30114 30175      XCHEMCYQZAC3BDFG          BD    75                    V=
                      5N  AF4                       L3  D5
R                         SAME AS PREVIOUS NESTED INTERVAL.
N    30328 30693      XDCVCQZ  PF4BNFG          BN    74                  L2
                      6A  AC3                     V=  L=
                          DACITE TO RHYODACITE TUFF WITH SLIGHT BANDING, NO MIN
R                         -ERALIZATION BUT SOME SERICITE ALTERATION.
A001   662   723    D1873
A001  3612  3673    D1874
A001  5931  5992    D1875
A001  8159  8205    D1876
A001 10272 10333    D1877
A001 12969 13030    D1878
A001 15813 15874    D1879
A001 20398 20454    D1880
A001 22205 22273    D1881
A001 23693 23754    D1382
A001 25893 25954    D1883
A001 27401 27462    D1884
A001 29337 29398    D1885
A001 30389 30450    D1886
END
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IDEN6B0201V-203 120-76  AQ  01JUL91DGMJFMMIDWJUL76          GRD000.00          0119
IPRJPLACER DOME INC.                          LAKE ATHAPAPUSKOW - SOURDOUGH BAY
S000     0  3048MT  353.57125.00-50.00                6072212.00 331936.00    291.38
S001  3048  6096    353.57125.00-45.00
S002  6096  9144    353.57125.00-39.00
S003  9144 12192    353.57125.00-28.00
S004 12192 15240    353.57125.00-25.00
S005 15240 18288    353.57125.00  0.00
S006 18288 21336    353.57125.00  5.00
S007 21336 24384    353.57125.00  7.00
S008 24384 27432    353.57125.00 13.00
S009 27432 30480    353.57125.00 14.00
S010 30480 35357    353.57125.00 18.00
ENAM                                                  QZPFKFEPACHBCZMSCAD:
LNAM                                                  AKTACLLIHEMGPYPRCPSL
ASCL        MT.2PC.0
BSCL            PC.0       LCTM
A001
AUMM                     SAMP
            0   335       CASE
PMSV    335   671    MFXAN/F    PF5EFFO          FO    29B(
L                             7G  AC5        1 1          I*          U*
                              POSSIBLE PILLOW SELVEGES, @ 2CM THICKNESS AT 3.85, 4.
                              73, 5.88M. SMALL CALCITE VEINS (2MM, THICK) AT MODERA
R                             -TE ANGLES.
P       671   698    BX9CNTZ
                              CONTACT ZONE BETWEEN FINE GRAINED MAFIC FLOW AND COAR
R                             -SE GRAINED MAFIC FLOW/DYKE.
P       698  4586    MFXMFVLHB  PF5EMSV          MX                        V)
                              5G  AC4MXPP                    V)                 <*
                              DIABASIC TO GABBROIC TEXTURE, POSSIBLE INDICATION OF
R                             DYKE.
        4586  4618    SHXCNTZQZ  PF4BN            C/                        V+
                              5A  AC4             <<                   U)    D(
R                             CONTACT ZONE BETWEEN MATIC FLOW AND DACITIC VOLCANICL
P                             -ASTIC.
        4618  8555    FGXDCVCQZHBPF4FGLM          BD    45                  V)
L                             3G  AC4XT           FO    45V/           U(V*  B-
R                             ROCK VARYING FROM ANDESITIC TO DACITIC COMPOSITION, T
                              -YPIFIED BY QTZ X'TALS, GRAINS EQUANT 2-4MM DIAMETER.
                              LOCALLY WELL LAMINATED WITH QTZ X'TAL-RICH AND -POOR
R                             SECTIONS
        6199  6279    CHXRDVC       MXFGX  1      MX
                              7A          9  O
R                             LIGHT GREY-GREEN, CHERTY (RHYODACITIC TUFF) INTERVAL.
R                             NO CRYSTALS EVIDENT.
        6888  6900      X
L                                                 V*
R                             QTZ CRYSTALS AVERAGE 6MM IN DIAMETER.
        7099  7188      X
                                                  V*          U)
R                             PYRITE RANGING FROM 1-10MM, EUHEDRAL X'TALLINITY.
        7343  7437    BN8TUFTQHPFQZ5LMFG          BD    28                  V*
                              3G  AC3                     V*          U(
R                             A CHERTY LAYER MIXED WITH VOLCANICLASTIC. MANY CALCIT
R                             -E VEINS WITH ANKERITE.
        7437  7483      X                                                 A1
L                                                                           B0
R                             CALCITE AMYGDULES RANGING FROM 2-6MM IN DIAMETER, CON
                              -TAINING VERY LITTLE PYRITE.
```

N	7483	7925		XTUFTCAMSQZ5LMFGX BD 29 4A PF2 9 O V* U* V* PYRITE AS EUHEDRAL X'TALS RANGING FROM 2-7MM. MANY CA -LCITE VEINS WITH ANKERITE.
R	8024	8190	SI4	PF QZ4 BD 37 AC3 DACITIC VOLCANICLASTIC BEDS ALTERNATING WITH CHERTY B -EDS OF A PALE GREY COLOUR. THERE ARE SOME MINOR ANGU -LAR FRAGMENTS
L	8555	9747	MFXMFDY	MXEF FO 50V(V) V- U* 3A
D	9639	9696	X	FGBN BD 56 V) BEGINNING OF CONTACT ZONE, CHARACTERIZED BY BEDDING I -NCREASING DOWNWARD.
K	9696	9747		BI5CNTZQZACBI5BNEM BN 47 9N PF1FOPP FO 44T(D- CONTACT ZONE BETWEEN MFDY AND LAMPROPHYRIC DYKE CHARA -CTERIZED BY
R	9747	9825		BI7LAMPPFHBBI7BNEF BN 47 V) 7N QZ2MX FO 45<- D(V- LAMPROPHYR DYKE CHARACTERIZED BY 70% BIOTITE WITH PERVASIVE CARBONATIZATION ***NOTE***- COMMENT BY DGM CARBONATIZATION NOTED BY JFM MAY BE THE WEATHERING OF OF THE MICAS.
R	9825	35357		LLXDCVCQZ PF4LMFG FO 63 6G AC3 BD 63V- U(DACITIC TUFF THAT GOES FROM HERE TO THE BOTTOM OF THE HOLE.
R	9825	9865	X	QZACPF2 BN 51 BI3 V) CONTACT ZONE BETWEEN LAMPROPHYR AND DCVC, DACITIC TUF -F IS BIOTIZED, CONTAINING PYRITE.
R	10616	10756	CH6	PF QZ5 BD 75 5A AC2 CHERTY LAYER. DCVC WITH ALTERNATING BEDS OF CHERT.
R	11156	11249	X	PF QZ4 AC3 V* V* A MORE SILICIC AREA COMPOSED OF DCVC WITH SMALL CHERT LAYERS. FINER GRAINED VOLCANICLASTIC ROCK.
R	11681	11744	SI7	PF QZ6 BD 66 7A AC2 V* ANOTHER MORE SILICA-RICH AREA WITH PYRITE IN VEINS AN -D IN BLOBS.
R	11988	12077	X	PFACQZ4 ANOTHER SILICA-RICH AREA.
R	12738	12802	A3X	PFHBSI4 5U AC4 V(U) BLEACHED AREA, INCREASED SILICA CONTENT. QTZ VEINS WITH CHLORITE BORDERS AT 130.5M, 133.4M.
R	13590	13622	MXXTUFTPFHBQZ4BDFOX	5 BD 49V(6A CL3EF 9770 <(U) SEDIMENT DEPOSITED LAYER BUT CLEARLY MADE OF TUFF WIT -H CHERT BEDS.
L	13622	13736	SI5	PF QZ6 BD 52 7A AC2 T* V(DCVC ALTERNATIONG WITH BEDDED CHERT.
D	14257	14320	FGX	***D. MALLALIEU CONTINUES WITH LOGGING*** FINE GRAINED, DACITIC COMPOSITION TUFF, HOMOGENEOUS

R
D 14320 15050 X THROUGHOUT.
QZ= 91 5 BD 70 L*
QTZ GRAINS/X'TALS, EQUANT TO SUB-EQUANT, RANDOM ORIEN
-TATION/DISTRIBUTION THROUGHOUT A PALE GREY, FINE GRA
-INED MATRIX, DACITIC COMPOSITION, ACTS AS A POSSIBLE
MARKER HORIZON NEAR BEGINNING OF TUFF HORIZON. LOCAL
SECTIONS OF FINELY LAMINATED PYRITE SHOWS SYMETRICAL
GRADING, YOUNGING DIRECTION NOT ASCERTAINABLE IN THIS
R SECTION.
D 15050 15202 X BD 80
D 15202 15448 X QZ1 91 5 FO 70
PF1 BD 70
L ***NOTE*** EXCELLENT MARKER HORIZON, QTZ X'TALS UP TO
15MM IN DIAMETER, SUB-ROUNDED FELDSPAR GRAINS, GREENI
R -SH-WHITE, ANGULAR TO SUB-ANGULAR (3MM,10%), WHITE, B
P -LOCKY GRAINS (2MM,3-5%).
D 15865 15961 X BD 45
L D=
R FINELY LAMINATED TUFF, MODERATELY RUSTY, INDICATIVE O
-F PYRITE CONTENT (>=5%), HIGHLY SCHISTOSE.
D 15961 16017 X QZ= 91 5
R EQUANT GRAINS OF QTZ UP TO 5MM IN DIAMETER, RANDOM OR
-IENTATION/DISTRIBUTION, THIS ZONE DOES NOT FALL INTO
R THE SAME CLASS AS 152.02 TO 154.48 WHERE THE QTZ GRAI
-NS WERE UP TO 15MM IN DIAMETER. POSSIBLE ASSOCIATION
P OF WELL/DELICATELY BEDDED TUFFS AND COARSE AND MEDIUM
GRAINED QTZ, MAY BE A GOOD MARKER.
D 15860 15880 X QZ= 91 5
R NARROW INTERVAL OF QTZ X'TAL DACITIC TUFF, QTZ GRAINS
5-7MM IN DIAMETER
L 16294 16947 A5X P6
P3 D*
R SECTION OF PERVASIVE SILICIFICATION AND CARBONATIZATI
P -ON, PYRITE AS HEAVY DISSEMINATIONS LOCALLY (<=1%),
FOLLOWS INTO A ZONE OF CHLORITIZATION. SAMPLES TAKEN
OF TWO VARIETIES OF ALTERATION FOR COMPARISON.
16947 17198 A5X P5
E P2 P3
R FERROAN-DOLOMITE/CARBONATE CONTENT DECREASES AS CHLOR
-ITE CONTENT INCREASES, NARROW INTERVAL OF PERVASIVE
CHLORITIZATION.
N 17734 17780 BI6LAMPBIQZ VQ 00
6NPF
17780 21630 FGXDCVCACPF MX A(
L 3G BN 75 P1
R FINE GRAINED, DARK GREEN, SLIGHTLY CHLORITIC, MASSIVE
UNIT, INTERPRETED TO BE ANDESITIC COMPOSITION TUFF, V
R -ERY MINOR COMPOSITIONAL BANDING, VERY SUBTLE BANDS,
5MM-10MM IN THICKNESS, RARE QTZ GRAINS, X'TALS, MINOR
QTZ AMYGDULES. UNIT GRADES INTO A COARSE QTZ X'TAL IN
AN ANDESITIC TO DACITIC TUFF.
D 18329 18374 X QZ1 8115 FO 90
I)
R COARSE QTZ X'TALS UP TO 15MM IN DIAMETER OVER A NARRO
R -W INTERVAL, MATRIX IS GREY-GREEN, HIGHLY SCHISTOSE,
PHYLLOSILICATE CONTENT INCREASING, ROCK DOES NOT APPE
-AR TO BE ALTERED. LOWER PORTION GRADES INTO FINE GRA
R -INED, MEDIUM GREEN TUFF. LOCAL ISOLATED QUARTZ X'TAL
-S.
18821 18825 X VQ 70

D	18860	18864	X			VQ	70
D	20450	20620	X	QZ)	8115	BN	85

MEDIUM GRAINED, AND LESS PREVALENT QTZ X'TALS IN A ME
-DIUM GREEN, POSSIBLY CHLORITIZED DACITIC COMPOSITION
TUFF, BANDING LIKELY TO BE PRIMARY BEDDING AT @ 85 DE
-GREES TO C.A..

	21336	21407	X	QZ=	8115	BN	70

QTZ X'TALS 5-7MM IN DIAMETER, ELLIPTICALLY SHAPED, OR
-IENTED PARALLEL TO MILD BANDING. DEGREE OF CHLORITIZ
-ATION DECREASING, ROCK BECOMING GREY, LIGHT IN COLOU
-R. GRAINS ACCOUNT FOR @5-7% OF THE MODE.

	21630	21732	ALXDCVCQZACAK2FGBN9114			VQ	85P=
			7GPF			P1	P1

RELATIVELY NARROW ZONE OF CARBONATE ALTERATION. FE-CA
-RBONATE AS VEINS, AS MARGINS TO WHITE QTZ VEINS, AND
AS A PERVASIVE ALTERATION.

	21679	21709	MOXQFVCQZPFAK1MG		7225	S#	70
			MS				

QTZ-FELDSPAR X'TAL TUFF, DACITIC TO RHYODACITIC COMPO
-SITION, MUSCOVITE DEFINING PLANES OF SCHISTOSITY WEL
-L.***NOTE*** THAT THIS ROCK, ALTHOUGH, VERY NARROW I
-N THIS DDH IS A COMMON ROCK AS GRAVEL AROUND THE TRA
-ILERS, THE ROCK APPEARS TO HAVE BEEN SERICITIZED, TH
-E UNIT MAY BE AKEY HORIZON WITHIN OR ADJACENT TO THE
PINEBAY DEPOSIT. THE QTZ GRAINS ARE NOT EQUANT, ARE
SUBROUNDED TO SUBANGULAR, LOCALLY INVADED BYFE-CARBON
-ATE. GRAINS ARE 2-12MM IN DIAMETER, ACCOUNTS FOR 10-
12% OF MODE. FELDSPAR GRAINS EQUANT TO BLOCKY, SLIGHT
PINKISH COLOUR (2-3MM,10%), ALL GRAINS SET IN A LIGHT
WHITE-GREEN MUSCOVITE, SERICITE-RICH? MATRIX.

	21966	22143	ALXQFVCQZPFAK1FGBN8115			BN	75
			ACQZ1			VQ	85

QUARTZ-FELDSPAR X'TAL TUFF. FE-CARBONATIZED, FINE GRA
-INED QTZ X'TALS, IN OPPOSITION TO INTERVAL 216.79-
217.09 WHERE QTZ GRAINS ARE LOCALLY UP TO 10MM IN DIA
-METER. QTZ GRAIN CONTENT OF UNIT IS HIGH, QTZ (2-3MM
, 10-15% OF MODE), FELDSPAR GRAINS ALTERED TO CLINOZO
-ISITE AND SIDERITE/ANKERITE. DISTINCTIVE SPOTTY TEXT
-URE OF FE-CARB. ALTERATION OF FELDSPAR X'TALS (1-2MM
, 10%)

	22449	22606	ALX	CLAK		VQ	80		
						BN	70P3	P3	U*

CHLORITIZED AND FE-CARBONATIZED INTERVAL OF DACITIC C
-OMPOSITION QTZ X'TAL TUFF, SEVERAL QTZ VEINS AT 80
DEGREES TO C.A. OVER THE INTERVAL, MINOR QTZ GRAINS E
-VIDENT.

	22931	23030	XQFVCQZPFPF1XTFG9114			VQ	85
			5GCLQZ1			L1	D)

PLAGIOCLASE AS SUBHEDRAL, SUBROUNDED GRAINS, RANDOMLY
ORIENTED/DISTRIBUTED THROUGHOUT A MEDIUM-GREEN, FINE
GRAINED MATRIX, <1% QTZ GRAINS AS X'TALS IN ROCK. IS
A SUB-UNIT OF THE QTZ CRYSTAL-POOR DACITIC TUFF, CHLO
-RITIZED.

	23606	23663	PF1QFVCPFQZPF1XTFG9115			BN	65
			7GCLQZ)				D*

QTZ-FELDSPAR X'TAL TUFF, DACITIC COMPOSITION, ANGULAR
TO SUB-ROUNDED EQUANT FELDSPAR GRAINS, RANDOMLY ORIEN
TED/DISTRIBUTED THROUHGOUT A FINE GRAINED, GREY-GREEN
MATRIX, FELDSPARS HAVE A SLIGHT PINKISH TINGE, INDICA
-TIVE OF ALTERATION/METASOMATISM TO CLINOZOISITE?

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R                                  QTZ GRAINS, EQUANT IN SHAPE (1~3MM, <1.5%).
N    24453 24475    MXXQZVN        QZ9MX                VQ    85
                                   AK=
                                MASSIVE, BARREN WHITE QTZ VEIN AT @ 85 DEGREES TO C.A
                                ., MARKING LOWER CONTACT BETWEEN MAFIC DYKE AND BEGIN
                                -NING OF ANDESITIC COMPOSITION, MEDIUM TO DARK GREEN
                                TUFF.
N    24475 26477    A3XANVCPFAC   FGMX910          VQ    70<1
                                   5GCL                          <1          D+
                                UNIT IS A MILDLY TO MODERATELY CHLORITIC, MASSIVE, NO
R                               BANDING OR BEDDING PRESENT, MILD GRADATIONS IN PLAGIO
R                               -CLASE, ANGULAR GRAINS (1-2MM, <5%), SYMMETRICAL. UNI
                                -T IS MASSIVE, SLIGHT CLASTIC TEXTURE EASILY CONFUSED
R                               WITH MAFIC DYKE OVERLYING IT. SOME FERROAN DOLOMITE A
R                               -S STEEPLY ANGLED VEINS TO C.A., ACCOUNTS FOR @ 5% OF
                                MODE.
     26477 27333      XDCVC                          BN    65<+
R                               UNALTERED DACITIC COMPOSITION TUFF, DESCRIPTION AS IN
R                               PRIMARY INTERVAL. CLASTIC TEXTURE. COMPOSED OF SUBANG
R                               -ULAR TO ANGULAR ACTINOLITE AND QTZ GRAINS. RANDOM SU
R                               -B-EQUANT QTZ X'TALS PRESENT (2-3MM, <2%), MINOR BAND
R                               -ING AT @ 70 DEGREES TO C.A.
     27818 27850      X          QZ=XT  8115                          P2
                                   7G                            P2
R                               QTZ X'TAL-RICH INTERVAL. QTZ X'TALS UP TO 10MM IN DIA
                                -METER, MEAN SIZE OF EQUANT GRAINS 3MM, GRAINS ACCOUN
R                               -T FOR 10% OF MODE. MATRIX IS GRANULAR, LIGHT YELLOWI
R                               -SH-GREEN IN COLOUR, MODERATE SERICITE AND CHLORITE C
R                               -ONTENT, AS PERVASIVE INFILTRATION, RESULT OF METASOM
                                -ATISM, NOT NECESSARILY ALTERATION.
N    28175 28227    MOXANVCPFAC   XTFG8113         BN    70       P=
L                                  5GQZ   GL
                                ROCK IS A GRANULAR TEXTURED, FELDSPAR-RICH, X'TAL TUF
R                               -F. ROCK HAS LIKELY BEEN REWORKED TO PRODUCE SUCH A
                                COMBINATION OF MINERALS; MATRIX IS ACTINOLITE, CHLORI
R                               -TE AND SERICITE-RICH, PERVASIVE. GRAINS OF FELDSPAR
                                ARE SHARP, HAVE CUSPATE SHAPES (NO GENETIC IMPLICATIO
R                               -N HERE).
D    28387 28758      X
                                                        P3   P1
R                               ZONE OF PERVASIVE FE-CARBONATE ALTERATION OF QTZ-FELD
R                               -SPAR X'TAL TUFF, ROCK IS POSSIBLY PERVASIVELY CHLORI
                                TIZED.
L    29421 35357    A7XDCVCQZPFPF3XTBN911          BN    75                P3
                                   5WAK                          P3
R                               INTENSELY ALTERED SECTION, FE-CARBONATIZED, SERICITIZ
                                -ED (LIGHT WHITE GREEN PHYLLOSILICATE). ROCK HAS A GR
R                               -ITTY, SANDY TEXTURE ATTRIBUTEABLE FROM VOLCANICLASTI
                                -C NATURE AS WELL AS RE-CRYSTALLIZATION OF CONSTITUEN
R                               -T MINERALS SYN-ALTERATION. ROCK HAS QTZ-X'TAL-RICH Z
                                -ONES, DISTRIBUTED THROUGHOUT, ROCKIS PREDOMINANTLY Q
R                               -TZ X'TAL-POOR, AS DESCRIBED IN PRINCIPLE INTERVAL AR
                                -OUND BOX 17,18.

 001    518    565    D1687
A001    721    762    D1683
A001   4048   4074    D1684
 001   8783   8847    D1685
A001  13675  13726    D1686
A001  14915  14955    D1688
 001  15919  15964    D1689
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A001 16987 17066    D1690
A001 18227 18279    D1691
A001 18288 18321    D1692
A001 21427 21457    D1693
A001 23515 23561    D1694
A001 23901 23940    D1695
A001 26543 26581    D1696
A001 30018 30061    D1697
A001 32095 32141    D1698
A001 33948 33998    D1699
/END
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IDEN6B0201V-203 121-76 AXT 12JUL91DGM MIDWAUG76S38 GRD000.00 0119
IPRJPLACER DOME INC.
LAKE ATHAPAPUSKOW - SOURDOUGH BAY
 000 0 1524MT 367.89310.00-50.00 6071226.50 331982.34 291.38
S001 1524 3048 367.89308.50-46.00
S002 3048 6096 367.89305.70-48.00
S003 6096 9144 367.89302.80-44.00
S004 9144 12192 367.89300.00-38.00
S005 12192 15240 367.89297.17-33.50
S006 15240 18288 367.89291.00-25.00
S007 18288 21336 367.89290.60-23.50
S008 21336 24384 367.89290.20-20.50
S009 24384 27432 367.89289.80-19.50
S010 27432 30480 367.89289.40-18.00
S011 30480 33528 367.89289.00-18.00
S012 33528 36576 367.89289.00-18.00
S013 36576 36789 367.89289.00-16.00
NAM QZPFKFEPACHBCZMSCAD:
LNAM AKTACLLIHEMGPYPRCPSL
SCL MT.2PC.0
SCL PC.0 LCTM
A001
AUMM SAMP
0 274 CASE
MSV 274 1615 BXXTFLPQZPF FGFR5338 MX
L 5GCL MX P2
R ROCK IS LIGHT TO MEDIUM GREEN, MASSIVE, PREDOMINANTLY
R FINE GRAINED MATRIX, RANDOMLY DISTRIBUTED THROUGHOUT,
R BUT ALIGNED PARALLEL TO A DOMINANT BANDING DIRECTION
R @ 70 DEGREES TO C.A., ANGULAR CLASTS, MEAN SIZE 2CM
R IN DIAMETER. ROCK IS POSSIBLE LAPILLI TUFF. GREEN COL
R -OUR SUGGESTS A DEGREE OF PERVASIVE CHLORITIZATION. T
R -HIS UNIT HAS NOT BEEN INTERSECTED PREVIOUSLY. THIS
R UNIT HAS A SMALLER VOLCANICLASTIC COMPONENT THAN OTHE
R -R INTERVALS LOGGED. CLAST CONTENT ACCOUNTS FOR UP TO
R 10-15% LOCALLY. LOCALLY NARROW RHYOLITE TUFF SECTIONS
R UP TO 30 CM IN THICKNESS.
L 1615 2675 LC6RDVCQZPF FGMX911 MX
R 5A
R CONTINUATION OF ABOVE UNIT, CLASTS NOT AS DOMINANT,
R UNIT LIGHTER GREY AS OPPOSED TO MEDIUM GREEN, GENERAL
R -LY MASSIVE RHYODACITE. NO BRECCIATION, FLOW FABRICS
R EVIDENT.
R 2675 3254 FR4TFLPQZPF FGMX7228 MX
R 5G 55 O
R MODERATELY SORTED, MEDIUM GREEN LAPILLI TUFF. CLASTS
R , HETEROLITHIC. RANGE FROM MATRIX COMPOSITION (DACITI
R -C) TO LIGHT YELLOW-WHITE, RHYOLITIC. CLASTS, FINE GR
R -AINED, DOMINANTLY MEDIUM GREEN, FINE GRAINED, DACITI
R -C COMPOSITION. CLASTS ACCOUNT FOR 20-30% OF MODE. TY
R -PICALLY <1 CMDIAMETER. RHYOLITE CLASTS, 5CM IN DIAME
R -TER, ACCOUNT FOR <=3% MODE. ROCK IS DACITIC COMPOSIT
R -ION OVERALL.
R 3254 5265 FRXRD/FQZPFPY+FGMX
R 7A D+
R DISTINCTIVE LIGHT GREY FRACTURED, MASSIVE, RHYODACITE
R UNIT. FRACTURES ARE IRREGULAR, RANDOM ORIENTATION, 1M
R M IN THICKNESS, BLACK IN COLOUR. PYRITE AS DISSEMINAT
R -IONS AND AS MICROVEINLETS. LOCALLY PLAGIOCLASE FELDS
R -PAR X'TALS RANDOMLY ORIENTED/DISTRIBUTED (1-5MM, <3%
R).

P 5265 6944 DC/FQZPF FGMX9115 MX
5GAC O H1 D+
LIGHT TO MEDIUM GREEN, FINE GRAINED, DACITIC COMPOSIT
-ION, RELATIVELY MASSIVE FLOW. UNIT IS LOCALLY FRACTU
-RED, MUCH THE SAME FABRIC AS DESCRIBED IN THE PREVIO
-US PRINCIPLE INTERVAL. LOCALLY THE ROCK UNIT ALTERNA
-TES BETWEEN LIGHT-MEDIUM GREEN AND GREY. COLOUR CHAN
-GE IS A RESULT OF INCREASE OF FERROAN DOLOMITE CONTE
-NT, STAINS BROWN-RED IN COLOUR, REPLACING FELDSPAR C
-RYSTALS LOCALLY. PYRITE AS AGGREGATES WHERE VEINLETS
OF FERROAN DOLOMITE AND AS QTZ OCCUR TOGETHER, PYRITE
MAY ACCOUNT FOR 5-7% OF MODE OVER THESE NARROW INTERV
-ALS (<20CM). LACK OF BANDING FABRIC CAUSES DISTINCTI
-ON AS FLOW. LOWER CONTACT IS MARKED BY A 10CM INTERV
-AL OF BRECCIATION. WALL ROCK IS ANGULAR, 2-2.5CM IN
DIAMETER, HOSTED WITHIN LIGHT ORANGE COLOURED CARBONA
-TE.

P 6944 8199 DCVCPFQZ FGMX FO 70
5GHB
LIGHT TO MEDIUM GREEN, FINE GRAINED, FELDSPAR-RICH
DACITIC COMPOSITION VOLCANIC ROCK. SLIGHT FOLIATION,
ANGULAR GRAINS SUGGEST A TUFFACEOUS ORIGIN. FELDSPAR
GRAINS, SUB-ANGULAR TO SUB-ROUNDED (2-4MM,10%). HORNB
-LENDE ANGULAR (1-2MM,20%). LOWER CONTACT MARKED BY 4
CM THICK ZONE OF BRECCIATION MUCH LIKE UPPER CONTACT.

8199 11059 F3XDCVCQZPF FO 70
5G
QTZ-FELDSPAR X'TAL TUFF, DACITIC TO RHYODACITIC IN CO
-MPOSITION. FELDSPAR GRAINS HAVE A DISTINCTIVE ALIGNM
-ENT PARALLEL TO THE MILD FOLIATION. QTZ GRAINS ARE
CONSISTENTLY 1MM IN DIAMETER, ACCOUNT FOR @5% OF THE
MODE, FELDSPAR GRAINS ARE PINKISH COLOURED, POSSIBLE
ALTERATION TO CLINOZOISITE, GRAINS ARE ANGULAR (2-10
MM IN LENGTH, 2-4MM IN WIDTH, ACCOUNT FOR 15% OF MODE
). MINOR LITHIC FRAGMENTS PRESENT (1CM IN DIAMETER, <
3%).

9266 9883 F3XANVCPFAC FGMX9113 MX
5GEP
ROCK IS AN INTERBED WITHIN THE QTZ-FELDSPAR CRYSTAL T
-UFF. FINE GRAINED, MEDIUM GREEN, RELATIVELY X'TAL PO
-OR. LOCALLY FRACTURED, WITH FRACTURES FILLED WITH QT
-Z AND EPIDOTE, FRACTURES @2MM , RANDOM ORIENTATIONS
TO CORE.

11059 11600 FXXGWTFPFQZ 91 4 MX
5AAC 77 O
MEDIUM GREEN, FINE TO MEDIUM GRAINED, VOLCANIC WACKE.
COMPOSED OF SUB-ROUNDED WHITE FELDSPAR GRAINS, (1-1.5
MM, 30%), AND SUBROUNDED QTZ GRAINS (<1MM, <3%). GRAN
-ULAR TEXTURED ROCK. NO FABRIC, MASSIVE.

11293 11384 X
P2 BIP1
POSSIBLE THERMAL BIOTITE IN VOLCANIC WACKE. THE ALTER
-ATION ZONE IS DISTINGUISHED BY LIGHT PINKISH-PURPLE
HUE THROUGHOUT. ROCK IS NON-MAGNETIC.

D 11552 11600 X
P2 BIP1
POSSIBLE THERMAL BIOTITE, PERVASIVE HEMATIZATION?

P 11600 11740 LCXRDVCQZPF FGMX8225 MX
L 7AAC 56 O
LIGHT GREY, QTZ AND ACTINOLITE SHARD-RICH RHYODACITIC

TUFF. SHARDS ARE ANGULAR, RANGE IN SIZE FROM 1-4MM,
MEAN GRAIN SIZE 4MM, SHARDS ACCOUNT FOR 10% OF MODE.

11740 24054 LL5DCVCQZPF FG 7228 FO 90
5GAC 35 O BN 90 U(
UNALTERED DACITIC TO RHYODACITIC COMPOSITION TUFF, LO
-CALLY ROCK IS MEDIUM GREEN. LAPILLI ARE ANGULAR UP T
-O 3CM IN LENGTH, TYPICAL WIDTH 1CM, LOCALLY ACCOUNTS
FOR UP TO 30% OF THE MODE. VERY MILD TO MODERATE BAND
-ING, FOLIATION THROUGHOUT. BANDING/LAMINATION, WHERE
PRESENT RANGE FROM <1CM-1CM IN THICKNESS, FREQUENTLY
FE-CARBONATE-RICH, YELLOWISH-ORANGE IN COLOUR. COMPOS
-ITIONAL GRADATIONS CONSISTENT WITH VERTICAL FACIES
CHANGES, ALTERNATES BETWEEN DACITIC-RHYODACITIC THROU
-GH TO RHYOLITIC COMPOSITIONS.

14630 15400 QZ2RDVCQZPF VQ 60
FO 70
ZONE OF QTZ VEINING, NO SUBSTANTIAL DIFFERENCE IN HOS
-T ROCK TYPE, RHYODACITIC TO DACITIC COMPOSITION TUFF

14714 14770 XQZVN QZX VQ 90
MASSIVE WHITE QTZ, NO MINERALIZATION.

14958 14981 XQZVN QZX VQ 00
MASSIVE WHITE QTZ VEIN, NO MINERALIZATION.

14996 15006 XQZVN QZX VQ 40
MASSIVE WHITE QTZ VEIN, NO MINERALIZATION.

15179 15189 XQZVN QZX VQ 55
MASSIVE WHITE QTZ VEIN, NO MINERALIZATION.

15702 16048 XTFLPACPF FGMX8116 MX
3AQZ XTCT35 O
MEDIUM TO DARK GREEN-GREY, FINE GRAINED, DACITIC TO
RHYODACITIC. PREDOMINANTLY FELDSPAR CRYSTAL-RICH TUFF
. FELDSPAR IS BLOCKY, SUBHEDRAL, MEAN GRAIN SIZE 2MM.
GRAINS ACCOUNT FOR 15% OF MODE. QTZ CRYSTALS, SUB-ROU
-NDED, VITREOUS, BLACK (1-1.5MM, <3%). LAPILLI ARE DO
-MINANTLY <=1CM IN DIAMETER, COMPOSED OF FINE GRAINE
-D, LIGHT GREENISH ANDESITIC, APHYRIC, ROCK FRAGMENTS
. LAPILLI ACCOUNT FOR <5% OF MODE. NO BANDING OR FOLI
-ATION.

17887 18628 XTFLPACPF FGMX8116 MX
3AQZ XT 35 O

19751 20307 XRYVCQZPF FGFO FO 90 P1
5W P2
GREYISH-SILVERY-WHITE, FINE GRAINED, SILICEOUS, QTZ-
FELDSPAR X'TAL RHYOLITIC TUFF. SERICITIZATION IS PERV
-ASIVE THROUGHOUT INTERVAL OF RHYOLITIC TUFF, DACITIC
COMPOSITION TUFF HAS BEEN MORE FE-CARBONATIZED. IS A
RELATIVELY NARROW INTERVAL OF ALTERATION WITHIN AN
UNALTERED SEQUENCE.

24054 24760 LL3RYVCQZPF FGBN BD 90 QHL1
5W BD
CHERTY RHYOLITE INTERVAL, LIGHT TO MEDIUM WHITE COLOU
-R, LOCALLY CONTAINING ANGULAR "RIP-UP" CLASTS OF CHE
-RT. CHERT IS MIXED WITH DACITC-RHYODACITIC, LIGHT-ME
-DIUM GREEN, FINE GRAINED TUFF. LOCALLY LAMINATIONS 1
-2MM IN THICKNESS, BEDDING AT 90 DEGREES TO C.A..

24760 29261 LL2DCVCPFAC FGFO91
5GQZ
ANDESITIC TO DACITIC COMPOSITION TUFF, MAJOR DIFFEREN
-CE TO DACITIC TUFF IS ABSENCE OF FELDSPAR AND QTZ X'
TALS, RELATIVELY X'TAL-POOR, MEDIUM GREEN IN COLOUR,
POSSIBLE CHLORITIZATION, PERVASIVE, CAUSING COLOUR IN

-DEX TO INCREASE.

25603 25682 XPPQFPFQZ PPMX MX
5U EC VQ 80
THIS IS THE MARKER UNIT DETECTED ON THE WEST SIDE OF SOURDOUGH BAY. IS A COARSE GRAINED QTZ AND FELDSPAR P -ORPHYRITIC? RHYOLITE. ***NOTE*** NO SAMPLE TAKEN WIT -HIN THIS INTERVAL BECAUSE OF THE PRESENCE OF TWO 10C -M THICK QTZ VEINS WHICH HAVE LIKELY RESULTED IN SILI -CIFICATION, SERICITIZATION.

29261 29842 LMXANVCACPF FGLMX BD 90
3G 78 O P2
EXTREMELY WELL LAMINATED, LAMELLAE RANGE IN THICKNESS FROM 10-2 MM IN THICKNESS WITH MEAN LAMELLAE THICKNES -S AT @ 6MM. BEDDING CONSISTENTLY AT 90 DEGREES TO C. A., LOCALLY WAVEY. CHLORITIZATION OF A DACITIC COMPOS -ITION TUFF MAY GIVE THE UNIT A GREATER COLOUR INDEX THAN PRECURSOR ROCK TYPE.

29842 34828 A7XRYVCQZMS FG 9116 FO 90
5WAK
LIGHT YELLOW-GREENISH-WHITE FIEN GRAINED, SERICITIZED AND FE-CARBONATIZED RHYOLITIC VOLCANICLASTIC/TUFF. TH IS UNIT IS EQUIVALENT TO THE FE-CARBONATIZED DACITIC VOLCANICLASTIC NOTED IN DDH 120-76. FOLIATION IN THE UNIT IS MILD, NOT WELL DEVELOPED.

30724 31791 A7XDCVCQZMS FG 9114 FO 75 P3
7Y P1 P2
YELLOW-GREEN, SLIGHTLY HIGHER MAFIC CONTENT, VOLCANIC -LASTIC, DACITIC COMPOSITION. ROCK IS FINE GRAINED, N -O LAPILLI OR CRYSTALS EVIDENT. MILD BANDING PARALLEL TO FOLIATION, DEFINED BY ALTERNATING MEDIUM GREEN BAN -DS AND GREENISH-YELLOW BANDS, BANDS @1-3CM IN THICKN -ESS.

31791 31857 A7XRYVCQZMS P4
7YPF
AS DESCRIBED IN INTERVAL 298.42-307.24M, RHYOLITIC CO -MPOSITION, YELLOW-WHITE, FINE GRAINED TUFF, QTZ X'TA -LS PRESENTLY IN INTERVAL, SUBROUNDED (0.5-2MM, <3%).

31857 32139 A7XDCVC BN 90
P2
LIGHT TO MEDIUM GREEN, DACITIC TUFF, MODERATELY CHLOR -ITIZED. DISTINCTIVE FEATURE IS ALTERNATING COLOUR CO -MPOSITIONAL BEDS @1CM IN THICKNESS, MEDIUM GREEN AND GREENISH-YELLOW.

33939 34270 A5XRYVCMSQZ FGFO9115 FO 90
5WAK BN O BN 90 L1
UNIT IS A LIGHT YELLOWISH-WHITE, SERICITE-RICH RHYOLI -TE TUFF. FE-CARBONATE OCCURS AS BANDS, DISLOCATED BA -NDS, SUB-PARALLEL TO FOLIATION, VEINLETS. PYRITE OCC -RS AS AGGREGATES IN INDIVIDUAL BEDS AND AS MASSIVE LAMELLAE WITHIN THE BEDDED/BANDED UNIT. THICKEST BED OF MASSIVE PYRITE IS 2CM. PYRITE ACCOUNTS FOR @10% OF MODE.

34828 35324 A3XDCVCCLAC FGBN9115 BN 90 P2
5GPF O L1 P1
LIGHT TO MEDIUM GREEN, WELL BANDED, CONVOLUTED BANDED (INDICATIVE OF SOFT SEDIMENT DEFORMATION), DACITIC CO -MPOSITION TUFF. UNIT IS ONLY MILDLY ALTERED, FELDSPA -R X'TALS SUBDUED BUT VISIBLE. FELDSPAR GRAINS, WHITE , ANHEDRAL, SUB-ROUNDED TO SUB-ANGULAR, 1-1.5MM IN DIAMETER, ACCOUNTS FOR 15-20% OF MODE.

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P    35324 36789    FGXANVCACPF   FGMX9115      MX
L                        5GCL          O
                         MEDIUM GREEN, FINE GRAINED, UNALTERED, GRANULAR TEXTU
                         -RED, ANDESITIC COMPOSITION TUFF.
N    36403 36619      XGWTFPFAC   FGXT9115
                         5GCL
                         FINE TO MEDIUM GRAINED, CLASTIC TEXTURED, VOLCANIC WA
R                        -CKE, ANDESITIC COMPOSITION. COMPOSED OF SUB-ROUNDED
                         GRAINS OF ACTINOLITE, PLAGIOCLASE AND QTZ. QTZ GRAINS
K                        ARE SUBORDINATE (1-1.5MM, <5%). ACTINOLITE ACCOUNTS F
                         -OR @60% OF MODE, PLAGIOCLASE 35%.
A001   1063   1107     D1742
A001   4298   4343     D1743
A001   6396   6451     D1744
A001   8291   8339     D1745
A001  10813  10871     D1746
A001  14272  14326     D1747
A001  17356  17409     D1748
A001  17656  17711     D1749
A001  20109  20165     D1750
A001  23475  23531     D1751
A001  26152  26200     D1752
A001  28560  28610     D1753
A001  30632  30693     D1754
A001  33371  33421     D1755
A001  34635  34686     D1756
A001  36005  36063     D1757
/END
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IDEN6B0201  284 122-76  BQ  16JUL91JFM   MIDWAUG76      TRIGRD000.00          0119
IPRJPLACER DOME INC                     LAKE ATHAPAPUSKOW - EAST BIRCH BAY
 000      0  3048MT  194.46290.00-50.00              6071488.50 330862.63    291.38
S001   3048  6096    194.46290.00-43.50
S002   6096  9144    194.46290.00-33.50
 003   9144 12192    194.46290.00-26.00
 004 12192 15240    194.46290.00-24.00
S005 15240 18288    194.46290.00-24.00
 006 18288 19446    194.46290.00-22.00
 NAM                                                    QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                    AKTACLLIHEMGPYPRCPSL
/SCL         MT.2PC.0
 SCL             PC.0       LCTM
R001
AUMM                     SAMP
            0   548       CASE
 MSV    548  2771    PCXTFBRQZQCPF6CGA*                                  D1  JQV/
L                           4G  AC3CT                          D=      U(
P                           TUFF BRECCIA OR A REWORKED VOLCANICLASTIC (EPICLASTIC
                            ). BLOCKS AND LAPILLI RANGING FROM 8 CM TO 4MM. CLAST
R                           -S MAKE UP ABOUT 15% OF THE ROCK AND ARE MAINLY: RHYO
R                           -LITIC (50%), DACITIC (20%), CALCITIC (20%). AMYGDULE
                            -S ARE PRESENT BOTH IN CLASTS AND IN MATRIX (1-5%). T
R                           HE ROCK IS SLIGHTLY ALTERED (CHLORITE AND CALCITE). V
R                           -ERY LITTLE MINERALIZATION. A LITTLE JASPER IS NOTICE
                            -ABLE.
     2771  2847    FO5DCVCHBQZAC6MXLM          LM    41
L                           3A  PF4MG                    L(          U)
P                           A SMALL DACITIC TUFF LAYER WITH LAMINATIONS (LOCALLY)
                            . ABOUT 1% DISSEMINATED PYRITE.
P    2847  3376      DCVCHB  AC7LMFG          BN    40
L                           3A  PF3                                 D*
                            UNIT CONSISTING OF DACITIC TUFF, MEDIUM GREY, MEDIUM
R                           GRAINED, INTERBEDDED WITH A DARKER FINE GRAINED,
                            ANDESITIC TUFF. LITTLE BUT CONSISTENT PYRITE (0.3%) T
R                           -HROUGHOUT THE INTERVAL.
     3376  4067   BNXSEDMHBPF   BDEFX  3      BD    45
L                           3NAC                        L)  L1      <+
R                           SEDIMENT LAYER. VERY DARK WITH BEDS RANGING FROM 0.5M
                            M TO 70MM. VERY FEW IRREGULARITIES IN THE BEDDING. EU
R                           -HEDRAL PY RANGING FROM 1MM TO 10MM, UP TO 20% IN A
                            COUPLE OF 3CM BEDS, BUT OTHERWISE ABOUT 3-5%. TOPS PO
                            SSIBLY TO THE TOP OF THE HOLE.
     3749  3985     XDCVCHBQZAC3BDFG          BD    55
L                           3A  PF5FR                               D+
P                           A DACITE TUFF WITH SMALL (RANGING FROM 2-7MM) QTZ CRY
                            -STALS.
P    4067  4323      AN/FHB  PF4MXEM          MX
L                           8G  AC4A*                       E(          D(
                            THE ROCK IS ANDESITE AND IS A FLOW BUT CONTAINS QTZ A
                            -MYGDULES (0.4-1.0CM IN DIAMETER).
P    4323  7643      EPICACMSQZ4CTFR                                     JQV/
                            5AHBPF3A*                           +=      D(  D-
                            REWORKED VOLCANICLASTIC, CLASTS AND LAPILLI. CLASTS A
R                           -RE VERY VARIED IN COMPOSITION, RANGE IN SIZE FROM 2C
P                           M TO 8CM. ROCK NOT MUCH ALTERED. QTZ AMYGDULES RANGIN
                            -G FROM 0.4 TO 1.3CM, FORMING ABOUT 1% OF THE ROCK.
P    4699  4775     XSEDMQZHB   BDEFX  3      BD    69
L                           4NPF                        C(          U)
                            SUCCESSION OF SEDIMENTARY LAYERS WITH LOWER LAYER (5C
```

R
R
6248 6300 S7X
SH
M) CONTAINING 7-10% EUHEDRAL PYRITE WITH PRESSURE SHA
-DOWS. FRACTURED BEDS. SMALL BEDS.
INTENSELY SHEARED ZONE, MAY BE A FAULT.
P 7643 8156 BRPCACPF BX
3AQZ C) V1 D1 D(
THIS UNIT IS COMPOSED OF EXPLODED PYROCLASTICS. CLAST
-S ARE VERY ANGULAR AND VERY DENSE. THE ROCK IS CLAST
R SUPPORTED AND CLAST COMPOSITION ARE VERY VARIED WITH
PREDOMINANCE OF RHYOLITE TO RHYODACITE. CLASTS RANGE
FROM 0.2 TO 8CM. MINERALIZATION PRESENT IN MATRIX, AT
-TAINING NEAR 20% IN VERY SMALL AND LOCAL AREA, BUT G
-ENERALLY ABOUT 7-10%. SPECS OF CHALCOPYRITE ALSO PRE
-SENT. THE MATRIX IS CHLORITIZED.
P 8156 9393 TFXTAC QZ4XTCT
4A PF3CG D*
QUARTZ-FELDSPAR CRYSTAL TUFF WITH QTZ CRYSTALS BEING
PREDOMINENT AND FELDSPAR INCREASING IN QUANTITIY GOIN
-G DOWNWARD. X'TALS ARE APPROXIMATELY 0.3CM IN DIAMET
TER. THE UNIT IS MORE SILICEOUS AT THE TOP AND THUS D
-ARKER AT THE BOTTOM. FEW MINERALIZATION AND/OR ALTER
-ATION. INCLUSION OF SMALL SEDIMENT RICH LAYERS TOWAR
-D THE END OF UNIT.
9393 9850 BN8SEDMCYPF BDEF91 4 BD 64 V)
L 3NAC L1 L2 L1
SEDIMENTS IN SMALL LAYERS WITH SOME TUFF INTERBEDS. F
-ROM 94M TO 98.5M THE PYRITE IS MAINLY CONCENTRATED I
-N SMALL COMPACT BEDS WITH FEW DISSEMINATED PYRITE.
P 9850 12517 CH5SEDMQHPF BDFR BD 71 GRL+
5NAC L2 L2B(L-L+
THIS SECTION IS AMINERALIZED ZONE CONTAINING UP TO 50
% PYRITE IN SOME BEDS BUT APPROXIMATELY 20% THROUGHOU
-T. CHERT IS THE MAIN COMPONENT OF THE ROCK WHERE PYR
-ITE IS SEMI-MASSIVE AND THAT CHERT IS BLACK. THERE I
-S A SMALL QUANTITY OF GRAPHITE WITH IT. SOME INTERBE
-DDED ANDEISTE TUFF BUT VERY ALTERED TO CARBONATE. OV
-ERALL THE CORE IS DIVIDED IN PYRITE AND CHERT-RICH Z
-ONE AND SEDIMENTS OR TUFF CONTAINING MUCH LESS PYRIT
-E (1-5%).
NOTE ONE OF THE BOXES WAS MISSING. THE 1976 LOG
-S WERE USED TO DETERMINE ITS CONTENT.
P 12517 14653 AL3DC/FQZ AC3EM
6G PF4 V(D2 D(
DACITIC FLOW WITH MANY SELVEGES AND INTERFLOW MARKS.
EQUIGANULAR, MEDIUM TO COARSE GRAINED, DEPENDING ON
WHAT SECTION. THE ROCK IS CHLORITIZED SLIGHTLY BUT NO
MINERALIZATION NOTICEABLE OTHER THAN THE OCCASSIONAL
EUHEDRAL PYRITE X'TAL. NO DEFINITE CONTACT WITH LOWER
UNIT.
14653 19446 AL3HYALQZ AC4BX V*
4G PF4 V* D3 D(
HYALOCLASTITE UNIT ALTERNATING BETWEEN DACITE AND AND
-ESITE TUFF AND SEDIMENT BEDS, MAINLY CHERT. SCHARDS
PRESENT IN MANY SECTIONS.
D 15773 15880 SH7 SH SH
SHEARED ZONE.
A001 3175 3236 D1850
A001 4249 4310 D1851
A001 15773 15880 D1852
END

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IDEN6B0201  284 124-76  BQ  23JUL91JFM       SEP76      TRIGRD000.00         0119
IPRJPLACER DOME INC                      LAKE ATHAPAPUSKOW - EAST BIRCH BAY
 000      0  3048MT  224.64288.00-50.00          6070906.00 330673.06    291.38
S001  3048  6096    224.64288.00-42.00
S002  6096  9144    224.64288.00-39.00
S003  9144 12192    224.64288.00-35.50
S004 12192 15240    224.64288.00-27.50
S005 15240 18288    224.64288.00-20.00
S006 18288 21336    224.64288.00-16.50
S007 21336 22464    224.64288.00-15.50
/NAM                                                 QZPFKFEPACHBCZMSCAD:
LNAM                                                 AKTACLLIHEMGPYPRCPSL
/SCL         MT.2PC.0
LSCL             PC.0       LCTM
A001
AMM                    SAMP
              0   244        CASE
PMSV    244 22464    FO6EPIC  QZPF5BDMG          BD    47      V(         V=
L                             7G  AC4                        V(  V2       L*
                              REWORKED VOLCANICLASTIC UNIT INTERBEDDED WITH SMALL (
R                             < 1CM) SEDIMENTARY LAYERS. THE MAIN COMPOSITION OF TH
R                             -E TUFFACEOUS LAYERS ARE ANDESITIC TO DACITIC. FEW CH
                              -ERTY LAYERS PRESENT BUT ALWAYS LESS THAN 5CM THICKNE
                              -SS. VERY LITTLE CLASTS BUT SOME CALCITE AMYGDULES AN
R                             -D VEINS PRESENT. SOME PYRITE MINERALIZATION IN CERTA
R                             -IN BEDS, BUT GENERALLY ABSENT OR TRACE. THE ROCK IS
                              SLIGHTLY ALTERED BY CHLORITE AND CALCITE. SOME SMALL
R                             INTERVALS (ABOUT 10CM) ARE SHEARED BUT NOT MINERALIZE
R                             -D. MOST SEDIMENT LAYERS (EXCEPT FOR TUFFACEOUS AND
                              CHERTY) ARE OF DARK CLAY. CORE FROM 2.44 TO 17.07M MI
K                             -SSING, USED OLD LOGS. UNIT IS PREDOMINANTLY ANDESITI
R                             -C IN COMPOSITION.
     2408  2906       XDCVCQZ  AC4MXEF          MX                          V)
                              5A  PF3                          V=       V*
R                             DACITIC TUFF WITHIN THE EPICLASTIC SECTION. ALTHOUGH
R                             MY PREFERENCE GOES TO A TUFF, THE VERY MASSIVE TEXTUR
                              -E COULD ALSO INDICATE A FLOW.
N    3330  3345       XQZ/V    QZXVV
L                             5W                          T1  D)       B=
                              SMALL QTZ VEIN WITH LITTLE MINERALIZATION.
     5578  5898       XANVCQZ  PF6XTLM           LM    56      V(
L                             6G  AC2CT                     L(  D1       D*
                              QUARTZ-FELDSPAR CRYSTAL TUFF, CONTAINING, LOCALLY FEW
                              SMALL (0.3-4CM) CLASTS, SOME VERY QUARTZ-RICH. THE CR
R                             -YSTALS INCREASE LOCALLY AND ARE LOCALLY QUARTZ PREDO
R                             -MINENT, LOCALLY FELDSPAR DOMINENT. SOME ACTINOLITE C
                              -RYSTALS ARE ALSO PRESENT BUT IN LESSER AMOUNT. THE R
K                             -OCK IS SLIGHTLY CHLORITIZED. ANDESITIC IN COMPOSITIO
R                             -N.
     5997  6071       XTFXTQZ  PF6XTEM           BN    50
                              4A  AC4MX                                  B(
R                             FELDSPAR X'TAL TUFF WITH SLIGHT PYRRHOTITE MINERALIZA
R                             -TION.
     6556  6563       XQZ/V    QZXVV
L                                                          D)
N    6563  6754       XDCVCQZ  PF5MXXT           MX
                         5A   AC4CT                      V)          U*
                         DACITE TUFF WITH LOCAL FELDSPAR CRYSTALS. SOME SMALL
R                        (LESS THAN 2CM) LAPILLI, FEEW STRINGERS (QUARTZ)
     7203  7473  CL2TFLPQZ  PF4BNCT           BN    77                  V=  QJH/
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6G AC4XT V= H1 B(
LAPILLI TUFF WITH CLASTS LESS THAN 5CM, FEW CLASTS (5 % OF THE ROCK). VERY LITTLE MINERALIZATION BUT SOMEWH -AT ALTERED BY CHLORITE.

7795 8330 CL2ANVCQZHBPF5EMCT FO 47 <=
7G AC4FO D(
ANDESITIC TUFF, FEW (1-3%) CLASTS (APPROXIMATELY 2 CM AVERAGE) AND SOME PLAGIOCLASE CRYSTALS. MILD FOLIA -TION.

9136 9415 X BX
BRITTLE DEFORMATION THROUGHOUT.

NOTE AT 131.98M, STRATIGRAPHIC TOPS IS INTERPRE -TED TO BE DOWNHOLE OR WEST.

13459 13518 A79 L2
L2 L) U1 V=
ZONE OF MINERALIZATION AND ALTERATION WITHIN SEDIMENT -ARY BEDS.

13594 13629 A79 L3
L2 L) U+
ZONE OF INTENSE ALTERATION BUT LITTLE MINERALIZATION.

14127 16185 XANVCHBQZPF4EFXT BN 79 V=
4A AC5BN U)
ANDESITIC TO DACITIC TUFF. VERY LITTLE QTZ AND LOCAL. VERY LITTLE ALTERATION OR MINERALIZATION. LOCAL FELDS -PAR CRYSTALS.

17749 17828 X SH SH
V1 L1 V) L=
DEFORMED ZONE WITH PYRITE AND A LITTLE HEMATITE. MAIN -LY SEDIMENTARY BEDS WITH SOME QUARTZ INCLUSIONS. STR -ATIGRAPHIC TOPS POINTING AT BOTTOM OF HOLE, I.E., WE -ST.

18026 18044 XQZ/V
SMALL QTZ VEIN WITHOUT ALTERATION OR MINERALIZATION.

21245 21986 XSEDM CY7BD X 0 BD 79 V=
5N QH3 L= V1 L/
SEDIMENT BEDS INCLUDING CHERT (CONTAINING A LITTLE GR -APHITE, THUS DARK BLACK IN COLOUR). THIS ZONE IS COM -POSED OF VARIOUS SECTIONS MORE OR LESS MINERALIZED (MOSTLY PYRITE BUT OCCASSIONAL CHALCOPYRITE BLEBS). T -HE AMOUNT OF PYRITE VARIES FROM ABOUT 60% (213.97 TO 215.43M) AND 80% (50CM WIDE AROUND 219.45M) TO AROUND 5%, BUT WOULD AVERAGE APPROXIMATELY 10% THROUGHOUT TH -IS WHOLE INTERVAL. THE WHOLE INTERVAL IS BRITTLEY DE -FORMED BUT FEW BEDDINGS ARE STILL VISIBLE NOW AND TH -EN. A WHITE POWDER IS PRESENT VERY LOCALLY. ITS APPE -ANCE IS LIKE ASH AND IT DISSOLVES ON CONTACT WITH WA -TER. IT MAKES PROBABLY 1% OF THE INTERVAL BUT WOULD BE CLOSE TO 10% OF SOME LOCAL ZONES (E.G. METERAGE 21 5.5).

21986 22464 AL5 ACQZMS3
PF3 L2
A HIGHLY ALTERED ZPONE WHERE WHITE MICAS ARE ABUNDANT . NO SIGNIFICANT MINERALIZATION.

A001	2614	2675	D1853
A001	3993	4054	D1854
A001	6142	6203	D1855
A001	8176	8245	D1856
A001	11133	11201	D1857
A001	12469	12527	D1858

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A001 15413 15484     D1859
A001 18392 18458     D1860
A001 22311 22372     D1887
END
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IDEN6B0201 284 125-76 BQ 01OCT91DGM MIDWSEP76 GRD000.00 0119
IPRJPLACER DOME INC. LAKE ATHAPAPUSKOW - WEST BIRCH BAY
000 0 3048MT 224.64305.00-50.00 6071001.00 330214.16 291.38
001 3048 6096 224.64305.00-42.50
S002 6096 9144 224.64305.00-37.00
003 9144 12192 224.64305.00-33.00
004 12192 15240 224.64305.00-29.50
S005 15240 18288 224.64305.00-26.00
S006 18288 21336 224.64305.00-17.50
007 21336 22464 224.64305.00-12.30
/NAM
LNAM
SCL MT.2PC.0
SCL PC.0 LCTM
A001
UMM SAMP
0 274 CASE
PMSV 274 4288 ANVCACPF FGFOX 3 FO 50
4G BNBD O BD 50 U+
FINE GRAINED, MEDIUM GREEN TO CHALKY GREY-GREEN, ANDE
-SITIC COMPOSITION TUFF. BANDING AND FOLIATION MODERA
-TELY WELL DEVELOPED.***NOTE*** THE TUFF LIKELY HAS A
SEDIMENTARY COMPONENT, GREYWACKE, CHERT. THE UNIT LOC
-ALLY CONTAINS A PAPERY THIN FOLIATION, HIGHLY CHLORI
-TIC. POSSIBLY FLATTENED MAFIC X'TALS OR HIGHLY CHLOR
-ITIZED FIAMME (<2MM, <10%).
1468 1807 XGWTFACPF FGCT9117 MX
5GCL MX 36 O U)
POSSIBLE POURED IN GREYWACKE, WITH A TUFFACEOUS COMPO
NENT. DISTINCTIVE FEATURE IS NEEDLE-LIKE FELDSPAR GRA
-INS, (<=1MM X 2-3MM, 40%), GRAINS ARE SET IN AN ACTI
-NOLITE + CHLORITE MATRIX. CLASTS CONSIST OF EPIDOTE-
RICH, CHLORITE-RICH, QUARTZ-RICH, POLYMICTIC, ROUNDED
CLASTS, UP TO 2.5CM IN DIAMETER.
4288 5825 DIORACPF GLIB MX
5G MX
INTERVAL CONTAINING ANDESITIC TUFF AS DESCRIBED IN TH
-E PRINCIPLE INTERVAL 2.74-42.88 M , BUT ALSO HIGHLY
INTERBEDDED WITH GREYWACKE AND INJECTIONS OF A MEDIUM
TO LIGHT GREEN TO SLIGHTLY PINKISH TINGED DIORITE. TH
-E DIORITE INJECTIONS ARE @30CM IN THICKNESS. THE FOL
-LOWING INTERVALS CONTAIN THE ASSIMILATED DIORITE; IN
-TERVENING INTERVALS ARE ANDESITIC TUFF.
4288 4298
4390 4426
4630 4641
4725 4750
4856 4950
4997 5043
5068 5120
5140 5237
5281 5288
5534 5779
5825 6821 CNTZACEP FGPA FO 65 >1>2
3GKF VVFO
POSSIBLE ZONE OF ASSIMILATION BETWEEN THE DIORITE AND
UNDERLYING HIGHLY FOLIATED/SCHISTOSE ANDESITE TUFF/CH
-LORITE SCHIST. EPIDOTE AND K-SPAR AS PATCHES, POSSIB
-LE MACROVEINS (3CM, 15-20%), IRREGULAR ORIENTATION,
BUT GENERALLY ORTHOGONAL TO THE CORE AXIS.

QZPFKFEPACHBCZMSCAD:
AKTACLLIHEMGPYPRCPSL

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P     6821  8314        SCHSCLPF    FGSC              S#    90
L                           3GAK                                L1
                            FINE GRAINED, DARK GREEN CHLORITE SCHIST, WAVEY SCHIS
R                           -TOSITY, SCHISTOSITY PLANES @ 90 DEGREES TO C.A.. VER
                            -Y FINE, <4MM THICKNESS FOR INDIVIDUAL PLANES/BANDS,
                            MEAN PLANE THICKNESS <1MM.
L     7675  8314    A5XSCHS       FGSC              S#    90
                                  BN                S#    28L6
R                           INTENSELY CARBONATIZED, FINELY SCHISTOSE, CHLORITE SC
                            -HIST. SCHISTOSITY PLANES RANGE FROM 28 TO 90 DEGREES
                            TO C.A..
P     8314 11796       AN/FACPF    FGA*              MX              Q=          A*
                            3G          MX
R                           MASSIVE, DARK GREEN, NON-FOLIATED, FLOW, ANDESITE TO
                            BASALTIC-ANDESITE. LOCALLY THE UNIT CONTAINS LARGE PA
                            -TCHES OF EPIDOTE, EPIDOTE BLOSSOMS UP TO 20CM IN
                            DIAMETER, IS AN ALTERATION OF POSSIBLE FELSIC DYKE/SI
R                           -LLS.
N    10361 10430       XANVC       FGCT              FO    90
                                  FO
R                           FINE GRAINED, MODERATELY FOLIATED, CLASTS ARE CHLORIT
R                           -IC, ANGULAR, ELONGATE (3 X 10-12MM, <10%), SET IN A
                            FINE GRAINED CHLORITIC MATRIX . DOES NOT APPEAR TO BE
                            A HYALOCLASTITE.
N    10994 11012       XQZVN                                 >X
P    11796 12658       ANVCACCL    FGWB              S#    90
                            5G          SC                WB    90
R                           FINE GRAINED, WAVEY (CRENULATED?) ANDESITIC TUFF, WIT
                            -H LOCAL INTERBEDS OF GREYISH-GREEN FINE GRAINED HOMO
                            -GENEOUS MUDSTONE, BANDS RANGE IN THICKNESS FROM <1-3
                            MM.
N    11956 12006       XQZVN                                 >X
     12658 13057       MUDS        APMXX   2         BD    65
                            3A          BD      O
R                           FINE GRAINED, GREY-GREEN, PREDOMINANTLY MASSIVE, LOCA
                            -LLY THINLY BEDDED MUDSTONE, LOCAL CHERTY INTERBEDS.
     13057 13380       GWACACPF    FGMX              MX
                            2A
R                           DARK GREY, GRENISH, CLASTIC TEXTURED, MASSIVE, POURED
                            IN SEDIMENT.
     13380 14475       ANVCACPF    FGMX              MX
L                           5G          XT
                            FINE GRAINED, RELATIVELY MASSIVE, ANDESITIC TUFF, NO
                            BANDING , NO FOLIATION PRESENT. BEGINNING OF INTERVAL
R                           IS FELDSPAR X'TAL-RICH, ACTINOLITE-RICH. SUB-ROUNDED
R                           TO SUB-ANGULAR (2-3MM,15% EVEN DISTRIBUTION).
     14475 18167  A3XANVCACPF    FGSC              S#    78
                            5G          BN                BN    78L2
R                           HIGHLY BANDED, SCHISTOSE ANDESITIC COMPOSITION TUFF W
                            -ITH LOCAL MUDSTONE INTERBEDS. BEDDING VARIES FROM 38
                            TO 78 DEGREES TO C.A.. BANDING ALTERNATES BETWEEN CHL
                            -ORITE AND FERROAN DOLOMITE+QUARTZ. BANDS ALTERNATE B
                            -ETWEEN CHLORITE-RICH AND QUARTZ-CARBONATE, GREEN AND
                            WHITE TO ORANGE-TAN RESPECTIVELY. BANDS RANGE IN THIC
                            -KNESS FROM <1MM-10MM. MEAN THICKNESS 2MM.
D    15400 16673  A5XANVCAC      FGBN              BN    80                    L4
                            5U
                            WELL BANDED, QTZ-CARBONATE, INTERBEDDED WITH CHLORITE
                            BANDS. ***NOTE*** THAT THE INTERBEDS OF QTZ-CARBONATE
                            MAY NOT BE PRODUCED AS A RESULT OF AN ALTERATION BUT
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R                       MAY BE PRIMARY BEDS, THERE ARE HOWEVER QTZ-CARBONATE
R                       VEINLETS THAT PARALLEL THE FOLIATION.
L    17469 18167    A5XANVCACPF   FGBN          S#    90                  L4
R                       5G     SCWB
R                       WELL BANDED, HIGHLY SCHISTOSE, CHLORITE SCHIST, WAVEY
R                       BANDED WITH SCHISTOSITY VARYING BETWEEN 35 AND 90 DEG
R                       -REES TO C.A.. CARBONATE BANDS RANGE IN THICKNESS FRO
R                       -M 4-15MM, ACCOUNTS FOR @40% OF MODE. THE CARBONATE B
R                       -ANDS ARE A MEDIUM ORANGE BROWN, CHLORITE INTERBEDS A
R                       -RE DARK GREEN.
P    18167 19646       ANVCACPF   FGFO          FO    45
L                       5G
R                       RELATIVELY MASSIVE, MILDLY FOLIATED, MEDIUM GREEN, FI
R                       -NE GRAINED ANDESITE TUFF, DEVOID OF BANDING.
PFLT 19646 20662    A7XTFLPACPF   FGBN          S#    55>=                FUP3
R                       5W     SCWB                 P2
R                       BANDED, GREENISH-WHITE, FUSCHITE? RHYODACITIC TUFF, L
R                       -APILLI-TUFF, WITH QUARTZ VEINS, BARREN WHITE UP TO
R                       3CM IN THICKNESS, ACCOUNT FOR <5% OF MODE. THE SCHIST
R                       -OSITY RANGES FROM 0 TO 55 DEGREES TO C.A. THE BANDIN
R                       -G IS EXTREMELY CONVOLUTED, RE-FOLDING, RECUMBENT FOL
R                       -DING IS EVIDENT. BANDS RANGE IN THICKNESS FROM 1MM T
R                       -O 10MM. FRAGMENTS ARE ELLIPTICAL, ELLONGATE PARALLEL
R                       TO SCHISTOSITY, THESE FRAGMENTS PRODUCE SOME OF THE B
R                       -ANDING, FRAGMENTS ACCOUNT FOR 30% OF THE MODE. THIS
R                       IS MOST LIKELY A FAULT ZONE. ***NOTE*** THE LAPILLI M
R                       -AY ACTUALLY REPRESENT BRECCIA FRAGMENTS FROM TECTONI
R                       -C BRECCIATION.
P    20662 22464    A3XANVCACPF   FGMX          MX
R                       3G     FO            FO    65    P2
R                       FINE GRAINED, RELATIVELY MASSIVE, PERVASIVELY CHLORIT
R                       -IZED ANDESITIC, TO BASALTIC-ANDESITE TUFF, LAPILLI-T
R                       -UFF. LAPILLI ARE ANGULAR, ELONGATE, POSSIBLE FIAMME,
R                       DARK GREEN TO BLACK (4 X 5-10MM, 15-20%), ELONGATED P
R                       -ARALLEL TO MILD FOLIATION @ 65 DEGREES TO C.A.
P    21854 22464    A7XANVC       FGMX          MX                        >=
R                       3N                     VC    60    P8
R                       PERVASIVELY CHLORITIZED, INTENSE ALTERATION, ESSENTIA
R                       -LLY MASSIVE CHLORITE, WITH OCCASSIONAL QTZ-CARBONATE
                        VEINS, PATCHES AT @ 60 DEGREES TO C.A., ACCOUNTS FOR
                        <= 5% OF MODE.
A001  1262  1340    D1989
A001  6850  6935    D1990
A001  7324  7392    D1991
A001  8219  8305    D1992
A001 10115 10198    D1993
A001 15776 15856    D1994
A001 19227 19316    D1995
A001 20097 20181    D1996
A001 21593 21653    D1997
A001 22170 22240    D1998
/END
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IDEN6B0201  284 131-76  AXT 25JUL91DGM   MIDWOCT76          GRD000.00          0119
IPRJPLACER DOME INC.                    LAKE ATHAPAPUSKOW - SOURDOUGH BAY
D000      0  1524MT  916.84313.00-85.00          6071234.50 332325.91    291.38
S001   1524 32004    916.84310.00-82.50
S002 32004 33528    916.84318.25-80.50
D003 33528 35052    916.84319.25-80.50
D004 35052 36576    916.84321.00-80.50
S005 36576 42001    916.84321.00-80.50
S006 42001 42672    916.84319.00-78.00
D007 42672 44196    916.84316.50-76.50
S008 44196 45720    916.84316.50-74.00
S009 45720 51450    916.84316.50-72.00
D010 51450 53645    916.84313.00-69.00
S011 53645 55108    916.84311.00-67.00
S012 55108 56632    916.84310.00-64.00
D013 56632 58461    916.84309.00-61.00
D014 58461 59009    916.84307.50-59.00
S015 59009 59284    916.84307.00-58.50
S016 59284 59741    916.84308.00-55.50
D017 59741 60960    916.94311.00-52.00
S018 60960 64008    916.84308.00-50.00
S019 64008 67056    916.84303.00-41.50
D020 67056 70104    916.84302.00-33.00
D021 70104 73152    916.84303.00-29.00
S022 73152 76200    916.84304.00-28.00
S023 76200 79248    916.84305.00-23.00
D024 79248 91684    916.84305.00-18.00
/NAM
LNAM                                                    QZPFKFEPACHBCZMSCAD:
SCL        MT.2PC.0                                     AKTACLLIHEMGPYPRCPSL
ESCL            PC.0        LCTM
A001
JMM                    SAMP
          0   122       CASE
PMSV    122 10284    A3XRD/FCLAC   FGMX          MX
                          3GPF    EF                          P2
                     ROCK IS MASSIVE, DARK GREEN TO BLACK (LOCALLY) FINE G
                     -RAINED, APHYRIC, ANDESITE.
                     LOCALLY THE UNIT IS BRECCIATED OVER
                     30-40CM INTERVALS, ANGULAR FRAGMENTS UP TO 4CM ACROSS
                     ARE RE-SEALED WITH CLINOZOISITE. ON THE BASIS OF SIO2
                     CONTENT, IS A RHYODACITE.
    10284 18776    F33RD/FQZPF   FGPP          FO    15
                          5GCL    FOMX                        P1
                     ROCK IS FINE GRAINED, LIGHT TO MEDIUM GREEN, TO MEDIU
                     -M GREY. VERY MILDLY FOLIATED, PREDOMINANTLY MASSIVE.
                     LACK OF BANDING. X'TALS SHARDS, GRAIN AGGREGATES INTO
                     BANDS GIVES CREDENCE TO FLOW HYPOTHESIS. GRAINS, PHEN
                     -OCRYSTS IN COARSEST SECTIONS, ARE PLAGIOCLASE (2-12M
                     M, 20%) AND QTZ (2.5MM, 3%). GRAINS/PHENOCRYSTS ARE
                     RANDOMLYORIENTED/DISTRIBUTED THROUGHOUT, MATRIX IS FI
                     -NE GRAINED, MEDIUM GREEN, MODERATELY CHLORITIC. MILD
                     FOLIATION OF GRAINS AT @ 15% TO C.A.. UNIT IS LOCALLY
                     INTERCALTED WITH MASSIVE, FINE GRAINED, MEDIUM GREEN
                     ANDESITE FLOW.
                     ***NOTE*** UNIT IS PREDOMINANTLY DACITIC IN APPEARANC
                     -E, ONLY LOCALLY DOES QTZ CONTENT INCREASE TO THE EXT
                     -ENT THAT RHYODACITE IS WARRANTED
    18776 27301    F3XRDVCQZPF   FGXT8116      FO    20
                          5GAC       46 O                    P2
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ROCK IS MEDIUM GREEN, FIEN GRAINED DACITIC TO RHYODAC
-ITIC VOLCANIC. DEBATEABLE WHETHER IS FLOW OR TUFF, N
-O DISTINCTIVE FABRIC OR TEXTURES TO DEFINITIVELY CON
-FIRM ONE ORIGIN OR OTHER. MILD PENETRATIVE FOLIATION
PRESENT. DISTINCTIVE FEATURE IS BLACK VITTREOUS QTZ G
-RAINS (1MM,7% AND 4MM, 3%). GRAINS ARE EQUANT. POSSI
-BLE BI-MODAL DISTRIBUTION OF QTZ GRAINS, MAY SUGGEST
RELATIONSHIP TO BAKER-PATTON TWO GUARTZ RHYOLITE. FEL
-DSPAR GRAINS, ELONGATE, 2-3MM X7-10MM, ALIGNED PARAL
-LEL TO MILD FOLIATION. ELONGATION OF GREYISH-WHITE,
SAUSSERITIZED PLAGIOCLASE GRAINS, MAY BE INDICATION O
-F TUFFACEOUS ORIGIN. MATRIX IS DARK GREEN-BLACK, IND
-ICATIVE OF CHLORITE ALTERATION. VERY DISTINCTIVE UN
-IT.

P 27301 32530 RY/FACCL FGMX MX
3GPF
MEDIUM GREEN, FINE GRAINED, MASSIVE ANDESITE. APHYRIC
, LOCALLY FRACTURED, BRITTLEY, FRACTURES RE-HEALED WI
-TH MICROVEINLETS OF EPIDOTE. LOCALLY VEINS OF FERRAO
-N DOLOMITE, PASS THROUGH UNIT. VEINS UP TO 5MM IN TH
-ICKNESS, DENSITY IS LOCALLY UP TO 5% OF MODE.

P 32530 33162 SHXAN/FACCL SHFG SH 10
5RAK VV
DISTINCTIVE SHEAR ZONE WITH ATTENDANT CHLORITE AND FE
-DOLOMITE ALTERATION. PERVASIVE FABRIC @10 DEGREES TO
C.A.. ROCK IS INTRINSICLY THE SAME ANDESITE FLOW DESC
-RIBED ABOVE; HOWEVER INTENSIVE ALTERATION AND DEFORM
-ATION HAVE PRODUCED A BROWNISH-RED UNIT WHERE MOST I
-NTENSIVELY CARBONATIZED.

33162 37063 DC/FACCL FG MX
3G P1
MASSIVE MEDIUM TO DARK GREEN, MODERATELY TO SLIGHTLY
CHLORITIC ANDESITIC TO DACITIC COMPOSITION FLOW. NO Q
-UARTZ GRAINS PRESENT IN MACROSCOPIC FORM.

P 37063 40203 A3XDC/FACCL FGFO FO 20
3GPF VQ 50<1 P2
UNIT IS TRANSITIONAL FROM ABOVE INTERVAL, MORE ANDESI
-TIC IN COMPOSITION; HOWEVER MAY BE A FUNCTION OF A S
-LIGHTLY GREATER DEGREE OF CHLORITIZATION. UNIT IS FO
-LIATED, FABRIC AT @ 20 DEGREES TO C.A.. MEDIUM TO DA
-RK GREEN, MILDLY TO MODERATELY FOLIATED, APHYRIC, CR
-YSTAL-POOR, THEREFORE IDENTIFICATION AS FLOW.

40203 40660 SHXAN/F SH 20
VQ 90
UNIT AS DESCRIBED ABOVE, SHEARING IS MODERATE TO STRO
-NG, CHLORITIZATION AND FE-CARBONATIZATION IS INTENSE
. QTZ VEINS UP TO 30CM IN THICKNESS. LOCALLY SHEARING
HAS PRODUCED A SCHIST.

P 40660 43556 FGXDCVCACPF FGFO9115 FO 35
5GQZ O BD 35
ROCK IS FINE GRAINED, MEDIUM GREEN, PREDOMINANTLY WIT
-HOUT ANY DISTINGUISHING FABRIC, MILD FOLIATION IS
PRESENT. LOCALLY FELDSPAR, WHITE, SUB-ROUNDED (2-3MM,
<2-3% MODE), RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT
. QTZ GRAINS ARE ABSENT FROM THE UNIT. TUFF/VOLCANICL
-ASTIC ORIGIN SUBSTANTIATED BY PRESENCE OF BEDDED, FI
-NE GRAINED PYRITE AND GREENISH-YELLOW MUDSTONE. INTE
-RVALS ARE @40CM IN THICKNESS, MARKED BY SHARP CONTAC
-T WITH VOLCANICLASTIC, NO GRADATIONS, NOTHING INDICA
-TIVE OF CHILL MARGINS, I.E., TO PROVE FLOW GENESIS.

WHISPY FIEN GRAINED PY BANDS @1-2CM IN THICKNESS CONF
-IRM SEDIMENTARY GENESIS. SEDIMENTARY BEDS @417.88M A
-ND 425.2M.

P 43556 44607 FGXAN/FACCL FGA* FO 35 A)
3GPF FO
RELATIVELY MASSIVE, MILDLY FOLIATED, DARK GREEN, FINE
GRAINED, MASSIVE, ANDESITE FLOW. DISTINCTIVE FEATURE
IS ELLIPTICAL SHAPED CLACITE FILLED VESICLES CUM AMYG
-DULES UP TO 2.5 X 1CM. ACCOUNTS FOR ABOUT 1% OF THE
ENTIRE INTERVAL. MEAN SIZE FOR CALCITE AMYGDULES 5MM.
FOLIATION IS VERY MILD.

R 44607 47061 ANVCACPF FGFO8115 FO 40
5GCL 76 O P2
FINE GRAINED, MILDLY TO MODERATELY FOLIATED MEDIUM TO
DARK GREEN, GRANULAR TEXURED, AND ANDESITIC TUFF OR
POSSIBLE ANDESITIC COMPOSITION WACKE. TEXTURE IS DEFI
-NED BY SUB-ROUNDED TO SUB-ANGULAR, FELDSPAR GRAINS,
(1-1.5MM, 20-25% OF MODE). RANDOM DISTRIBUTION AND OR
-IENTATION. POSSIBLE LITHIC FRAGMENTS, ELLIPTICAL IN
2 DIMENSIONS, MAX DIMENSION 3 X 2 CM, MAY BE DISRUPTE
-D BANDS OF TUFF, AS SAME COMPOSITION, TEXTURE AS MAT
-RIX, POSSIBLE FABRIC CAUSED BY FLUXING OF FLUIDS TO
CAUSE MILD VARIATION IN TEXTURES.

47061 51755 A5XDCVCPFQZ FGXT9115 FO 30
5GCL 97 O P4
FINE GRAINED, MEDIUM GREEN, MODERATELY CHLORITIZED QT
-Z-FELDSPAR X'TAL TUFF, DACITIC COMPOSITION?/ DIFFICU
-LT TO DETERMINE GIVEN THE DEGREE OF CHLORITIZATION
WITHIN THE UNIT. QTZ GRAINS ARE VITREOUS, GREY-WHITE,
SUB-ANGULAR, RANDOMLY BUT EVENLY DISTRIBUTED THROUGHO
-UT, GRAINS RANGE IN DIAMETER FROM 1-3MM, ACCOUNT FOR
@ 3% OF MODE. FELDSPAR GRAINS, DEEP RED IN COLOUR, EL
-ONGATE UP TO 10MM IN LENGTH X 3MM IN WIDTH. ELONGATE
-D ALONG PLANE OF FOLIATION, ACCOUNT FOR @ 10-20% OF
UNIT.

51755 63094 RDVCPFHB MGFO FO 45
5GCL
MEDIUM GREEN, GRANULAR TEXTURED, MILDLY TO MODERATELY
FOLIATED, FINE-MEDIUM GRAINED. UNIT IS COMPOSED PREDO
-MINANTLY OF WHITE, SUB-ANGULAR TO BLOCKY 1MM DIAMETE
-R PLAGIOCLASE, ACCOUNTS FOR >=50-60% OF UNIT. INTERS
-TITIAL TO PLAGIOCLASE IS ANGULAR BLACK HORNBELNDE. O
-N BROKEN SURFACES ROCK IS MEDIUM GREEN, MILDLY CHLOR
-ITIC.

P 63094 63612 A3XRYVCACPF FGXT7225 FO 47
5GQZ FO 57 O P2
QTZ-FELDSPAR X'TAL DACITE, MILDLY TO MODERAT
-ELY FOLIATED. UNIT IS MEDIUM GREEN, FINE GRAINED. QT
-Z GRAINS ARE SUB-ROUNDED, 1-1.5MM IN DIAMETER, BLACK
, RANDOMLY ORIENTED/DISTRIBUTED, ACCOUNT FOR 10% OF M
-ODE. FELDSPAR GRAINS ARE ORANGEY-WHITE TO WHITE, ANG
-ULAR TO SUB-ANGULAR (3-10MM IN DIAMETER, 10-15%). FE
-LDSPAR GRAINS ARE ALIGNED TO MODERATE FOLIATION. MIL
-D TO MODERATE CHLORITIZATION.

P 63612 66324 RYVCPFAC FGFOX 4 FO 65
7G 67 O P1
LIGHT GREEN, FINE GRAINED, MODERATELY FOLIATED, GRANU
-LAR TEXTURED ANDESITIC TO DACITIC TUFF. NO EVIDENT Q
-TZ OR FELDSPAR X'TALS PRESENT; HOWEVER BOTH ARE VERY
OBVIOUS AS COMPONENT MINERALS MAKING UP THE MATRIX. P

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IDEN6B0201  284 136-77  AQ  10JUL91DGM   MIDWMAR77          GRD000.00          0119
IPRJPLACER DOME INC.                                LAKE ATHAPAPUSKOW - SOURDOUGH BAY
 000      0  3048MT  219.46309.00-70.00                    6071670.00 332134.10    291.38
S001  3048  6096    219.46309.00-61.30
S003  6096  9144    219.46309.00-48.00
 004  9144 12192    219.46309.00-46.00
 005 12192 15240    219.46309.00-39.00
S006 15240 21946    219.46309.00-37.00
 NAM                                                          QZPFKFEPACHBCZMSCAD:
 NAM                                                          AKTACLLIHEMGPYPRCPSL
/SCL         MT.2PC.0
LSCL              PC.0       LCTM
 001
AUMM                     SAMP
P          0  3292         CASE
 MSV  3292  3322     CGXGRANKFQZ    ECMX          MX
                          7OPF
R                         PHANERITIC TEXTURED, MASSIVE BIOTITE-RICH GRANITE AND
                          /OR GRANODIORITE. GIVEN THAT THIS DDH WAS DRILLED IN
                          A SEQUENCE OF VOLCANICLASTIC ROCKS, AND AS THIS GRANI
                          -TE WAS INTERSECTED AT THE BEGINNING OF THE HOLE, IT
                          IS LIKELY THAT THE DRILL STEM INTERSECTED A BOULDER.
      3322  4226     FGXDCVCPFAC    FGBN          BN    45
                          5GCL   XT
R                         UNIT IS MODERATELY WELL BANDED, BANDS @ 3-15MM IN THI
                          -CKNESS. RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT, SU
                          -BHEDRAL BLOCKY, ORANGEY-PINK COLOURED FELDSPAR GRAIN
R                         -S, GRAINS 1 X 3MM, ACCOUNTS FOR @7 OF MODE. ROCK IS
                          ANDESITIC TO DACITIC COMPOSITION TUFF.
      4226 14623     FGXRDVCPFQZ                FO    55
                          5AAC
R                         CONTINUATION OF VOLCANICLASTIC UNIT DESCRIBED FROM
                          33.22 TO 42.26M. ROCK IS A GREYISH-WHITE, FINE GRAINE
                          -D, LOCALLY CONTAINS LITHIC FRAGMENTS (10 X 4MM, <3%)
R                         , RANDOMLY DISTRIBUTED, ORIENTED PARALLEL TO MILDLY T
                          -O MODERATELY DEVELOPED FOLIATION. FELDSPAR GRAINS AL
                          -IGNED PARALLEL TO FOLIATION, GRAINS ACCOUNT FOR @7%
R                         OF MODE, ONE 1-2 X 7-10MM.
D     4531  4856     A5X                                 P6    P3
                          9O
R                         ZONE OF MODERATE TO INTENSE SILICIFICATION AND POSSIB
                          -LE CONVERSION TO CLINOZOISITE. THE ROCK VARIES  FROM
                          GREY TO LIGHT PINK.
      4856 11217     FGXDCVCQZPF   FGBN          FO    40
                          5W                                P1
                          UNIT IS COMPOSED OF RAPIDLY CHANGING TUFFS, RANGING
                          FROM ANDESITIC THROUGH TO RHYOLITIC. INTERVALS RANGE
                          IN THICKNESS FROM 6M DOWN TO 5CM. THE NARROWER INTERV
R                         -ALS HAVE WELL DEFINED CONTACTS. LARGER INTERVALS HAV
                          -E MORE GRADATIONAL COMPOSITIONAL CHANGES, I.E., ANDE
                          -SITIC THROUGH TO DACITIC. LOCALLY THE UNIT IS CHLORI
R                         -TIZED DARK BLACK OVER LENGTHS OF @ 40CM. GRADATIONAL
                          CONTACTS WITHIN THE LARGER SUB-INTERVALS.
      11217 11826    A3XDCVCAKQZ   FGXT9113      FO    60<4
                          5TPF   BN
                          IS AN ALTERED INTERVAL OF DACITIC COMPOSITION, VOLCAN
                          -ICLASTIC ROCK. FE-CARBONATE STRINGERS/VEINS/BANDS AC
                          -COUNT FOR @40% OF THE UNIT. THIS UNIT MAY BE EQUIVAL
R                         -ENT TO THE ZONE OF FE-CARBONATIZATION DETECTED IN DD
                          H 137 AND 138.
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D 11826 14623 A5XRDVCAKQZ FGBN9115 BN 60
I 5AAC P1
K MEDIUM GREY-GREEN, FINE GRAINED, MODERATELY WELL BAND
R -ED, DACITIC COMPOSITION TUFF. FELDSPAR AND LITHIC FR
-AGMENTS ARE ELONGATED PARALLEL TO BANDING, THERE MAY
HAVE BEEN SOME MILD CHLORITIZATION OF THE UNIT. FELDS
-PAR AND/OR QTZ GRAINS ARE NOT PROMINENT.
P 14623 15270 7A7TFLPQZAC FGFR5447 BN 70
5A
R DISTINCTIVE UNIT COMPOSED OF FRAGMENTS, SUB-ANGULAR O
R -F CHERTY RHYOLITE, APHANITIC X'TALLINITY, ELONGATE P
-ARALLEL TO MILD BANDING IN ROCK FRAGMENTS UP TO 20MM
IN THICKNESS, 40MM IN WIDTH, ACCOUNT FOR @40% OF MODE
R . MATRIX IS LIGHT GREY-GREEN, DACITIC TO RHYODACITIC
IN COMPOSITION, FINE GRAINED. NO GRADING IN FRAGMENTS
EVIDENT. ALTERATION NOT EVIDENT IN NIT.
15270 16947 MGXRD/FPFAC FGMX MX
L 5A
P ROCK IS MASSIVE, FINE TO MEDIUM GRAINED, MEDIUM GREY,
K PLAGIOCLASE (1MM,40%) RANDOMLY ORIENTED/DISTRIBUTED
R THROUGHOUT A FINE GRAINED BLUE-GREY-GREEN MATRIX, ASS
-UMED TO BE AN AGGREGATE OF QTZ AND ACTINOLITE. NO BA
-NDING IS PRESENT IN THE ROCK, NO ACCIDENTALS OR FORE
-IGN GRAINS OR X'TALS TO INDICATE VOLCANICLASTIC ORIG
R -IN.
16947 19660 FGXDC/FQZPF FGMX MX
3AAC J)
R UNIT IS DEBATEABLE, CAN BE CONSIDERED TO BE FLOW OR
R VOLCANICLASTIC. RELATIVELY MEDIUM GRAINED UNIT COMPOS
-ED OF PLAGIOCLASE SET IN A FINER GRAINED BLUE-GREY
R SILICEOUS MATRIX. LOCALLY, CHERTY BANDS WITH X'TALS (
FELDSPAR, 1-4MM, <5%) ARE PRESENT. BANDS, 2CM IN WIDT
R -H. LACK OF DISTINCTIVE BANDING, HOMOGENEITY OF UNIT
AND LACK OF FRAGMENTS OR X'TALS SUGGESTS AN EXTRUSIVE
R ORIGIN - CAN BE DEBATED. ***NOTE*** AT 185.01M AND
186.54M PY OCCURS AS SEAMS ALONG POSSIBLE FLOW BRECCI
R -ATION FRAGMENTS, INTERSTITIAL. PY IS EXTREMELY FINE
GRAINED.
P 19660 21305 PCXTFLPQZPF FGBN9118 BN 70
5A SY 77 O
R WELL BANDED, PYROCLASTIC UNIT, FELSIC IN COMPOSITION.
R DACITIC TO RHYODACITIC IN COMPOSITION. CLASTS ARE SUB
-ANGULAR, RHYOLITIC IN COMPOSITION, MASSIVE, APHYRIC,
UP TO 4CM IN DIAMETER.
P 21305 21946 TFLPACPF 7227 BN 75
L 5G O P1
K RHYODACITIC COMP. LAPILLI-TUFF. IS A DARKER GREEN
R THAN ALL PREVIOUS UNITS, GRAINS CAN BE DISTINGUISHED
FROM ONE ANOTHER, GRANULAR, CLASTIC TEXTURE IS VERY
NOTICEABLE. MILD CHLORITIZATION PRESENT THROUGHOUT TH
-E INTERVAL. LITHIC FRAGMENTS ACCOUNT FOR <5% OF THE
R MODE, FELDSPAR X'TALS, RANDOMLY ORIENTED/DISTRIBUTED
THROUGHOUT ACCOUNT FOR @ 7% OF MODE.

R			
A001	3452	3495	D1728
A001	4714	4752	D1729
A001	7234	7285	D1730
A001	8646	8697	D1731
A001	10490	10541	D1732
A001	11542	11605	D1733
A001	12151	12225	D1734

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A001 14722 14783     D1735
A001 15956 16012     D1736
A001 17877 17930     D1737
A001 19507 19566     D1738
A001 20858 20922     D1739
A001 21580 21636     D1740
END
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IDEN6B0201  284 137-77  BQ  06JUL91JFM   MIDWMAR77          GRD000.00         0119
LPRJPLACER DOME INC                     LAKE ATHAPAPUSKOW - PINE POINT
D000      0  3048MT  247.19130.00-60.00          6070884.50 331260.44    291.38
S001   3048  6096    247.19130.00-63.50
S002   6096  9144    247.19130.00-61.00
D003   9144 12192    247.19130.00-55.30
D004  12192 15240    247.19130.00-53.00
S005  15240 18288    247.19130.00-41.00
D006  18288 21336    247.19130.00-31.00
D007  21336 24719    247.19130.00-39.00
/NAM                                                    QZPFKFEPACHBCZMSCAD:
LNAM                                                    AKTACLLIHEMGPYPRCPSL
SCL         MT.2PC.0
LSCL             PC.0       LCTM
A001
UMM                     SAMP
          0  1585          CASE
PMSV   1585  8357    CL4DC/FQZHBPF3MXFG          BN    22
                          2G  AC6               VC    22V)  V4      U*    V.
                     UNIT RESEMBLING A DYKE BUT COULD ALSO BE A VERY MASSI
R                    -VE MAFIC FLOW. FINE GRAINED BUT GETTING COARSER AFTE
R                    -R 59.7M. THERE ARE SOME QTZ AMYGDULES ALTHOUGH CONCE
                     -NTRATED MAINLY IN THE FIRST 3 M. THE UNIT IS CHLORIT
R                    -IZED. A 0.5CM STRINGER OF SPHALERITE IS NOTICEABLE A
R                    -T 49.99M. LIGHTLY BANDED (INTERMITTENTLY).
                     SIO2 CONTENT SUGGESTS IS A DACITE FLOW.
      2870  3228    SI5                         BD    22
L                         7G
                     SILICIFIED SECTION, MUCH HARDER AND OF LIGHTER COLOUR
                     , BUT OF SAME ORIGIN.
D     3536  3612    SI4                         BD    24
L                         7G
                     SILICIFIED SECTION.
L     3889  4100    S3X
L                         7A                        V)
                     SHEARED ZONE, MANY ANKERITE VEINS.
      5364  5464    BNX                         BN    32
R                    A MORE HIGHLY BANDED ZONE, IN A UNIT THAT IS SLIGHTLY
R                    RUSTY.
      6053  6205      X
L                                                       D)
R                    PYRITE-RICH ZONE. THE PYRITE IS IN VEINS AS WELL AS D
                     -ISSEMINATIONS. IT ALSO OCCURS FROM 63.39 TO 63.69M
      6431  6492    A38QZ/V    QZ8>>            V/
L                         9U                        V2          V=
                     QUARTZ VEIN ALTERED BY ANKERITE, CONTAINING 5% PYRITE
                     WITHIN THE ANKERITE.
R                    THE ZONE FOLLOWING THE QUARTZ VEIN IS VERY PYRITE RIC
R                    -H. BLEACHING AND SILICIFICATION OF HOST ROCK.
      6980  7122      X
L                                                       D)
R                         A PYRITE-RICH ZONE.
      7711  7790    XQZ/V       >>              V/
                          7U                        V1  V1      U=
R                    A QUARTZ VEIN INTERSECTS HALF OF THE CORE. PYRITE ENR
P                    -ICHMENT (5%) ALL ALONG THE CONTACT.
      7836  7894      X
L                                               V1          V=
R                    PYRITE-RICH ZONE AROUND QTZ VEIN.
      8357  8540  AL5DCVCQZ  PF6FOXT            FO    29                V2
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                        6G  AC3                 VQ      D1
                        TUFF OF DACITIC COMPOSITION WITH 5% QUARTZ GRAINS. SO
                        -ME SMALL VEINS ALTERED BY ANKERITE. CARBONATE ALTERA
                        -TION.
P       8540  8694        ANVC    PF4MXMG
                        4G  AC5EQ               FO    23V)                V+
                        ANDESITIC TUFF IN BETWEEN A DACITIC TUFF. MILD FOLIAT
R                       -ION.
        8694  8742    AL5DCVCQZ   PF6FOXT          FO    29                  V2
                        6G  AC3                       D1
R                       SAME DACITIC TUFF AS 83.57 - 85.40M.
P       8742 11762    MX9DC/FQZ   AC6EQFG          BN    37                  V)
                        2G  PF4MX                   V)  D1      U*
R                       THIS ANDESITE FLOW COULD BE A COARSER VARIATION OF TH
R                       -E SILL WHICH COVERED THE FIRST 80M OF THE DRILL HOLE
                        . THE MAIN ROCK IS SLIGHTLY CHLORITIZED BUT CONTAINS
R                       MANY CHLORITIZED VEINS. WE NOTICE A COARSER OF THE GR
                        -AINS TOWARD THE BOTTOM OF THE UNIT. THERE IS SOME IN
R                       -FREQUENT QTZ X'TALS. THERE IS NO ALTERATION OF PYRIT
                        -E-RICH SECTIONS AND PYRITE-POOR SECTIONS. THE ROCK
R                       ITSELF IS RATHER MAFIC AND MASSIVE IF NOT FOR A SLIGH
R                       -T BANDING. WE ALSO NOTICE SOME STRINGER-RICH SECTION
                        . UNIT HAS BEEN RE-INTERPRETED TO BE A DACITE FLOW ON
                        THE BASIS OF SIO2 CONTENTS.
D     10320 10731       X                         $/
                        STRINGER-RICH ZONE.
      11186 11473       X                         $/
R                       STRINGER-RICH ZONE.
P     11762 12121   A3XDC/FQZ   AC5FGEQ          FO    57
                        6G  PF3MXFO                 Q(  D1      D1
R                       SMALL FLOW WITH GOOD SILICA CONTENT, FEW QTZ GRAINS.
R                       MILDLY FOLIATED, 10%  PYRITE DISSEMINATIONS, ALTHOUGH
                        MORE PRESENT AT THE TOP OF THE UNIT.
      12121 15372   A55RYVCPFCAMS7BDEF          BD    38                  V=
L                       9AQZ                    B/      V(L)
                        THIS WHOLE UNIT SEEMS TO BE AN ALTERATION OF A RHYOLI
R                       -TE TUFF AND BANDS OF A MORE DACITIC ONE. THE RHYOLIT
R                       -E IS NOW ALMOST TOTALLYALTERED TO MUSCOVITE AND APPE
R                       -ARS TO BE A SCHIST (VERY WHITE). THERE IS ALSO SOME
                        QUARTZ VEINS BUT SULPHIDES ARE ALWAYS ABSENT. BOTH UN
R                       -ITS ARE VERY WELL BEDDED, VERY REGULAR AND OF A FINE
R                       EQUIGRANULAR TEXTURE (WHERE VISIBLE). SURFACE ALTERAT
                        -ION HAS RENDERED THE CORE ORANGEY (PROBABLY A IRON C
R                       -ARBONATE ALTERATION. QUARTZ GRAINS ARE PRESENT ALTHO
                        -UGH IN LARGER NUMBER IN THE RHYOLITIC TUFF THAN THE
P                       DACITIC ONE.
      15372 22515   A54RDVCQZMSPF3BDFG          BD    53                  L5L2
L                       4A  AC3                       L2L=      L.
R                       THIS SECTION CONSISTS OF A SUCCESSION OF BEDS OF RHYO
                        -DACITE AND A MORE RHYOLITIC TUFF. ROCK FRAGMENTS AND
R                       QTZ GRAINS ARE PRESENT THROUGHOUT THE WHOLE INTERVAL.
                        SOME PORTIONS ARE MORE ALTERED THAN OTHERS BY CARBONA
R                       -TE, SERICITE AND POSSIBLY TALC. THE UNIT IS GENERALL
                        -Y SULPHIDE POOR, EXCEPT FRO SOME BEDS CONTAINING ARO
R                       -UND 0.3% PYRITE. THE ANGULARITY OF GRAINS AND QTZ CR
                        -YSTALS TENDS TO MAKE THIS A TUFF BUT IT IS EXTENSIVE
P                       -LY BEDDED AND SOME SECTIONS ARE CLOSE TO BEING SEDIM
                        -ENTARY UNITS.
D     16093 16185       X                         SH    53
                                                        L2
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R                    A MORE INTENSELY SHEARED ZONE IN A RHYOLITE TUFF.
R    22515 23548   A34RYVCPFCAMS7BDEF          BD    68                  L1
                   7AQZ                        $/      L=L=        V(
R                  RHYOLITE TUFF WITH 15% QTZ GRAINS, OTHERWISE QUITE SI
R                  -MILAR TO THE UNIT FROM 121 TO 153M.
     23548 24719     RDVCQZMSPF5BDFG          BD    68                  L1
                   6A  AC3XT                   $/      L=L=        V.
R                  THIS RHYODACITIC TUFF ALSO CONTAINS  10-1%5 QTZ X'TAL
                   -S. IT IS ALSO VERY BANDED (ALTERNATING BETWEEN RHYOD
R                  -ACITE AND DACITE) AND THE THICKNESS OF THOSE BANDS G
R                  -ET NARROWER AS APPROACH BOTTOM OF THE HOLE. NO MINER
                   -IZATION OBSERVED EXCEPT FOR THE VERY FEW EUHEDRAL
                   PYRITE GRAINS WITHIN SOME BEDS.
A001   2530   2606     D1826
A001   4785   4892     D1827
 001   7247   7348     D1828
 001   9312   9418     D1829
A001  12337  12436     D1830
 001  11781  11836     D1831
 001  15092  15151     D1832
A001  15524  15606     D1833
A001  17054  17114     D1834
 001  18692  18763     D1835
A001  19124  19190     D1836
A001  20589  20645     D1837
 001  23812  23896     D1838
END
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IDEN6B0201  284 138-77  BQ  05JUL91DGM   MIDWAPR77          GRD000.00          0119
LPRJPLACER DOME INC.                    LAKE ATHAPAPUSKOW - SOURDOUGH BAY
 000      0  3048MT  282.85293.00-70.00              6071174.00 331807.00    291.38
S001   3048  6096    282.85293.00-67.00
S002   6096  9144    282.85293.00-59.00
 003   9144 12192    282.85293.00-47.00
 004  12192 15240    282.85293.00-43.00
S005  15240 18288    282.85293.00-39.00
 006  18288 21336    282.85293.00-34.00
 007  21336 24384    282.85293.00-26.00
S008  24384 27432    282.85293.00-23.00
S009  27432 28285    282.85293.00-20.00
 NAM                                                    QZPFKFEPACHBCZMSCAD:
LNAM                                                    AKTACLLIHEMGPYPRCPSL
/SCL         MT.2PC.0
 SCL             PC.0       LCTM
 001
AUMM                      SAMP
P            0  1280        CASE
 MSV  1280  2621    FGXDCVCQZPF   XTFG911        FO    45
L                          7G                   VQ    60
R                          ROCK IS FINE GRAINED, GREY-BLUE COLOURED DACITIC COMP
                           -OSITION VOLCANICLASTIC, RELATIVELY X'TAL POOR, MILD
                           FOLIATION, SOME AREAS OF MILD BLEACHING CAUSED BY NAR
R                          -ROW (<1CM IN WIDTH) QTZ VEINS @50 DEGREES TO C.A..
                           FELDSPAR GRAINS (ANHEDRAL TO BLOCKY), 1-3MM IN DIAME
                           -TER, ACCOUNTS FOR UP TO 3% OF MODE. ROCK COULD POSSI
R                          -BLY BE RHYODACITIC IN COMPOSITION. VERY MILD FERRAON
P                          DOLOMITE ALTERATION AS INDICATED BY TAN BROWN INFILLI
                           -NGS ALONG QTZ VEINS AND COLOURING OF FELDSPAR X'TALS
                           . QTZ VEINS AT A MODERATE TO STEEP ANGLE TO THE C.A..
R                          SAMPLE D1701 IS FELDSPAR-RICH X'TAL TUFF (3MM GRAINS)
                           , RANDOMLY DISTRIBUTED IN A FINE GRAINED LIGHT GREEN
                           DACITIC MATRIX.
P    2621  7414    7AXDCVCQZPF   XTFG7226       FO    75
                   9GMS
                           ROCK IS A MIXED INTERVAL OF DACITIC VOLCANICLASTICS,
                           FELDSPAR AND QTZ X'TAL TUFF, DACITIC COMPOSITION. LAP
                           -ILLI ARE MORE EVIDENT LOCALLY. FREQUENT FACIES CHANG
                           -ES TO MORE TUFFACEOUS RATHER THAN LAPILLI DOMINATED
                           LAYERS. SAMPLE D1702 REPRESENTS ONE OF THE FELDSPAR X
                           'TAL DOMINATED LAYERS, MASSIVE, NO LAYERING OR FOLIAT
                           -ION. LAPILLI ARE SUB-ROUNDED, TAN COLOURED. EVIDENCE
                           THAT HAS HIGH CACO3 CONTENT. TUFFACEOUS INTERVALS BEC
                           -OME CHERTY LOCALLY, INDICATIVE OF PERIODS OF QUIESEN
                           -CE. LAPILLI ARE ABOUT 1CM IN DIAMETER.
P    3304  3313    PYXMSPY    PY5
                   5Y  PR5                                          L5L5
                           CHORNEY (1977) DESCRIBES THIS INTERVAL AS CONTAINING
                           TWO BANDS (1CM) OF MASSIVE PYRITE AND PYRRHOTITE. THI
                           -S ENTIRE ROW OF CORE IS NOW MISSING, THEREFORE CANNO
                           -T BE RE-LOGGED OR RE-SAMPLED.
     3561  3614    BNXTUFTQZPF   LMCH9115       BN    65
                   5UPY   FG                                              D2
                           INTERVAL OF WELL LAMINATED CHERTY ROCK INTERBEDDED WI
                           -TH FINE GRAINED VOLCANICLASTICS, DACITIC TO RHYODACI
                           -TIC IN COMPOSITION.
     5349  5420    FLXRYVCQZPF   FGBN8115       BN
                   9WMS                                  P1
                           SAMPLE D1703 FILLS THIS ENTIRE INTERVAL. INTERVAL IS
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DISTINGUISHED BY BEING A RHYOLITIC COMPOSITION VOLCAN
-ICLASTIC INTERBEDDED WITHIN A PREDOMINANTLY DACITIC
COMPOSITION VOLCANICLASTIC AND LOCALLY PYROCLASTIC AN
-D/OR LAPILLI-RICH INTERVALS. BANDING IS DEFINED BY N
-ARROW QTZ VEINLETS @ 80 DEGREES TO C.A. VEINLETS @
3MM IN WIDTH, RELATIVELY LIMITED. VEINLETS ACCOUNT @
5% OF MODE. NO MINERALIZATION IN INTERVAL, MILD FE-CA
-RBONATIZATION WITHIN INTERVAL.

RRRR

			5GAC XTBN36 0				
			ROCK IS ESSENTIALLY A CONTINUATION OF THE INTERVAL 75				
			-92M. MEDIUM GREEN, FINE GRAINED, MODERATELY CHLORITI				
			-C. RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT, ANHEDRA				
			-L, ANGULAR FELDSPAR GRAINS (2-3MM,20-25%). ROCK MAY				
			BE ANDESITIC THROUGH TO DACITIC IN COMPOSITION.				
L	10033	10127	PPQF	PF1FGMX	MX		P3
				QZ+			
			SHARP CONTACT BETWEN ANDESITIC TO DACITIC COMPOSITION				
			FELDSPAR X'TALL TUFF AND QUARTZ-FELDSPAR PORPHYRY, IS				
			A LIGHTER GREY COLOUR THAN THE ORIGINALLY DESCRIBED				
			INTERVAL 94.13-95.17M, ATTRIBUTEABLE TO MORE SUDDEN Q				
			-UENCHING OF GROUNDMASS. TEXTURE IS FINE GRAINED, SUF				
			-FICIENT THAT IF NOT FOR OVERLYING QFP INTERVAL AND T				
			-HE EXTREMELY SHARP, ANGULAR CONTACTS, WOULD BE CONSI				
			-DERED A FELDSPAR X'TAL TUFF. ROCK IS RHYODACITIC TO				
			RHYOLITIC IN COMPOSITION.				
P	10127	11229	F3XDCVCQZPF	FGFO811	FO	70	
				5GAC XTBN36 0			
			SEE INTERVAL 97.17-100.33 FOR DESCRIPTION.				
N	10127	10139	BI5LAMPBIHB		MX		
				5UMG	C/	45	
			ROCK IS HIGHLY BIOTITIC, MODERATELY MAGNETIC. ORANGE-				
			BROWN WEATHERING SURFACE, BLACK FRESH SURFACE. VERY S				
			-HARP UPPE CONTACT. LOWER CONTACT IS DEFINED BY A ZON				
			-E FROM 101.39 TO 102.23M IN WHICH THERE IS BIOTITIZA				
			-TION OF VOLCANICLASTIC HOST ROCK.				
N	10139	10223	A3XCNTZQZBI	8115	FO	60P4	BIP4
L				7UPF			
			CONTACT ZONE DESCRIBED ABOVE, ZONE OF SILICIFICATION				
			AND BIOTITIZATION ADJACENT TO LOWER CONTACT OF LAMPRO				
			-PHYRE SILL/DYKE.				
I	11135	11158	MFXMFDYCLAC	FGMX	C/	65	
L				3GPF		P1	P4
N	11186	11229	MFXMFDYCLAC	FGMX	C/	90	
I				3GPF		P1	P4
I	11229	19385	A5XDCVCQZMS	FGLL8118	BN	75	
L				9GCL FO			
			CHORNEY (1977), WITH MODIFICATIONS BY DGM, DESCRIBES				
			THE INTERVAL AS BEING LIGHT TO MEDIUM GREY, FINE GRAI				
			-NED, FELDSPAR X'TAL-RICH, SLIGHTLY TO MODERATELY FOL				
			-IATED, LOCALLY LAMINATED, SYMMETRICAL LAMINATIONS,				
			YOUNGING DIRECTION CANNOT BE ASCERTAINED FROM THESE L				
			-AMINATIONS. LOCALLY THE UNIT HAS ANGULAR TO SUB-ROUN				
			-DED RHYOLITIC FRAGMENTS, TRANSLUSCENT SILVERY-WHITE				
			IN COLOUR, CLASTS, LAPILLI TO BLOCK SIZED (<5CM), ACC				
			-OUNTS FOR MINOR PART OF SECTION (<5%). UNIT IS DOMIN				
			-ANTLY FINE GRAINED, VOLCANICLASTIC IN ORIGIN. UNIT I				
			-S PREDOMINANTLY DACITIC IN COMPOSITION. WHITE MICA A				
			-ND QUARTZ FLOOD THROUGHOUT, ATTRIBUTEABLE TO A WIDES				
			-READ ALTERATION WITHIN A PERMEABLE UNIT. CALCITE/FER				
			-ROAN DOLOMITE EVIDENT FROM WEATHERING SURFACE, REDDI				
			-SH-BROWN COLOUR TO BANDS/FOLIATION PLANES AND LOCAL				
			PATCHES. CHLORITIC NARROW SECTIONS PRESENT, INTERVALS				
			USUALLY ABOUT 1M IN THICKNESS. SAMPLES TAKEN @ 30M				
			D1707 FINE GRAINED, MEDIUM GREEN VOLCANICLASTIC, HOMO				
			-GEOUS, MILDLY FOLIATED @80 DEGREES TO C.A.. DISTINGU				
			-ISHED BY PRESENCE OF ANGULAR, ELONGATE (2 X 6MM, 10-				
			15%) FELDSPAR X'TALS, ELONGATED PARALLEL TO FOLIATIO				

-N. ROCK IS DACITIC TO POSSIBLE UPPER ANDESITIC IN CO
-MPOSITION. CHLORITE CONTENT EVIDENT ON BROKEN SURFAC
-ES.

D1708 REPRESENTATIVE OF RHYOLITIC PYROCLASTIC, RELATI
-VELY MASSIVE INTERVAL, COMPOSED DOMINATLY OF FINE GR
-AINED QTZ. ROCK HAS SLIGHT BLUE-GREY COLOUR. CLASTS
ARE HOMOGENEOUS FINE GRAINED, NO STRUCTURE OF X'TALS/
PHENO'S EVIDENT. CLASTS ARE ANGULAR 4CM X 1-2CM IN SI
-ZE, ACCOUNT FOR @25% OF SAMPLE INTERVAL, VERY MILD
FE-DOLOMITE ALTERATION WEATHERING.

D1709 SAMPLE REPRESENTATIVE OF MORE LAMINATED/FOLIATE
-D, FINE GRAINED, DARK GREY-BLUE FELDSPAR X'TALL TUFF
, DACITIC COMPOSITION. BANDING @80 DEGREES TO C.A.

D1710 SAMPLE AS ABOVE, MODERATELY, WELL FOLIATED, LIG
-HT TO MEDIUM GREEN, FINE GRAINED, FELDSPAR X'TAL TUF
-F, DACITIC COMPOSITION.

19385 19812 A3XRDVCQZMS FGBN9115 BN 80 P4
5WAK XT FO 80V1
CHORNEY (1977) DESCRIBES THE INTERVAL AS BEING TRANSI
-TIONAL FROM THE DACITIC VOLCANICLASTIC ABOVE TO THE
RHYOLITIC VOLCANICLASTIC BELOW. IT IS SLIGHTLY CHLORI
-TIZED AND CARBONATIZED. CHORNEY INDICATES THAT TALC
IS PERVASIVE THROUGHOUT, CAN ONLY SEE WHITE MICA, TAL
-C MAY OR MAY NOT BE PRESENT.

D1711 WELL FOLIATED, CARBONATIZED, SERICITIZED, QTZ-
X'TAL RHYODACITIC-RHYOLITIC COMPOSITION TUFF. QTZ GRA
-INS EQUANT (1-3MM, 7%), RANDOMLY ORIENTED/DISTRIBUTE
-D THROUGHOUT A WHITE MICA-RICH MATRIX. FE-CARBONATE
(ANKERITE?) AS 2-3MM CONCENTRATIONS IN BANDS @85 DEGR
-EES TO C.A.

P 19812 23873 A5XRYVCQZMS FGBN9115 BN 80 P6
5WAK XT FO 80V2
ROCK IS A WHITE-MICA-RICH RHYOLITIC COMPOSITION X'TAL
-L TUFF. THE ENTIRE UNIT IS FE-CARBONATIZED.***NOTE**
* THE ENTIRE INTERVAL OS SERICITIZED AND FE-CARBONATI
-ZED. SCHISTOSITY/SHEARING HAS RESULTED IN BOUDINAGIN
-G OF QTZ VEINS. THIS SHEARING HAS LIKELY RESULTED IN
A PARTING/STRETCHING OF BEDS OF TUFF, RESULTING IN A
PSEUDO-LAPILLI-BRECCIA TEXTURE BEING DEVELOPED. THE
UNIT LOCALLY CONTAINS MASSIVE QTZ-SERICITE-RICH UNITS
, NON-CARBONATIZED.

D1712 GREENISH-WHITE/SILVERY RHYOLITE INTERVAL. NO QT
-Z GRAINS, FELDSPAR GRAINS EVIDENT. CLASSIFIED AS A
TUFF GIVEN SURROUNDING UNIT. UNIT TAKEN FOR THIN SECT
-ION TO DETERMINE WHETHER TALC IS PRESENT.

D1713 GREENISH-WHITE SERICITE-RICH "CLASTS" PRESENT
THROUGHOUT THE INTERVAL. ARE DEFINED BY TAN COLOUR,
ANGULAR, ELONGATE SHAPE. POSSIBLY LAPILLI. CONSISTENT
-LY 5MM-15MM IN THICKNESS. FELDSPAR X'TALS (3MM, <3%)
RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT.

21369 21427 BX2RYVCQZMS >>BX VQ 90V1
5WAK FG V2
NARROW INTERVAL CONTAINING 3 VEINS SHOWING A BRECCIAT
-ED FABRIC. FLOODING OF FE-CARBONATE AN QTZ TO FORM

MACROVEINS.

D1714 LESS FE-CARBONATIZED AND SERICITIZED INTERVAL O
-F QTZ-FELDSPAR X'TAL TUFF OF RHYOLITIC COMPOSITION.
BROKEN SURFACES NOT AS MICACEOUS AS IN PREVIOUSLY SAM
-PLED INTERVALS. DELICATE LAMINATIONS PRESENT, TYPICA
-L THICKNESSS @3MM. FOLIATION IS PARALLEL TO BANDING,
SO SHARD-LIKE FEATURES MAY FREQUENTLY BE PRODUCED BY
PULL-APART MECHANISM.

D1715 INTERVAL OF INTENSE FE-CARBONATIZATION AND SERI
-CITIZATION. ELLIPTICAL LITHIC FRAGMENTS (3 X 15 MM,
<10%0 AND QTZ X'TALS (2MM, <2%) DISTRIBUTED THROUGHOU
-T. ROCK HAS A PALE GREEN COLOUR ON BROKEN SURFACES,
INDICATIVE OF WHITE MICA CONTENT. BANDING AT 90 DEGRE
-ES TO C.A..

23729 23873 BX5RYVCQZMS BX
5GAK
ZONE OF BRECCIATION MARKING THE CONTACT BETWEEN THE R
-HYOLITIC VOLCANICLASTIC UNIT AND THE UNDERLYING MAFI
-C VOLCANIC UNIT. CHORNEY (1977) DESCRIBES THE INTERV
-AL AS AN INTENSELY ALTERED SHEAR ZONE CONTAINING NUM
-EROUS FRAGMENTS OF SILICEOUS MATERIAL, CONTORTED CHL
-ORITE, CARBONATE, QTZ AND FELSIC VOLCANIC FRAGMENTS.

23873 28285 MFXAN/FACPF EFMX MX
5G
ROCK IS MASSIVE MAFIC VOLCANIC, GENERALLY WITHOUT ANY
DISTINGUISHING FABRIC OR TEXTURES, COMPOSITIONALLY
BASALTIC-ANDESITE, CLASSIFIED AS A MAFIC FLOW.

D1716 HOMOGENEOUS, MASSIVE, BASALTIC-ANDESITE FLOW.

24534 24559 QZ5VEINQZEP MX V4 V5 V1
7GCA VQ 45
QTZ-EPIDOTE VEIN AT 45 DEGREES TO C.A.

D1717 MASSIVE, HOMOGENEOUS, BASALTIC-ANDESITE FLOW, N
-O FRACTURES, SELVEGES, CONTACTS WITHIN THE INTERVAL.
NO FEATURES TO SUGGEST A TUFFACEOUS ORIGIN.

26345 26385 QZ2 VQ 90
SERIES OF QUARTZ VEINS, BANDS @ 90 DEGREES TO C.A.. Z
-ONE IS HETEROGENEOUS, SHOWS EVIDENCE OF BRECCIATION/
RE-WORKING OF HOST ROCK, POSSIBLE INDICATION OF FLOW
CONTACT.

27183 27371 FGXDC/FACPF FGMX MX A+
5GCL A*
INTERVAL OF QTZ AMYGDULES IN A MASSIVE BASALTIC-ANDES
-ITE FLOW, SAMPLE TAKEN OF THIS INTERVAL. AMYGDULES
2-3MM IN DIAMETER, ACCOUNTS FOR 3-5% OF THE MODE,
RANDOM ORIENTATION/ORIENTATION.

27462 27549 FGXANVCACPF FGMX9115 MX
5NCL 6 0
FINE GRAINED BLACK, MAFIC COMPOSITION ROCK, RANDOMLY
ORIENTED/DISTRIBUTED WHITE, BLOCKY, SUBHEDRAL PLAGIOC
-LASE GRAINS (1-2MM, <5%) THROUGHOUT, ROCK MAY REPRES
-ENT TUFF OR HYALOCLASTITE WITHIN THE MAFIC FLOW.

27996 28108 FGXAN/FACPF FGMX MX A+
3GCL A* P+
INTERVAL OF QTZ AMYGDULES IN A MASSIVE BASALTIC-ANDES
-ITE FLOW, MINOR PERVASIVE CHLORITIZATION.

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A001   1336  1372     D1700
A001   2540  2578     D1701
A001   2736  2779     D1702
A001   5349  5420     D1703
A001   8138  8192     D1704
A001   9449  9497     D1705
A001  10505 10556     D1706
A001  11887 11928     D1707
A001  13259 13299     D1708
A001  15692 15784     D1709
A001  18666 18720     D1710
A001  19500 19543     D1711
A001  20361 20419     D1712
A001  21212 21260     D1713
A001  22710 22753     D1714
A001  23584 23645     D1715
A001  24298 24354     D1716
A001  26058 26101     D1717
A001  27247 27290     D1718
END
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IDEN6B0201  284 139-77  BQ  09JUL91DGM   MIDWAPR77      TRIGRD000.00          0119
LPRJPLACER DOME INC.                    PINEBAY - LAKE ATHAPAPUSKOW
 D00      0  3048MT  163.37288.00-70.00              6071754.00 331997.80    291.38
S001  3048  6096     163.37288.00-66.00
S002  6096  9144     163.37288.00-58.00
 D03  9144 12192     163.37288.00-37.00
 D04 12192 16337     163.37288.00-31.00
/NAM                                                    QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                    AKTACLLIHEMGPYPRCPSL
 SCL          MT.2PC.0
LSCL          PC.0      LCTM
A001
 UMM                  SAMP  SIO2  FE2O   CAO   MGO  NA2O   K2O  TIO2    ZR   LOI
          0  1585       CASE
PMSV  1585  5202  MFXDC/FACPF   MXFG          MX      A)    +)          <)
                    3GCL  AMFX          FO    45              U*
R                   THIS UNITIS GENERALLY COMPOSED OF MASSIVE FINE GRAINE
R                   D BASALTIC-ANDESITE FLOW. THE UNIT IS SLIGHTLY CHLORI
K                   TIC AS A RESULT OF REGIONAL GREENSCHIST METAMORPHISM.
R                   LOCALLY AMYGDALOIDAL. AMYGDULES ARE COMPOSED OF QTZ.
                    PYRITE CUBES AND MINOR VEINLETS ARE PRESENT IN MANY
                    PARTS OF THE CORE. LOCAL INTERVALS OF ANDESITIC TUFF,
                    POSSIBLE HYALOCLASTITE. DISTINGUISHED BY EQUANT TO CI
R                   RCULAR QTZ. GRAINS, BLUISH-WHITE, (2-6MM, 5-7%) AND
                    GREENISH-WHITE TO PINK BLOCKY FELDSPAR GRAINS, INTERV
R                   ALS @ 40CM IN THICKNESS, UNIT IS MINOR IN ENTIRE SEQ-
                    UENCE OF BASLATIC-ANDESITE. FLOW BRECIATION FABRIC IS
R                   EMPHASIZED BY PERVASIVE, INTENSE EPIDOTIZATION WITHIN
R                   THESE AREAS. BRECCIA FRAGMENTS ARE EXTRAPOLATED TO BE
                    @ 10 CM IN DIAMETER. 32 CM WIDE INTERVAL OF INTENSE E
                    PIDOTIZATION FROM 46.94 TO 47.47M
P     5202  6812  MFXANVCACPFPY*XTFG8115      BN    55
                    5GCL   CTLM 6 0      FO    55                  D)
R                   WELL TO POORLY BANDED ANDESITIC COMPOSITION TUFF. LIG
P                   HT TO MEDIUM GREEN, FINE GRAINED, GRANULAR TEXTURE.
I                   BANDS PARALLEL FOLIATION, RANGE FROM 2-10MM IN THICK-
K                   NESS. PYRITE DISSEMINATED THROUGHOUT, LOCALLY AS EUH-
R                   EDRAL CUBES UP TO 5MM TO A SIDE, LOCALLY AS NARROW
                    SEAMS PARALLEL BANDING (2MM, <1%)
L     6812 10180  MFXDC/FACPF   FGEF          MX
R                   3GCL   MX
                    THE CONTACT BETWEEN THE ANDESITIC VOLCANICLASTIC, DEF
I                   INED BY DISTINCT BANDING, MILD FOLIATION AND RANDOMLY
R                   ORIENTED/DISTRIBUTED FELDSPAR GRAINS (BLOCKY TO ELON-
P                   GATE ANGULAR) IS NOT DEFINED BY ANY PLANAR FEATURE,
I                   UNIT BECOMES MASSIVE WITH NO DEFINABLE FABRIC TO LABE
K                   L IT AS A POSSIBLE VOLCANICLASTIC. THE UNIT IS MASSIV
R                   E, MEDIUM GREY-GREEN IN COLOUR, EQUIGRANULAR FINE GRA
                    INED.
I     10180 13899 LL1DCVCQZPF   FGLM          MX
R                   5A                                              D=
I                   THIS UNIT IS A GRADATION FROM 68.12 TO 101.80, ANDES-
R                   ITIC TO DACITIC COMPOSITION TUFF. ROCK UNIT HAS A GRA
I                   NULAR TEXTURE, LOCALLY SUBROUNDED LITHIC FRAGMENTS
R                   ARE PRESENT (2-10MM, <1% OF THE MODE OVER THE ENTIRE
I                   INTERVAL).
K                   SAMPLE D1726 IS MASSIVE GRANULAR TEXTURES. LOCALLY,
R                   INTERBEDS OF ANDESITE, RHYODACITE AND RHYOLITE (TUFFS
                    ?) (CHORNEY, 1977)
I     13899 14295 PY=CHERQZPY                 LA    85
```

7A L=
CORE HAS BEEN SPLIT AND ANALYZED BY CHORNEY IN 1977. CU AND ZN CONTENTS HAD A MAXIMUM LEVEL OF 0.05%. PYRITE OCCURS IN WELL DEFINED LAMELLAE, UP TO 10MM IN THICKNESS, DISPLAY SYMMETRICAL GRADING, THEREFORE YOUNGING DIRECTION CANNOT BE ASCERTAINED. THE UNIT CONSISTS OF LAMINATED CHERT AND SULPHIDE (PYRITE) WITH RHYODACITE TUFF. REPRESENTS A QUIESCENT PERIOD BETWEEN VOLCANISM DURING WHICH SULPHIDES AND OXIDES COULD BE DEPOSITED AND PRESERVED. CHORNEY (1977) REPORTED THAT THE UNIT WAS STRONGLY SHEARED. THIS MAY HAVE BEEN ON ACCOUNT OF THE BANDING PRESENT WITHIN THE UNIT.

14295 16337 LCXDC/FQZPF MX

7AAC

LIGHT TO MEDIUM GREY, FINE GRAINED, MASSIVE, HOMOGENEOUS UNIT. VERY SIMILAR TO THAT OF THE ANDESITE FLOW INTERSECTED AT HIGHER ELEVATION IN THE HOLE. BANDING IS INDICATION OF TUFFACEOUS ORIGIN, OR MILD FOLIATION NOT PRESENT. RANDOMLY ORIENTED/DISTRIBUTED PLAGIOCLASE FELDSPAR GRAINS, BLOCKY SHAPE, ANHEDRAL TO SUBHEDRAL X'TALLINITY, (2MM, <3%)

A001	2362	2408	D1719	63.1	9.41	1.68	2.52	4.11	1.06	.54	157.	2.38
A001	4580	4633	D1720	67.58	8.5	1.71	1.07	4.18	.88	.54	137.	1.38
A001	5956	5997	D1721	66.32	5.57	3.87	1.8	1.46	2.76	.4	139.	4.79
A001	7356	7402	D1725	71.43	5.31	1.76	1.9	2.38	1.94	.26	182.	2.52
A001	11595	11641	D1726	70.94	5.06	.81	2.14	1.27	3.14	.23	185.	2.78
A001	14575	14625	D1727	67.99	5.45	1.6	2.49	4.11	1.1	.31	151.	2.59

/END

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IDEN6B0201  284 140-77  BQ  10JUL91JFM   MIDWAPR77      TRIGRD000.00          0119
LPRJPLACER DOME INC.                    LAKE ATHAPAPUSKOW - PINE BAY
                                                  6071357.00 331540.09     291.38
 000      0  3048MT  260.90313.00-70.00
S001   3048  6096    260.90313.00-69.00
S002   6096  9144    260.90313.00-65.00
S003   9144 12192    260.90313.00-62.00
S004  12192 15240    260.90313.00-55.00
S005  15240 18288    260.90313.00-50.00
S006  18288 21336    260.90313.00-48.00
S007  21336 24384    260.90313.00-47.00
S008  24384 26090    260.90313.00-26.00
/NAM                                                  QZPFKFEPACHBCZMSCAD:
 NAM                                                  AKTACLLIHEMGPYPRCPSL
/SCL          MT.2PC.0
LSCL              PC.0        LCTM
 001
 JMM                      SAMP
P            0    610        CASE
PMSV       610   4145    MX9RD/FQZ  AC7EMMX              FO    22      Q)
                                    3G  PF3A*                        V(  D1      U-
K                                   THIS IS A VERY MASSIVE ANDESITE FLOW, SLIGHTLY ALTERE
R                                   -D BY CHLORITE. UP TO 15% AMYGDULES PRESENT IN SOME
                                    SECTIONS. SOME VERY SMALL SECTIONS (15CM IN LENGTH) H
                                    -AVE UP TO 40% EPIDOTE AND ARE USUALLY AROUND QTZ BLO
R                                   -BS. VERY LITTLE MINERALIZATION THROUGHOUT THE INTERV
                                    -AL. SOME SECTIONS BRECCIATED.
                                    UNIT IS RHYODACITIC IN COMPOSITION.
P          4145  14905    MX8RD/FQZHBPF5EMMX          FO    29      Q(        V)
                                    6G  AC4FO                       V.  D=      B-
                                    DACITIC FLOW WITH REGULAR FOLIATION BUT OTHERWISE MAS
                                    -SIVE, FEW CA AND QTZ VEINLETS, VERY SLIGHT ALTERATIO
                                    -N. PRESENCE OF SLIGHTLY MORE SILICEOUS LAYERS (APPRO
                                    -XIMATELY 1-5CM IN WIDTH).
                                    UNIT IS RHYODACITIC IN COMPOSITION.
P          14905 15423    S5XRD/FQZPF   SHEF                          V=V=
                                    4AAC   VV                      E)  V=      V=V(V.V.
                                    THE UNIT HAS BEEN PREVIOUSLY SAMPLES AND IT IS THEREF
                                    -ORE VERY HARD TO MAKE GOOD OBSERVATIONS OF THE CORE
                                    (SINCE ITS ALL IN 5CM PIECES). THERE ARE NUMEROUS VEI
                                    -NS OF QUARTZ AND SOME OF CALCITE BUT THEY ARE ALL
                                    BROKEN UP. GOOD MINERALIZATION, ESPECIALLY IN QTZ (EU
                                    -HEDRAL PYRITE). VERY STRINGER RICH UNIT.
R          15423 20597    F3XRDVCHBQZPF5MXEM          FO    47V=                V=
                                    4A  AC4FOXT                $/      V)  V)      U(
                                    DACITIC TUFF, EQUIGRANULAR, MEDIUM GRAINED, QUITE MAS
                                    -SIVE BUT FOR A SLIGHT FOLIATION THAT BECOMES A VERY
                                    DEFINITE BEDDING GOING TOWARDS THE BOTTOM OF THE HOLE
                                    . SOME QTZ X'TALS ARE PRESENT IN VARIOUS BUT SHORT
                                    INTERVALS.
                                    UNIT IS RHYODACITIC IN COMPOSITION.
L          16520 16855    S37                         SH
                                                                C3      V+D(
                                    A SHEARED, QTZ VEIN-RICH AND CARBONATE ALTERED ZONE W
                                    -ITH 1-5% PYRITE.
D          19111 19202      X                                D1
                                    SEGMENT CONTAINING COARSER QTZ X'TALS.
P          20597 20635    MS8RYVCQZACPF3[DMG          BD    18                  L1
                                    9G  MS5XT                                   U)
                                    A SMALL BUT VERY DISTINCT, HIGHLY SERICITIZED RHYOLIT
                                    -E TUFF WITH COARSE QTZ X'TALS.
```

P 20635 23043 BD9DCVCQZHBAC6MXBD BD 67 L=
5A PF4FG L) L= U)
ANDESITIC TO DACITIC TUFF WITH ROCK FRAGMENTS, NICELY
BEDDED WITH ****STRATIGRAPHIC TOP INDICATED TOWARD BO
-TTOM OF HOLE (WEST)**** VERY FEW QTZ CRYSTALS BUT SO
-ME QTZ VEINS WITH PYRITE MINERALIZATION. FEW ALTERAT
-ION (CHLORITATION). PRESENCE OF PYRITE DISSEMINATION
-S, EUHEDRAL GRAINS. SOME SMALL CHERTY LAYERS AND SLI
-GHT CARBONATE ALTERATION.
UNIT IS DACITIC IN COMPOSITION.
P 23043 26090 CL2DCVCHBQZPF5MXFG $/
4A AC3FR BD 75V1L=V1 L=L)
DACITE TUFF WITH SOME ROCK FRAGMENTS. SOME STRINGERS
WITH MINERALIZATION (PYRITE AND LITTLE PYRRHOTITE).
SOME ALTERATION (CHLORITIC) THROUGHOUT. FEW BEDS VISI
-BLE. THE LAST 2 BOXES OF CORE ARE MISSING.

A001 1250 1295 D1839
A001 3620 3668 D1840
A001 4519 4613 D1841
A001 6736 6782 D1842
A001 9540 9586 D1843
A001 12441 12487 D1844
A001 14661 14707 D1845
A001 15850 15898 D1846
A001 18184 18227 D1847
A001 21900 21946 D1848
A001 23713 23759 D1849
/END

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IDEN6B0201  284 U2-15   AXT 08AUG91DGM   CERRJAN70      TRIGRD000.00         0119
LPRJPLACER DOME INC.                  PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  3048MT  148.44120.03-30.00          6071618.12 331867.20    230.76
S001   3048  6096    148.44120.03-23.00
S002   6096  9144    148.44120.03-12.00
 003   9144 14844    148.44120.03-10.00
 NAM                                                  QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                  AKTACLLIHEMGPYPRCPSL
 SCL          MT.2PC.0
 SCL          PC.0       LCTM
A001
AUMM
 MSV      0  1933        ANVCACPF   FGFO          FO    35A+
                         3GQZ   AM                      <+
R                        SOMEWHAT DEBATEABLE UNIT, COULD BE AN ANDESITIC FLOW
                         OR TUFF. FINE GRAINED, DARK GREEN UNIT WITH A MILD TO
R                        MODERATE FOLIATION @35 TO C.A.. COMPOSED OF A FINE GR
                         AINED AGGREGATE OF SUBHEDRAL BLOCKY PLAGIOCLASE AND
R                        ACTINOLITE GRAINS (<1MM, 50:50 DISTRIBUTION). GRAINS
                         ARE RANDOMLY ORIENTED AND DISTRIBUTED. THE LACK OF A
R                        SUB-OPHITIC TEXTURE OR EUHEDRAL/ACICULAR GRAINS MAY
                         SUGGEST THAT THE UNIT IS TUFFACEOUS. QUARTZ AMYGDULES
R                        ARE ALIGNED IN BANDS PARALLEL TO THE FOLIATION. AMYG-
                         DULES OCCUR IN CONCENTRATED INTERVALS OF @ 10CM. CAN
R                        ACCOUNT FOR 7-10% OF THE MODE LOCALLY. AMYGDULES ARE
                         @ 7MM IN DIAMETER
     1933  5123    A5XRDVCPFQZ   FGFO9005      FO    50              P7
L                        5W       BN78 O       VC    65>1
R                        FINE GRAINED, LIGHT YELLOWISH-WHITE, INTENSELY SERICI
                         TIZED, RHYODACITE TUFF. HAS BEEN TERMED AN "AGGLOMERA
R                        TE" IN 1970; HOWEVER THERE IS NO EVIDENCE OF LITHIC
                         FRAGMENTS. ROCK IS ABSENT OF QUARTZ X'TALS, MINOR QTZ
R                        GRAINS (<1%, 2-3MM), EQUANT SHAPE ASSOCIATED WITH 5MM
                         QUARTZ VEINS PARALLELING FOLIATION PLANE. PYRITE BAND
R                        S. NOTE, GRAIN SCALE IS IN PECENTAGE FINE AND COARSE
                         COARSE FRACTION, NOT WENTWORTH SCALE.
     2987  3073    A3XPPFQQZPF   ECPP                                P1P3
L                        5WMS   MX                                  D+
R                        MARKER HORIZON QUARTZ-FELDSPAR PHYRIC RHYOLITE UNIT.
                         COARSE GRAINED, EQUANT SHAPED, YELLOWISH-WHITE TO
R                        GREENISH-WHITE PLAGIOCLASE GRAINS (3-4MM, 25%), QTZ P
                         HENICRYSTS (2MM, 3%), RANDOMLY ORIENTED/DISTRIBUTED.
R                        MATRIX IS COMPOSED OF A FINE GRAINED AGGREGATE OF
                         MUSCOVITE AND QTZ AND PLAGIOCLASE. MATRIX ACCOUNTS FO
R                        R @50% OF MODE.
     5123  6126      DCVCPFQZ   FGFO9115      FO    82              P1
                         5AAC   XT  76 O                  P1
                         FINE GRAINED, MEDIUM GREY, MILDLY FOLIATED, QTZ-FELD-
                         SPAR X'TAL TUFF, DACITIC TO RHYODACITIC COMPOSITION.
                         QTZ GRAINS ARE EQUANT, SUBROUNDED, 2MM DIAMETER,ACOUN
                         TS FOR @5-7% OF THE MODE. PLAGIOCLASE X'TALS ARE
                         WEATHERED A LIGHT ORANGE. GRAINS ARE 1MM IN DIAMETER
                         , ACCOUNT FOR 7% OF MODE. UNWEATHERED PLAGIOCLASE GRA
                         INS, SUBHEDRAL, ELONGATE ALONG FOLIATION PLANE, UP TO
                         7 X 3MM, ACCOUNTS FOR 10-15% OF MODE. PRESENCE OF QTZ
                         GRAINS AND FELDSPAR GRAINS DISTINGUISHED THIS UNIT FR
                         OM RDVC. SERICITIC ALTERATION IS MUCH LESS THAN RDVC
                         UNIT.
                         NOTE THAT THE S SCALE IS NOT WENTWORTH, REFERS TO PER
                         CENTAGE DISTRIBUTION OF GRAIN FRACTION.
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6126	8352	A3XTFLPPFAC	XTMG8226	FO	80		P2
			5AQZ FOBN54 O	BN	80	P2	

MEDIUM GRAINED, GRANULAR TEXTURED, MODERATELY TO MILD LY FOLIATED, DACITIC COMPOSITION LAPILLI-TUFF. LIKELY A VERTICAL FACIES CHANGE FROM THE HOMOGENEOUS DACITIC TUFF DESCRIBED IN INTERVAL 51.23-61.26M. LITHIC FRAGM ENTS ARE NOT EASILY DISTINGUISHED IN THE UNIT, MODER- ATE COMPACTION HAS OBLITERATED MANY OF THE MORE SUBTL E LITHIC BOUNDARIES WITH MATRIX. FRAGMENTS RANGE FROM IRREGULAR SHAPE TO ELLIPTICAL SUB-ROUNDED SHAPE, ACC- OUNT FOR 20-25% OF THE MODE. COMPACTION OF FRAGMENTS HAS PRODUCED A BANDING FABRIC. MAXIMUM DIMENSION OF FRAGMENTS 30MM X 10MM. INTERSTITIAL TO FRAGMENTS, MAT RIX IS FINE GRAINED, PHYLLOSILICATE-RICH, POSSIBLE EQ UAL DISTRIBUTION AMONG CHLORITE AND MUSCOVITE.

7790	7945	A3XDCVCPFAC	FGXT9005	FO	75	P1
			5AQZ FO 37 O			

FINE GRAINED, MEDIUM GREY, HOMOGENEOUS, QTZ X'TAL TUF F. MATRIX IS COMPOSED OF SUB-ANGULAR, ANHEDRAL X'TALL INITY GRAINS OF PLAGIOCLASE AND ACTINOLITE (<1MM, 50: 50 DISTRIBUTION). RANDOMLY ORIENTED/DISTRIBUTED THRO- UGHOUT, SUB-ANGULAR QTZ GRAINS AND FELSIC LITHIC FRAG MENTS. QTZ GRAINS/LITHIC FRAGMENTS, GREY. FORMER 1-2M M. LATTFR 10 X 5 MM. ACCESSORIES ACCOUNT FOR 5-7% OF MODE.
THE S SCALE HAS BEEN ALTERED TO REFER TO PERCENTAGE DISTRIBUTION OF COARSE AND FINE FRACTIONS.

8352	11473	A3XDCVCPFAC	FGXT9005	MX		
			5AQZ O			P2

FINE GRAINED, RELATIVELY MASSIVE, MEDIUM GREY, SUB- ROUNDED ACTINOLITE/PLAGIOCLASE COMPOSED UNIT. GRAINS ARE <= 1MM DIAMETER, SUB-ANGULAR TO SUB-ROUNDED, 50: 50 DISTRIBUTION. RANDOMLY ORIENTED. IN LESS HOMOGENEO US INTERVALS, SUB-ROUNDED QTZ GRAINS, (3 X 4MM, <=3% LOCALLY) ARE RANDOMLY DISTRIBUTED. BROKEN SURFACES SH OW THAT CHLORITE CONTENT IS HIGH, POSSIBLE ALTERATION PRODUCT NOT RELATED TO METASOMATISM.
PARTICLE SCALE REFERS TO PERCENTAGE DISTRIBUTION NOT THE WENTWORTH SCALE.

10146	10546	A5XDCVCPFAC	FGXT	FO	70	
			5NQZ FO			P6

AS DESCRIBED IN THE PRINCIPLE INTERVAL ABOVE, IN CERR O LOGS, THIS INTERVAL IS IDENTIFIED AS QUARTZ PORPHYR Y. REASONING BEHIND THIS IS THAT THE MATRIX HAS BECOM E SUFFICIENTLY CHLORITIC THAT THE QTZ CRYSTALS BECOME VERY PROMINENT. THE ROCK IS AN INTENSELY CHLORITIZED QTZ-X'TAL DACITIC TUFF AS DESCRIBED PREVIOUSLY.

10668	11079	A5X				P6
11165	11473	A5X				P6
11473	13228	MSPYPYCP	MX	MX		MX

FROM THE CERRO MINING CORP. DD LOGS, THE MASSIVE SULP HIDE INTERVAL IS DESCRIBED AS BEING COMPOSED OF NEAR MASSIVE PYRITE, WITH ONLY TRACES OF CHALCOPYRITE, AND MINOR WHITE QUARTZ AND CHLORITE

11735	11838	XMSPYPYCP		M9

AS DESCRIBED IN THE PRINCIPLE INTERVAL, BUT WITH OCCA

SSIONAL LAYERS RICH IN CHALCOPYRITE. THE CERRO MINING LOGS REPORTTHAT THIS INTERVAL IS MUCH MORE CALCAREOUS THAN THE PREVIOUS INTERVAL.

12299 12713 A7XTFLPACPF FGPC MX
3GQZ P7
FINE GRAINED, MASSIVE CHLORITIZED DACITIC LAPILLI-TUF F. LAPILLI ARE SUB-ROUNDED TO ROUNDED, ACCOUNTS FOR @ 50% OF MODE. LOCALLY CLASTS SUB-ROUNDED. LAPILLI, MEA N DIMENSION (10-15MM IN DIAMETER). MATRIX IS FINE GR- AINED, DEVOID OF QTZ X'TALS OR OTHER CRYSTALS. INTERV AL CONTAINS MASSIVE CHLORITE, ALTERATION OF DACITIC T UFF.

12713 13228 XMSPYPYCP
L=
MASSIVE FINE GRAINED PYRITE WITH SOME COARSE PYRITE AND OCCASSIONAL PATCHES OF CHALCOPYRITE. LAYERS OF WHITE TALC ARE COMMON (CERRO MINING LOG).

13228 13716 DCVCPFQZ FGMX9005 FO 70
5GAC 67 O
A LIGHT TO MEDIUM GREY-GREEN, FINE GRAINED, VERY MILD LY FOLIATED, SLIGHTLY GRANULAR TEXTURED ANDESITIC TO DACITIC COMPOSITION TUFF. THE CONSTITUENT GRAINS ARE ALL SUB-ROUNDED (<1MM).

13716 14844 RDVCPFQZ FGXT9115 FO 45 P1
5W 76 O D)
FINE GRAINED, WHITE WITH A GREENISH TINGE, RHYODACITI C TO RHYOLITIC IN COMPOSITION, TUFF. QTZ GRAINS ARE R OUNDED (2MM, 7%), RANDOMLY DISTRIBUTED THROUGHOUT THE UNIT. UNIT MAY HAVE UNDLRGONE VERY MILD SERICITIC ALT -ERATION. WEATHERED SURFACE, ORANGEY-RED, RESULTS FRO M WEATHERING OF PHYLLOSILICATES AND MINOR PYRITE GRAI NS.

001	1082	1158	D1797	4.49	.56	.18	2.38
001	2083	2141	D1798	1.97	2.78	.18	3.72
R	2822	2830	D1799	THIN SECTION			
001	3018	3073	D1800	5.65	2.22	.2	6.48
001	5648	5710	D1801	.06	1.96	.1	3.11
A001	7800	7879	D1802	.05	1.42	.14	4.69
A001	10673	10742	D1803	.01	.04	.14	.37
001	13584	13660	D1804	.11	2.58	.1	7.3
001	14630	14691	D1805	3.18	2.34	.14	8.22

/END

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IDEN6B0201  284 U2-16    AXT 09AUG91JFM   CERRJAN69       TRIGRD000.00          0119
IPRJPLACER DOME INC.                                PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  6096MT  155.49137.97  1.00                6071618.00 331867.44    231.68
3001   6096 15549     155.49127.00  4.00
/NAM                                                          QZPFKFEPACHBCZMSCAD:XXYY
 NAM                                                          AKTACLLIHEMGPYPRCPSL
 SCL          MT.2PC.0
LSCL              PC.0        LCTM
 001
 UMM                    SAMP
PMSV      0  1984     CLXANVCQZ  PF5EFFO          FO    58
L                             8G  AC5BNA*          BN    58V(  D1
                              ANDESITIC TUFF (TUFFACEOUS TEXTURE DETERMINED BY BAND
                              ING BUT THE UNIT IS QUITE MASSIVE SO IT COULD ARGUEAB
R                             LY BE A FLOW). VERY DARK. SOME SECTIONS TEND TO BE NE
                              ARER TO DACITIC COMPOSITION (COULD BE SILICA BLEACHIN
                              G) AND ARE PALER. THE FIRST 1.5M IS FRACTURED; FRACTU
R                             RES FILLED BY CARBONATE AND BLEACHING HAS TAKEN PLACE
R                             . ANKERITE IS PRESENT IN THE FRACTURES. AMYGDULES AP-
                              PEAR EVERY NOW AND THEN BUT FOR SHORT INTERVALS. THEY
R                             ARE QUARTZ, AVERAGE 3MM DIAMETER
P     1984  4191     A5XRDVCPFAC   FOBN          FO    75              D7
                              5TQZ              BN    75V1          U(
                              ALTHOUGH THE UNIT IS SOMEWHAT RECOGNIZABLE AS A RHYO-
R                             DACITIE TUFF, IT COULD NEARLY BE CALLED A SERICITE
                              SCHIST BECAUSE OF ITS APPEARANCE. IT IS SERICITIZED A
                              ND THERE IS MANY VEINLETS/STRINGERS OF ANKERITE. QTZ
R                             CRYSTALS PRESENT, VARYING BETWEEN 1-3MM. SOME PYRITE
R                             PRESENT, DISSEMINATED BUT ALSO IN SMALL QUARTZ VEINS.
      2621  2819     A3XPPFQQZPF   FGCT          FO    67              H1D3
                              7TAC   FO
R                             QUARTZ-FELDSPAR PORPHYRY. RHYOLITIC COMPOSITION. THE
                              MATRIX IS SERICITIZED (30%) BUT THE CRYSTALS ARE MOST
                              LY UNALTERED IF NOT FOR SOME CLINOZOISITE ON PLAGIOCL
R                             ASE. THE QUARTZ CRYSTALS ARE RANGING FROM 0.2 TO 0.7
                              CM AND MAKE UP 50% OF THE ROCK. FELDSPAR CRYSTALS ARE
                              RANGING FROM 0.1 TO 0.5 CM, ARE EQUANT AND MAKE UP TO
                              50% OF THE ROCK.
P     4191  5334     A3XDCVCPFAC   FOEF          FO    78              D3
                              3AQZ   BN           BN    78V)  D1      U)
                              DACITE TUFF. THIS UNIT IS LIKELY SERICITIZED COMPARED
R                             TO THE PREVIOUS UNIT. THE TOP CONTACT IS ARBITRARY
                              SINCE BOTH RHYODACITE AND DACITE ARE ALTERNATING IN
                              SMALL SUCCESSIVE BANDS.
N     5212  5227       XTFLPPFAC   CTFO          FO    78
                              7AQZ                        D2      U)
                              VERY SMALL BUT DEFINITE UNIT. LAPILLI ARE BETWEEN
                              1-3 CM, MAINLY DACITIC.
P     5334  6142     A3XDCVCPFAC   FOMG          FO    60              D1
                              3AQZ              BN    60    D2      U)
                              DACITE TUFF WITH SOME REGIONAL QUARTZ CRYSTALS, NEVER
R                             FORMING MORE THAN 2%, THE UNIT IS SOMEWHAT SIMILAR TO
                              THE PREVIOUS UNIT BUT WITH COARSER GRAINS AND LESS
                              SERICITE ALTERATION. CHLORITE IS MORE PRESENT.
P     6142 15094        TFXTQZ  PF5MGXT          BN    85
L                             3A  AC4BNCT                   D2  V(  U+
                              QUARTZ CRYSTAL TUFF. DACITIC COMPOSITION AND QUARTZ
                              CRYSTALS. THE CRYSTALS VARY IN CONCENTRATION, SOME-
R                             TIME MAKING UP TO 10% OF THE ROCK, SOMETIME ABSENT.
                              THEY ARE APPROXIMATELY 1-2 MM IN DIAMETER. THESE ALSO
```

IS CLASTS, MORE COMMON AFTER METERAGE 83. THEY ARE MOSTLY QUARTZ CLASTS. THE ROCK IS BROKEN UP BETWEEN 72 AND 75 METRES. SOME PARTS ARE FRAGMENTAL BUT VERY LITTLE AT A TIME. THERE IS A LITTLE HEMATITE IS SOME SMALL VEINS. THIS UNIT, ALTHOUGH CALLED A TUFF, COULD BE A FLOW, BUT THE QUARTZ FRAGMENTS (CLASTS) SOMEWHAT INDICATE A TUFF.

10638 10775 CLXMSCL CLXMX MX
1G U1 P(
MASSIVE CHLORITE WITH PYRITE AND LITTLE CHALCOPYRITE.

10775 11400 CLXMSCL CL9 MX
D:1 U)
MASSIVE CHLORITE WITH 10% DOLOMITE CRYSTALS (AVERAGIN G 0.5CM IN DIAMETER). THERE IS SOME SMALL (10CM) OF NEARLY MASSIVE PYRITE AND CHLACOPYRITE BUT OTHERWISE THE INTERVAL IS DEVOID OF SULPHIDE.

11400 12192 XMSSXCPD: MX MX
7APY
MASSIVE SULPHIDE BUT THE DOLOMITE CRYSTALS ARE STILL VISIBLE THROUGH THE SULPHIDE

12192 14478 XMSSXPYCP MX MX
7AQZ
MASSIVE PYRITE WITH SOME BLEBS OF CHALCOPYRITE AND A LITTLE QUARTZ (FROM 121.92 TO 129.54 M MISSING, OLD LOGS USED). SMALL CHLORITE ZONES GOING FROM 135.03 - 135.64, AND SOME SMALLER INTERVALS AROUND 136.70, 137.98, 140.09, AND 140.82 METRES.

14478 14509 CLXMSCL CLX MX
MASSIVE CHLORITE WITH SHARP CONTACT AT BOTTOM WITH QU ARTZ VEIN. END OF MASSIVE SULPHIDE OR ANY KIND OF SULPHIDE.

14509 14540 XQZ/V V/
5W U(L/
QUARTZ VEIN WITH TRACE OF SPHALERITE NEAR UNALTERED O R WEATHERED PYRITE.

14540 15094 X D=
D3
THE QUARTZ CRYSTAL TUFF IS DEVOID OF CRYSTALS AND IS VERY CHLORITIZED.

15094 15545 TFXTPFAC XTCT FO 58
8GQZ FOBN BN 58
QUARTZ FELDSPAR CRYSTAL TUFF WITH SOME LAPILLI. THIS UNIT IS QUITE SERICITIC AND A LITTLE CHLORITE IS ALSO NOTICEABLE. THE COMPOSITION OF THE MATRIX IS DACITIC TO ANDESITIC BUT FINE GRAINED AND QUITE DIRTY (THERE IS A LOT OF SMALL STRINGERS AND VEINLETS THAT HAVE BEEN SERICITIZED). QUARTZ CRYSTALS ARE RANGING FROM 0.05 TO 0.2 CM IN DIAMETER AND MAKE UP 5-10% OF THE ROCK. FELDSPAR CRYSTALS ARE RANGING FROM 0.05 TO 0.4 CM IN DIAMETER AND MAKE UP TO 15% OF THE ROCK. LAPILL I ARE SCARCE AND FAR APART. THEY ARE RATHER SMALL (2-3 CM DIAMETER) AND MAKE UP LESS THAN 1% OF THE ROCK. THEY SEEM TO BE OF DACITIC COMPOSITION.

A001	1219	1280	D1892
A001	2134	2195	D1893
)01	2748	2804	D1894
)01	4572	4633	D1895
A001	5639	5698	D1896
)01	7772	7833	D1897

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A001 10058 10119     D1898
A001 14935 14996     D1899
 001 15392 15453     D1900
/END
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IDEN6B0201  284 U6-16    AXT 05AUG91JFM   CERRMAY69       TRIGRD000.00          0119
LPRJPLACER DOME INC.                                PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  3048MT    67.66132.25-36.00                    6071581.24 331954.22    109.05
S001  3048  4420      67.66132.00-26.00
S002  4420  6096      67.66132.00-20.00
S003  6096  6766      67.66132.00-16.00
LNAM                                                        QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                        AKTACLLIHEMGPYPRCPSL
 SCL          MT.2PC.0
 SCL              PC.0          LCTM
A001
AUMM                        SAMP
 MSV       0   4932      MS2TFLPQZ   PF5CTFO              BN     40                 D3
                                     3A  AC3BN              FO     40     D=
R                                    LAPILLI TUFF WITH FEW FRAGMENTS BEING OF BLOCK SIZE (
                                     BUT ALWAYS LESS THAN 10CM). COMPOSITION OF MATRIX
                                     RANGING FROM DACITE TO RHYODACITE. MANY SECTIONS ARE
R                                    LAPILLI-LESS (SEE DITTO INTERVAL BELOW). LAPILLI ARE
                                     AVERAGING 2-3CM IN DIAMETER AND OF VARIED COMPOSITION
                                     BUT PREDOMINANTLY DACITIC. THEY ARE WELL FLATTEENED.
R                                    THE ALTERATION IS MAINLY SERICITIC, BUT A LITTLE CHLO
R                                    RITE IS ALSO PRESENT. CLASTS SUPPORTED (40-6-% CLASTS
                                     )
         0    503       X                 FG
L                                                                          D)
                                     THIS IS A ZONE WITH ALMOST NO CLASTS. IT IS FINE GRAI
                                     NED AND OF A MORE DACITIC COMPOSITION. THERE IS UP TO
R                                    1% EUHEDRAL PYRITE IN THE MATRIX
D       503    610       X                                                     D)
R                                    PYRITE CONTINUES TO BE PRESENT IN THE MATRIX OF THE
R                                    LAPILLI TUFF.
        876   1181       X                 FG
                                     CLAST REDUCED INTERVAL. 5% CLASTS. THE COMPOSITION
R                                    TENDS TO BE MORE RHYODACITIC
D      1693   1762       X                 FG
                                     CLAST REDUCED INTERVAL, 10% CLASTS
D      2723   3759       X                 FG                        V+
R                                    CLAST REDUCED INTERVAL, 2% CLASTS. THE COMPOSITION TE
                                     NDS TO BE MORE DACITIC
D      4041   4161       X                 FGFR
R                                    NO CLASTS BUT THE ROCK IS SLIGHTLY FRAGMENTED. LOSS O
                                     F FOLIATION
       4877   4932       X                                                     D+
L                                                                    D3
P                                    BEGINNING OF MASSIVE SULPHIDE ZONE. HIGHLY CHLORITIZE
                                     D.
P      4932   6248        MSSXPYPR    BNMX                BN     45
L                                    2YCP   FG
                                     MASSIVE SULPHIDE ZONE. BANDED MASSIVE FINE GRAINED
R                                    PYRRHOTITE AND PYRITE WITH IRREGULAR FRAGMENTS OF
                                     UNREPLACED CHLORITE. FROM BEGINING TO 51.4M IS PRE-
R                                    DOMINANTLY PYRRHOTITE AND IS OF A DARK RUSTY RED COL-
R                                    OUR AS OPPOSED TO AFTER METERAGE 52.5 WHICH IS A MORE
                                     YELLOWISH COLOUR WHICH WOULD INDICATE A MORE PYRITE
                                     -RICH AREA. THE PYRRHOTITE SECTION IS HIGHLY MAGENTIC
                                     .
P      5136   5182     CLXMSCL     CLXMX                MX
L                                    5N
                                     SMALL INTERVAL OF PURE CHLORITE.
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P       6248   6766     CL3TFXTQZ  PF6MXMG              MX
L                              2G  AC4XT                          D3       D1
                               QUARTZ CRYSTAL TUFF MAKING 5% OF CORE. VERY CHLORITIC
A001     178    236     D1888
A001    2926   2987     D1889
A001    4755   4807     D1890
A001    6553   6614     D1891
/END
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IDEN6B0201  284 U6-30   AXT 02AUG91DGM   CERRJUL69       TRIGRD000.00          0119
APRJPLACER DOME INC.                          PINEBAY MINE - CERRO MINING
 000      0  4541MT    45.41135.13  0.00            6071636.08 332024.60    111.35
 /NAM                                                    QZPFKFEPACHBCZMSCAD:
 LNAM                                                    AKTACLLIHEMGPYPRCPSL
 SCL         MT.2PC.0
 SCL             PC.0        LCTM
 A001
 JMM                  SAMP  SIO2  FE2O   CAO   MGO   NA2O   K2O  TIO2    ZR   LOI
 MSV      0  2307     ALXDCVCPFAC   FGXT0115      FO     65                P2
                          5GMS   FOBN77 O       BN          P2
                    THIS ENTIRE HOLE IS COMPOSED OF SUBTLE COMPOSITIONALL
                    VARYING DACITIC TO RHYODACITIC TUFF. COMPOSITIONAL
                    INTERPRETATIONS MAY BE AFFECTED BY SUPERIMPOSED FE-
                    CARBONATE, SERICITE AND CHLORITIC ALTERATION PRODUCTS
                    THE ROCK IS TYPICALLY LIGHT TO MEDIUM GREEN, FINE
                    GRAINED. MATRIX IS COMPOSED OF A FINE-GRAINED AGGREG-
                    ATE OF CHLORITE AND WHITE MICA. THE MATRIX TYPICALLY
                    ACCOUNTS FOR >=75% OF THE MODE. RANDOMLY ORIENTED AND
                    DISTRIBUTED THROUGHOUT INTERVALS ARE QTZ AND FELDSPAR
                    X'TALS AND SMALL (<20MM X 5MM) LITHIC FRAGMENTS.
                    COMPOSITIONAL BANDING DEFINED BY ALTERNATING WHITE AN
                    D GREEN BANDS. WHITE BANDS, 3MM IN THICKNESS, ALTERN-
                    ATING WITH GREEN BANDS - MATRIX MATERIAL. QTZ GRAINS
                    ARE SUB-ROUNDED, EQUANT IN SHAPE, TYPICALLY 1.5-2.5MM
                    IN DIAMETER, LOCALLY ACCOUNTING FOR UP TO 10% OF THE
                    MODE. FELDSPAR GRAINS, LESS EVIDENT DUE TO ALTERATION
                    , HAS SUBDUED GRAIN BOUNDARIES. WHERE EVIDENT, GRAINS
                    ARE SUB-ANGULAR, ELONGATE, UP TO 12MM X 3MM (POSSIBLE
                    LITHIC FRAGMENTS WHERE DIMENSIONS ARE THIS LARGE).
                    TYPICAL GRAIN SIZE, 2.5MM, ACCOUNTING FOR ABOUT 7-10%
                    OF THE MODE.
       0   518    A5X                                                  P3
                                                          P2
     572   650    A7X                                                  P3
                                                          P3
     742   772    A7X                                                  P3
                                                          P3
    1156  1910    A5X                                                  P3P)
                                                          P2
    2307  2392       LOST
    2392  3741       DCVCPFAC   FGXT9115      FO
                         5GMS   FOBN77 O      BN
                       DACITIC TO RHYODACITIC TUFF, FINE GRAINED, LOCALLY
                       FE-CARBONATIZED AND SERICITIZED, DESCRIPTION AS AT 0.
                       00 TO 23.07M
    2517  2616    A3X                                                  P2
                                                          P2
                       MILD TO MODERATE FE-CARBONATIZATION OF A SERICITE-
                       RICH DACITIC TO RHYODACITIC TUFF
    3741  4059    ALXRDVCMSQZ   FGFO   2       FO    75                P8
                         7A              0            P2
                       VERY FINE GRAINED, GREY-WHITE, VERY SUBTLELY FOLIATED
                       , WHITE-MICA-RICH RHYODACITE TO RHYOLITE TUFF. GRADA-
                       TIONAL FROM THE UNDERLYING AND OVERLYING DACITIC TUFF
                       WHICH HAS A SIGNIFICANTLY HIGHER CHLORITE CONTENT. NO
                       QUARTZ GRAINS ARE VISIBLE.
    4059  4529    A3XDCVCPFQZ   FGFO82 5       FO    90
                         5GCL                          P1
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FINE GRAINED, LIGHT TO MEDIUM GREEN, DACITIC COMPOSIT
ION TUFF. ROCK IS COMPOSED OF ANHEDRAL X'TALLINITY,
RANDOMLY ORIENTED AND DISTRIBUTED PLAGIOCLASE GRAINS
(<1MM, 40-50%) AND INTERSTITIAL QTZ GRAINS, SUBANGULA
R TO SUBROUNDED, <MM. LIGHT TO MEDIUM GREEN TINGE, GE
NERATED BY GROUNDMASS CHLORITE. FE-CARBONATE-LIKE A
INING MAY BE PRODUCED BY WEATHERING OF PHYLLOSILICATE
S., ALTHOUGH FE-CARBONATE VEINLETS ARE PRESENT THROU-
GHOUT THE INTERVAL.

R
R
R
R

D001	650	719	D1775
A001	1445	1501	D1776
A001	3962	4023	D1777
END			

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IDEN6B0201  284 U6-42    AXT 04AUG91DGM    CERRAUG69       TRIGRD000.00          0119
LPRJPLACER DOME INC.                                 PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  7711MT    77.11154.30 60.00                    6071548.30 331863.66    111.18
 NAM                                                              QZPFKFEPACHBCZMSCAD:
LNAM                                                              AKTACLLIHEMGPYPRCPSL
 SCL          MT.2PC.0
 SCL              PC.0          CTM
A001
AJMM
                                  NOTE THAT THE WENTWORTH SCALE DOES NOT APPLY HERE. TH
                                  E SIZE FRACTIONS ARE IN PERCENTAGES. WHERE 10% IS
                                  NOTED THE SIZE FRACTION MAY BE LESS.
 MSV      0    500      A5XRYVCMSQZ    FGFO9117       FO     55                  P8
                                  5WPF         67 O
                                  FINE GRAINED, YELLOWISH-WHITE, MODERATELY FOLIATED
                                  RHYOLITIC COMPOSITION TUFF, INTENSELY SERICITIZED.
                                  ROCK CONTAINS UP TO 3-5% MODAL PERCENT OF ROCK FRAG-
                                  MENTS. FRAGMENTS ARE U   O 20 X 10 MM, WITH LONG DIM-
                                  ENSION ALIGNED ALONG F.  TION. FRAGMENTS ARE VOLCAN-
                                  ICLASTIC IN ORIGIN, FIN. RAINED, LIGHT GREY, DACITIC
                                  ? IN COMPOSITION. GRAINS/FRAGMENT ARE ELLIPTICAL IN
                                  SHAPE. NOTE - VOLCANICLASTIC COMPOSITION IS HEAVILY
                                  DEPENDENT ON COLOUR INDEX WHICH MAY BE HEAVILY INFLU-
                                  ENCED ON DEGREE OF ALTERATION PRESENT.
P         500  1463      A3XDCVCACPF    FGFO9116       FO     60
                                  5GCL         67 O
                                  MEDIUM GREEN TO MEDIUM GREY, FINE GRAINED UNIT. COMPO
                                  SED OF SUBHEDRAL, BLOCKY ACTINOLITE AND PLAGIOCLASE
                                  FELDSPAR GRAINS (<<1MM X 1MM, 50:50 DISTRIBUTION).
                                  POSSIBLY REACHING ANDESITIC COMPOSITION LOCALLY. LOCA
                                  L WHITE EQUANT, SUB-ROUNDED, LITHIC FRAGMENTS, 10 X 5
                                  MM, MAXIMUM DIMENSION, ACCOUNTS FOR UP TO 3% OF MODE.
     1463  3048      A5XRDVCMSQZ    FGFO           FO     75
                                  5TAK    BN             BN     75
                                  FINE GRAINED, BANDED, FOLIATED, FE-CARBONATE VEINED,
                                  TAN COLOURED UNIT. INCIPIENT COLOUR IS LIGHT GREENISH
                                  -YELLOW. UNIT IS DISTINCTLY MORE BANDED THAN PREVIOUS
                                  UNIT.

                                  *UNIT COULD EASILY BE TERMED RHYOLITIC VOLCANICLASTIC
                                  . BANDING FORMED THROUGH ALTERNATING WHITE-YELLOW, WH
                                  ITE MICA-RICH BANDS (1-10CM), AND LIGHT GREEN BANDS (
                                  MORE CHLORITE-RICH) UP TO 1CM IN THICKNESS. DOMINANT
                                  BANDING FEATURE CAUSED BY RED-BROWN WEATHERED CARBON-
                                  ATE (<1CM, ACCOUNTS FOR >50% VOLUME).
P    3048  7711        DCVCACPF    FGFO9115       FO     70
                                  5AQZ    BNXT68 O       BN     70
                                  UNIT IS FINE GRAINED, MEDIUM-GREEN, APPARENTLY ENTIRE
                                  LY UNLATERED. UNIT IS PREDOMINANTLY FINE GRAINED,
                                  HOMOGENEOUS, HOWEVER LOCAL INTERVALS OF HIGHER QUANT-
                                  ITIES FO ROCK FRAGMENT AND/OR QTZ AND FELDSPAR X'TALS
                                  WHERE PRESENT, ROCK FRAGMENTS UP TO 30MM TO A SIDE,
                                  SUB-ANGULAR, ACCOUNTS FOR @3% OF MODE OVER ENTIRE
                                  INTERVAL, LOCALLY UP TO 10%.
N    3484  3527        XRYVCMSQZ    FGFO           FO     70
                                  7W
                                  FINE GRAINED, SOLID WHITE, WITH MINOR STREAKS OF PALE
                                  YELLOW, CRYSTAL-POOR/ABSENT RHYOLITE TUFF.
N    3721  3762        XCHEMCLMS    BDFOX  3       BD     65                  L3
                                  5YPY    FG     0       FO     65     L3       L2
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R                          DELICATELY LAMINATED CHLORITE, MUSCOVITE AND PYRITE.
R                          BEDS RANGE IN THICKNESS FROM 2-3MM TO 20MM.
      4315  4348      XMSSX     PY9MXFG           MX
                               CP)
R                          FINE GRAINED MASSIVE SULPHIDE, PREDOMINANTLY PYRITE,
                           NO BEDDING EVIDENT, NO ALTERED STRUCTURAL FOOTWALL OR
                           HANGINGWALL
N     5730  5761      XMSSX     PYXFGMXX  3       MX
                               CL+       O                    J+       X9
                           VERY NARROW INTERVAL OF MASSIVE, NON-BEDDED PYRITE.
A001   315   371    D1778
A001   940  1031    D1779
A001  2070  2134    D1780
A001  2657  2738    D1781
A001  4620  4694    D1782
A001  7036  7107    D1783
END
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IDEN6B0201  284 U6-46    AXT 05AUG91DGM   CERRSEP69       TRIGRD000.00          0119
IPRJPLACER DOME INC.                                PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  3048MT   182.33294.45-50.00                  6071522.42 332058.92    110.01
S001   3048   6096     182.33303.00-44.00
S002   6096  10058     182.33299.00-40.00
S003  10058  15240     182.33296.00-37.00
 004  15240  18233     182.33296.00-18.00
/NAM                                                          QZPFKFEPACHBCZMSCAD:
LNAM                                                          AKTACLLIHEMGPYPRCPSL
 SCL         MT.2PC.0
LSCL              PC.0        LCTM
A001
 UMM                    SAMP
 MSV      0   1689     FGXDC/FACCL   FGMX            MX
L                                5GPF                VQ    90
                                 UNIT IS FINE GRAINED, MEDIUM GREEN, MASSIVE. SHOWS NO
                                 BANDING OR FOLIATION TO SUGGEST A VOLCANICLASTIC ORI-
R                                GIN. ***NOTE*** THAT GRAINS ARE NOT ACICULAR OR BLOCK
R                                Y, AS EXPECTED IN FLOW, SOMEWHAT EQUANT IN SHAPE, TH-
                                 EREFORE POSSIBLE INDICATION THAT DEALING WITH MASSIVE
R                                INTERVAL OF TUFF. UNIT IS DACITIC TO ANDESITIC IN COM
R                                POSITION.
      1689   6888     FGXDCVCACPF   FGFO9115        FO    65
                                 3A      BN   8 O       BN    65
R                                DARKER GREY-GREEN, FINE GRAINED, MILDLY TO MODERATELY
R                                FOLIATED DACITIC TO DACITIC-ANDESITIC COMPOSITION TU-
                                 FF. UNIT HAS A GRANULAR TEXTURE. UNIT IS LOCALLY INT-
R                                ERBEDDED WITH CREAM WHITE, FINE GRAINED, RHYOLITE TU-
R                                FF.
      3048   3901     A3XDCVCMSAC   FGFO            FO    60
                                 7GPF
R                                UNIT IS AS PREVIOUSLY DESCRIBED; HOWEVER A MILD TO MO
                                 DERATE SERICITIZATION HAS RESULTED IN A BLEACHING OF
                                 THE UNIT.
DFLT   3908   3928       XFALT                       FL    25
L
                                 NARROW FAULT ZONE, LIKELY VERY LITTLE IF ANY STRATIG-
R                                RAPHIC DISPLACEMENT, IS A SLIP. COMPLETE RECRYSTALL-
R                                IZATION OF DACITIC TUFF TO FINE GRAINED MYLONITE.
      6096   6706     A7XTFLPCLMS   FGFO8116        FO    65
                                 3G          76 O                  P6      L1  B)
R                                UNIT IS INTENSELY CHLORITIZED, MEDIUM TO DARK GREEN
                                 IN COLOUR. CLASTS RANDOMLY DISTRIBUTED BUT CONSISTENT
R                                ENTLY ORIENTED PARALLEL TO THE FOLIATION. FRAGMENTS
R                                ARE ELLIPTICAL, SUB-ROUNDED, TYPICAL DIMENSIONS 10MM
                                 X 4-5MM. ACCONTS FOR 15% OF MODE. UNIT IS ESSENTIALLY
                                 A COARSER GRAINED EQUIVALENT OF THE DCVC; HOWEVER
R                                ALTERATION IS MUCH MORE INTENSE.
D      6761   6888     A7XTFLPCLTA   FGFO8116        FO    70
                                 3G          76 O                P2P3
R                                UNIT IS VERY EASILY SCRATCHED AND CLEAVED. FOLIATION
R                                PLANES HAVE A DISTINCTIVE SLIPPERY FEEL, TALC?
                                 SAMPLE TAKEN AT 67.97M FOR THIN SECTION TO ASCERTAIN
                                 IF TALC IS PRESENT.
PMSX   6888   8321       MSSXPYPR   FGMX            MX
L                                                                      Y4X4
      6888   7535       XMSPY
                                                                       XX
R                                MASSIVE FINE GRAINED PYRITE. CERRO MINING CORP. DIAM-
                                 OND DRILL LOGS INDICATE CHALCOPYRITE OCCURS IN "FAIR
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                        AND MINOR QUANTITIES."
      6919  7017        MASSIVE PYRITE WITH FAIR CHALCOPYRITE.
      7017  7224        MASSIVE PYRITE WITH MINOR CPY.
      7224  7376        MASSIVE PYRITE WITH FAIR TO GOOD CPY.
      7376  7529        MASSIVE PYRITE WITH MINOR CPY.
      7535  7699  A5XMSCLCLPY                    MX
                        3G                                    P9      U1
                        MASSIVE DARK GREEN, FINE GRAINED, CHLORITE-RICH, ALT-
                        ERATION PRODUCT OF POSSIBLE FELSIC VOLCANICLASTIC. NO
                        TEXTURES OR FABRICS PRESENT TO SUGGEST ORIGINAL ROCK
                        TYPE. RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT, EUHED
                        RAL PY. GRAINS, 4MM TO A SIDE, ACCOUNTS FOR 7% OF MO-
                        DE.
      7696  8321    XMSPRPR
                        5P                                              XX
                        MASSIVE PYRRHOTITE, WEATHERS A MEDIUM, REDDISH-PURPLE
                        , DISTINCTIVELY DIFFERENT COLOUR THAN THE MASSIVE PY.
      7696  7849        MASSIVE PYRRHOTITE, WITH PYRITE AND MINOR CPY, CHLOR-
                        ITE REMNANTS.
      7849  8001        MASSIVE PYRRHOTITE WITH PYRITE AND FAIR TO GOOD CPY.
      8001  8153        MASSIVE PYRRHOTITE WITH PYRITE AND FAIR CPY.
      8135  8321        MASSIVE PYRRHOTITE WITH PYRITE AND FAIR CPY.
      8321 10089  PCXTFLPPFCL   FGCT5557      FO    90
                        5GAC       43 O
                        UNIT IS ESSENTIALLY UNDEFORMED LAPILLI-TUFF. MATRIX
                        SUPPORTED, PREDOMINANTLY, LOCALLY OVER SHORT INTERVAL
                        S CLAST SUPPORTED. CLASTS HETEROLITHIC, LIGHT GREY-
                        GREEN, AND WHITE , ANDESITIC AND DACITIC TUFFS RESPEC
                        TIVELY? ANDESITIC TUFF, LARGER CLASTS, UP TO 30MM IN
                        DIAMETER, FINE GRAINED, ACCOUNTS FOR 20-25% OF MODE.
                        LIGHT WHITE, SUB-ROUNDED GRAINS, TYPICALLY 3-4MM IN D
                        IAMETER, RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT,
                        ACCOUNTS FOR 10-15% OF MODE. CLASTS ORIENTED IN PLANE
                        OF FOLIATION, ELONGATED.
      8321  8595  A7XTFLPCLAC       5558       MX
                        3GPF       43 O                         P5
                        LAPILLI BLOCK TUFF, POSSIBLY ORIGINALLY DACITIC IN
                        COMPOSITION; HOWEVER NOW INTENSELY CHLORITIZED. BLOCK
                        S GREY-GREEN, UP TO 10CM IN SECTION, INTERSTITIAL TO
                        BLOCKS MASSIVE DARK GREEN CHLORITE.
     10089 12954    DCVCPFAC   FGFO9116       FO    80                P1
                        5GCL       77 O       BN    80
                        FINE GRAINED, GREY-GREEN, MODERATELY FOLIATED, DACITI
                        C COMPOSITION TUFF. COMPOSED OF SUBHEDRAL GRAINS
                        (<= 1MM) OF PLAGIOCLASE FELDSPAR, QTZ AND ACTINOLITE.
                        ACTINOLITE IS MORE INTERSTITIAL TO THE QTZ AND PLAG-
                        IOCLASE. EQUAL BUT RANDOM DISTRIBUTION OF ALL MINER-
                        ALS. LITTLE OR NO CHLORITE ALTERATION; HOWEVER FOLIAT
                        ION PLANES CONTAIN LIGHT GREEN MICAS.
     10554 10584  A7X        AK6                          B+
                                                          >6
                        BLOSSOMS OF MASSIVE FE-DOLOMITE IN TWO SECTIONS WITHI
                        N INTERVAL, MASSIVE, NO DEFINITIVE ORIENTATION.
     10711 10729  A7X        AK5
                        CL3                          >5   P3
     10922 10975  A5X        AK5
                                                     <5   P1
                        INTERVAL OF PERVASIVE FE-CARBONATE ALTERATION. CARBON
                        ATE OCCURS AS MICRO/MACROVEINS AS WELL AS PERVASIVELY
                        THROUGHOUT THE UNIT, SUBORDINATE (<10%) PERVASIVE CHL
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R                          -ORITIZATION IS ASSOCIATED WITH THIS.
N   11057 11257    A5XTFLPQZPYPY3FGCT4557      VQ    50
                   5APF       33 O                                J3
K                  LAPILLI TUFF UNIT HOSTED WITHIN MODERATELY FOLIATED
R                  DACITIC TUFF. CLASTS ARE FINE GRAINED, SEMI-TRANSLU-
                   SCENT, CHERTY TEXTURED FELSIC COMPOSITION. CLASTS RA-
R                  NGE IN SIZE FROM 4MM TO 30MM, MEAN SIZE @ 25MM. UNIT
                   IS LOCALLY CLAST SUPPORTED, LOCALLY MATRIX SUPPORTED.
                   CLASTS CAN ACCOUNT FOR UP TO 75% OF THE MODE. CLASTS
                   ARE ANGULAR TO SUB-ANGULAR IN SHAPE, LITTLE RE-WORK-
R                  ING TAKEN PLACE.
D   11397 11839    A5X        AK4              BN    90
                                               VC    90>4
K                  DACITIC TUFF WHICH HAS BEEN CARBONATIZED, CARBONATIZA
R                  TION IS IN THE FORM OF MACROVEINS (10CM). MICROVEINS
                   (<1CM), AND REPLACEMENT OF BEDS/BANDS OF TUFF ON A
                   SELECTIVE BASIS.
D   12240 12954    A5XDCVCCLPF   FGBN8117       BN    65              P4
                   3AQZ   FO  66 O             FO    65    P3
                   UNIT IS FINE GRAINED, DARK GREY TO DARK GREEN-BLACK,
K                  MODERATELY CHLORITIZED DACITIC TUFF. UNIT IS COMPOSED
R                  OF SUB-ANGULAR GRAINS OF PLAGIOCLASE AND ACTINOLITE (
                   <=1MM), WHICH ACCOUNT FOR >=45% OF THE MODE RESPECT-
                   IVELY. THE ACTINOLITE GRAINS HAVE BEEN ALTERED TO CH-
R                  LORITE AND PLAGIOCLASE HAS BEEN ALTERED TO A YELLOW-
                   ISH-GREEN CLINOZOISITE.
    12751 12954    A5X    PYPF
L                         7YAC                                      D2
R                  PYRITE IS DISSEMINATED THROUGHOUT ABOUT 60-70% OF THE
                   INTERVAL ARE UNALTERED. PYRITE OCCURS AS DISSEMINAT-
K                  IONS, AGGREGATES OF DISSEMINATIONS, BLEBS, AND INTER-
R                  STITIALLY TO CLASTS.
    12954 13691    A5XTFLPPFAC   FGCT2777       BN    90
                   5APY       45 C                                J2
R                  DEBATEABLE PRINCIPLE INTERVAL. CLASTS, SUB-ROUNDED,
                   20 X 5-10MM, LIGHT TO MEDIUM GREY FINE GRAINED, ACCOU
                   -NTING FOR @70-75% OF MODE. ELONGATION OF "CLASTS" @
R                  90 TO C.A. FABRIC CAN BE GENERATED THROUGH THE FLATTE
R                  NING OF ALREADY SUB-ROUNDED CLASTS IN PRECURSOR ROCK
                   OR COULD BE CAUSED BY FLUXING OF HYDROTHERMAL FLUIDS
K                  CAUSING A PSEUDO-BRECCIA TEXTURE. PROXIMITY TO UNQU-
R                  ESTIONABLE LAPILLI TUFF UNIT AND MODE OF SULPHIDE MI-
                   NERALIZATION IN THE INTERSTICES BETWEEN THE CLASTS
                   SUGGESTS THAT THESE ARE REAL.
D   12954 13691    A5X    PFAC
                   5APY                                           J2
K                  PYRITE AS A SULPHIDIZATION ALTERATION, OCCURS AS SUBH
R                  EDRAL X'TALLINITY GRAINS, LOCALLY AS DISSEMINATIONS
                   BUT MORE FREQUENTLY AS INDIVIDUAL GRAINS (<=1MM, 20%)
                   INTERSTITIAL TO THE CLASTS WHICH ACCOUNT FOR UP TO
                   70% OF THE MODE.
P   13691 15994    A3XDCVCPFACPY2FGBN9115      BN    90
                   5ACL   FO  66 O             FO    90              U1
R                  MODERATELY WELL BANDED, FINE GRAINED, MODERATELY SUL-
P                  PHIDIZED WITH PYRITE. SUBHEDRAL X'TALLINITY GRAINS
                   TYPICALLY 1-1.5MM ON EDGE, ACCOUNT FOR ABOUT 15% OF
K                  MODE. LOCALLY AGGREGATED INTO PATCHES TO FORM WHAT
R                  APPEARS TO BE "CLASTS", ELLIPTICAL IN SHAPE, 30-35MM
                   ALONG LONG DIMENSION. FABRIC CAUSED BY HEAVIER CHLORI
                   TIZATION AND ISOLATION OF MORE PYRITIC BANDS. THIS IS
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BEST DISPLAYED IN THE INTERVAL 139.37M TO 139.57M. GRAINS COMPOSING TUFF ARE SUBROUNDED, 2-2.5MM IN DIAM ETER. TYPICAL GRAIN SIZE 1-1.5MM. LOCALLY THE TUFF CONTAINS 5MM SUBROUNDED CHERTY FRAGMENTS, ACCOUNTS FO R 7-10% OF MODE. PYRITE AS AT 158.01-158.5 M OCCURS A S 1-2MM BANDS, CONVOLUTED AT @90 DEGREES TO THE C.A. , ACCOUNTS FOR @20% OF MODE.

D 13691 15605 A3X PFMS P3
5APY B2
PYRITE AS SUBHEDRAL X'TALLINITY GRAINS, (1-2MM, UP TO 20% LOCALLY AS AGGREGATES INTO BANDS), PART OF CONTIN UED SULPHIDIC ALTERATION ZONE.

14478 15994 A3X PFMS P3
5APY
WHITE MICA ALONG FOLIATION PLANES OF DACITIC TUFF, ALTERATION PRODUCT.

15994 18233 A3XTFLPMSQZ FBBN7227 FO 80 P4
3ACL FOCT55 O BN 80 P1
UNIT IS COMPOSED OF IRREGULARLY ALTERNATING INTERVALS OF DACITIC COMPOSITION LAPILLI TUFF WITH WELL DEFINED FRAGMENTS AND FINE GRAINED CRYSTAL-POOR/ABSENT, FRAGM ENT-ABSENT, DACITIC, RHYOLITIC TUFF. MORE FELSIC COM- POSITION TUFFS MAY BE A RESULT OF PERVASIVE SERICITI- ZATION RESULTING IN A VERY LEUCOCRATIC ROCK. SERICITE ALTERATION IS THROUGHOUT ALL UNITS, CORE CAN EASILY B E PARTED WITH ONE HAND. FRAGMENTS ARE YELLOWISH-WHITE IN COLOUR. ELONGATE PARALLEL TO FOLIATION, UP TO 40MM IN LENGTH, TYPICALLY 5-10MM IN THICKNESS, ACCONTS FOR @ 30% OF THE MODE. SPHERICITY RANGES FROM ELLIPTICAL , SUB-ROUNDED TO SUB-ANGULAR, LOCALLY WELL BANDED, ALTERNATING BETWEEN YELLOWISH-WHITE BANDS 30MM IN THICKNESS AND MATRIX, FINE GRAINED DACITIC-RHYODACITI C SERICITE TUFF. YELLOWISH-WHITE BANDS ARE DISRUPTED , I.E. DO NOT CONTINUE ALL THE WAY THROUGH CORE, THER EFORE THIS MAY INDICATE THAT IS THICKER CLASTS IN A TUFFACEOUS MATRIX.

16038 16759 A3XRDVCMSQZ FGFO9116 FO 90 P4
5APF 76 O VC 90<=
FINE GRAINED, MEDIUM TO LIGHT GREY, DACITIC TO RHYODA CITIC TUFF. FOLIATION WELL DEVELOPED AT @90 DEGREES TO C.A.. FE-DOLOMITE VEINS AT @90 DEGREES TO C.A. VEI NS @ 7MM IN THICKNESS, ACCOUNT FOR @ 5% OF THE MODE OVER INTERVAL. THIS UNIT IS A FINER GRAINED FACIES (VERTICAL FACIES CHANGE FROM LAPILLI TUFF). LAPILLI ARE STILL PRESENT IN INTERVAL, SUB-ANGULAR, ELONGATE , PARALLEL TO FOLIATION, LARGER LITHICS, LIGHT GREY, FINE GRAINED, HOMOGENEOUS, 20MM X 10MM, ACCOUNTS FOR UP TO 5% OF MODE.

A001 500 564 D1784
A001 3620 3686 D1785
A001 4450 4519 D1786
A001 6424 6485 D1787
6797
A001 8458 8524 D1789
A001 9954 10025 D1790
A001 11493 11557 D1791
A001 12240 12314 D1792
A001 13499 13513 D1793
A001 15141 15222 D1794
A001 16942 16976 D1795

D1788 TALC + CHLORITE ALTERATION OF A LAPILLI TUFF.

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A001 17404 17473    D1796
/END


IDEN6B0201  284 U6-55   AXT 10AUG91JFM   CERRNOV69       TRIGRD000.00          0119
IPRJPLACER DOME INC.                                PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  3048MT  194.58312.85-85.00                6071479.04 332108.38    110.35
S001   3048  6096    194.58312.85-79.00
S002   6096 12192    194.58298.00-65.00
S003  12192 16368    194.58302.00-51.00
S004  16368 19458    194.58273.00-38.00
/NAM                                                  QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                  AKTACLLIHEMGPYPRCPSL
 SCL        MT.2PC.0
LSCL             PC.0        LCTM
A001
 UMM                    SAMP
 MSV      0 13929         DCVCQZ  PF6XTCT          BN     60                    V(
L                            3G  AC4MXBN          FO     60
                        THIS UNIT STARTS OUT WITH ROCK FRAGMENTS, CRYSTALS
                        (MOSTLY ALL FELDSPAR) AND SOME BANDING, THUS STRONGLY
                        INDICATING A TUFF, BECOMES VERY MASSIVE AND TEXTURE-
                        LESS (WHICH WOULD INDICATE A FLOW RATHER THAN A TUFF)
                        . THE CHANGE IS GRADATIONAL, THERE IS NO DEFINITE CON
                        TACT. MOST OF THESE TUFFACEOUS TEXTURES OCCUR BEFORE
                        METERAGE 50. FROM 50M ON IT IS VERY MASSIVE EXCEPT
                        FOR SOME SORT OF "MICROBRECCIAATION" WHICH SEEMS TO O
                        CCUR EVERY NOW AND THEN. BANDING RE-APPEARS OCCASSSIO
                        NALLY. SOME QUARTZ CRYSTALS APPEAR AFTER 60M. THEY AR
                        E ABOUT 0.3CM IN DIAMETER AND MAKE UP 5% OF THE MODE.
   6005  6949      X          PF5
L                             AC4
                        AROUND 60.05M THE QUARTZ CRYSTALS INCREASE IN NUMBER
                        AND GRADUALLY THE ROCK BECOMES A QUARTZ CRYSTAL TUFF
                        . CRYSTALS ARE VARYING FROM 0.05 TO 0.3CM AND MAKE UP
                        ABOUT 5% AT THE BEGINNING GOING TOWARDS 20% AT THE
                        END OF THE INTERVAL.
   7544  8007      X
L
                        THE SILICA CONTENT GOES UP A FAIR BIT. ROCK ALMOST NO
                        T ALTERED
   8382 13929      X
L
                        THIS IS POSITIVELY A TUFF; FOLIATION, BEDDING PLANES
                        AND ABRADED GRAINS.
  12061 12405      X                          BN     65
                                                                  P+
                        PYRITE IS NOW PRESENT. IT IS IN VEINLETS AND STRINGER
                        S BUT ALSO DISSEMINATED. THE ROCK ALSO CHANGES COMPO-
                        SITION TO BECOME A BIT MORE SILICA-RICH.
  12405 12619      X                          BN     65
                                                                  D=
                        SAME AS ABOVE BUT PYRITE IS NOW CLOSE TO 5%.
  12741 12843      X                          FO     50
                        FACIES CHANGES TEXTURE, COLOUR COMPOSITIONAL BANDING.
                        BANDS ARE 1-2CM WITH RAGGED EDGES TO THE BANDS. BAND-
                        ING IS PERPENDICULAR TO THE CORE AXIS AND FOLIATION
                        SEEMS TO BE AT 50 DEGREES.
  13929 16840       TFLPQZ  PF6CTFO          FO     62                     D1
                            2A  AC3BN          BN     62      D+             D+
                        LAPILLI TUFF. DACITIC COMPOSITION. LAPILLI ARE BETWEE
                        N 0.1 AND 3CM IN DIAMETER WITH AN AVERAGE OF 0.7 CM.
                        THEY MAKE UP FROM 75 TO 20% OF THE ROCK. THEY ARE OF
                        RHYODACITIC TO DACITIC ORIGIN WITH SOME QUARTZ CLASTS
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P     16840 17334       DCVCQZ  PF5MGXT              FO    51
L                           5A  AC4FO                  V(          D1
                            DACITIC TUFF WITH SOME (5%) QUARTZ CRYSTALS IN THE
                            FIRST FIVE METRES.
P     17334 19050       BRTFPFAC   BX                                    F1
                            3AQZ                                 D2       D2D+D+
                            BRECCIATED TUFF WITH SOME MASSIVE PYRITE BANDS (1-3
                            CM THICK) CONTAINING A LITTLE PYRRHOTITE AND CHALCO-
                            PYRITE.
      17515 18629       XMSSXPYPR   MX             MX
                              CP
                            MASSIVE SULPHIDE ZONE.
      17922 17953       XMSCL       MX             MX
                            5N
                            MASSIVE CHLORITE.
      18212 18243       XMSCL       MX             MX
                            5N
                            MASSIVE CHLORITE.
      18243 19050       X
                                                                    D1
                            THE CLASTS ARE MUCH LARGER (UP TO 5CM) AND THERE IS A
                            FAIR AMOUNT OF CHERT. PYRRHOTITE IS DISSEMINATED. THE
                            INTERVAL IS SILICIFIED.
      19050 19450        TFLPQZPF   CTFO             FO    55
L                           3GAC                    BN    55    D3
                            LAPILLI TUFF, PROBABLY THE SAME UNIT AS 139.29 TO 168
                            .40 M, BUT MORE CHLORITIC.
A001    305   366     D1901
A001   1829  1890     D1902
A001   3962  4023     D1903
A001   5639  5700     D1904
A001   7925  7986     D1905
A001  10211 10272     D1906
A001  12344 12405     D1907
A001  17221 17282     D1908
END
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IDEN6B0201 284 U6-58   AXT 12AUG91JFM   CERRDEC69   TRIGRD000.00   0119
LPRJPLACER DOME INC.
)00   0 3048MT 243.84340.07-85.00   PINEBAY MINE - CERRO MINING
S001   3048   6096   243.84341.00-77.00   6071479.59 332108.26   110.35
S002   6096   9144   243.84331.00-71.00
)03   9144 12192   243.84321.00-67.00
)04 12192 19202   243.84312.00-59.00
S005 19202 21793   243.84313.00-59.00
)06 21793 24384   243.84313.00-54.00
 NAM   QZPFKFEPACHBCZMSCAD:
LNAM   AKTACLLIHEMGPYPRCPSL
/SCL   MT.2PC.0
 SCL   PC.0   LCTM
..001
AUMM   SAMP
 MSV   0 15728   ANVCQZ   PF6CTFO   FO   50   V/
                                3A   AC4XT
                            LAPILLI TUFF OF ANDESITIC COMPOSITION. LAPILLI ARE UP
                            TO 10 CM IN DIAMETER AND MAKE UP CLOSE TO 10% OF THE
                            ROCK. THEY ARE MOSTLY OF FELDSPAR COMPOSITION WITH SO
                            ME QUARTZ CLASTS. THE ROCK IS OF A GREENISH COLOUR
                            BUT CONTAIN VERY LITTLE CHLORITE. IN THE UNIT COMPOSI
                            TION CHANGES SLIGHTLY FROM TIME TO TIME BUT ALWAYS FO
                            R SHORT INTERVALS. THUS A DACITIC COMPOSITIION IS SOM
                            -ETIME NOTICEABLE, BUT THE OVERALL UNIT IS ANDESITIC.
                            SOME SEGMENTS HAVE A VERY SPECIFIC TEXTURE; IT IS LIK
                            E A FINELY BRECCIATED ROCK BUT THEN IT CHANGES AND H-
                            AS THE APPEARANCE OF FISH SCALES (WHICH WOULD BE MORE
                            NORMAL IN A FLOW). AFTER 68.6M SMALL (0.2-0.3 CM) QU-
                            ARTZ CRYSTALS (ALTHOUGH SUB-ROUNDED) APPEAR EVERY NOW
                            AND THEN. THEY BECOME MORE ABUNDANT AFTER 75.75M MAK-
                            ING 1-2% OF THE ROCK.
          6782 6858   X
                            MANY (UP TO 10%) QUARTZ CRYSTALS. SUB-ROUNDED AND AP-
                            PROXIMATELY 2-4MM IN DIAMETER.
         11521 12192   X   BNFO   FO   45
                                                    BN   45   D1
                            TUFF OF ANDESITIC TO DACITIC COMPOSITION IN WHICH SI-
                            LICA BANDING (CHERT) HAVE APPEARED. THESE BANDS OF S-
                            ILICA VARY FROM 0.5 TO 10 CM IN WIDTH. THEY MAKE UP
                            15% OF THE ROCK. THE REST IS ANDESITE, BUT WITH A CE-
                            RTAIN SILICA BLEACHING. THE ANDESITIC SECTIONS ARE
                            SLIGHTLY CHLORITIC (10%).
         12541 12617   X
                                                                 D3
                            THIS SMALL SECTION IS MUCH MORE CHLORITIZED THAN THE
                            SURROUNDING CORE.
         12649 13396   X
                                                          L=   D1
                            THIS INTERVAL IS ALTERED BY ANKERITE IN SMALL VEINS,
                            DISSEMINATED AND IN SMALL BLEBS. CLASTS ARE A BIT MOR
                            -E DEFINED.
         13137 13202   XRDVCQZPF   EFMX   MX
                                3AAC
                            THE PREVIOUS UNIT TURNS INTO RHYODACITIC COMPOSITION.
                            THE CONTACT IS GRADUAL BUT OVER A VERY SHORT DISTANCE
                            THUS A TUFF.THERE IS SOME (4 OVER THE INTERVAL) QUART
                            Z VEINS APPROXIMATELY 1 CM IN WIDTH, 2 AT @ 90 DEG.
                            REES TO THE C.A. AND 2 AT 66 DEG. TO THE C.A.
         13457 13594   XRDVCQZPF   EMVV $/   V+

				8AAC		V+	
				THIS IS ANOTHER RHYODACITIC TUFF BUT THE CONTACT IS N			
				-OT WELL DEFINED.			
	13617	15088	X			V=	
						V= D2	D= D/
				PYRITE AND A LITTLE CHALCOPYRITE ARE PRESENT.			
	15163	15263	X			D3	
				HIGHER CHLORITE ALTERATION.			
	15728	16429	TFLPQZPF	CTBN	BN	65	D1
				7UAC		D= D1	D=
				LAPILLI BECOME THE MAIN PART OF THE ROCK (UP TO 85%). THEY ARE MAINLY RHYOLITIC, BUT MANY CLASTS ARE QUARTZ FRAGMENTS. THEY ARE ALL FLATTENED AND APPROXIMATELY 0.5 TO 3 CM IN DIAMETER. THERE IS QUITE A BIT OF PYR-ITE IN THE MATRIX (SURROUNDING THE CLASTS). LAPILLI ARE FLATTENED BUT ROUNDED AT THE EDGE (NO RUGGED EDG-ES). THIS INTERVAL GOES FROM 5% CHLORITE ALTERATION TO CLOSE TO 10% AT THE END OF THE INTERVAL. THE MATRIX, ALTHOUGH HARD TO DEFINE SEAMS RHYOLITIC TO RHYODACITI C MANY ANKERITE VEINLETS ARE IN BETWEEN CLASTS. THE-RE IS A BIT OF SERICITE ALTERATION.			
	16429	22860	TFLPPFAC	CTMX	MX		
				2G		E= D5	
				THIS IS A LAPILLI TUFF, BUT IT SEEMS THAT THE MATRIX HAS NOW ALL BEEN ALTERED TO CHLORITE. LAPILLI ARE MAINLY OF ANDESITIC COMPOSITION WITH SOME FELDSPAR CL ASTS NEAR THE BOTTOM OF THE UNIT. CLASTS ARE NOT FLAT -TENED (UNLIKE THE PREVIOUS UNIT) AND ARE GENERALLY B ETWEEN 2 AND 5 CM IN DIAMETER. THEY ARE ALSO ALTERED TO CHLORITE BUT ABOUT 10% (AS OPPOSED TO 80% FOR THE MATRIX). MATRIX IS PROBABLY OF ANDESITIC ORIGIN BUT IT'S VERY HARD TO SEE BETWEEN 175.28 AND 181.72M. THE RE IS AN ANKERITIC ENVELOPE AROUND THE CLASTS. CLASTS SEEM TO BE MUCH LESS FREQUENT AFTER 180M.			
N	18172	18448	XMSCL	MX	MX		
				5N			
				MASSIVE CHLORITE.			
D	19020	19355	X				
				IT SEEMS THAT ALL THE CLASTS ARE OF QUARTZ CONTENT.			
L	19172	19208	XMSCL	CLXMX	MX		
				5N			
				MASSIVE CHLORITE.			
	19986	21270	X				
				ALL CLASTS ARE EITHER CHERT OR PURE WHITE QUARTZ. THE -Y MAKE UP 90% OF THE ROCK. THE MATRIX IS STILL CHL-ORITE. CLASTS VARY FROM 1 CM TO ABOUT 10 CM IN DIAM-ETER. THEY ARE ROUNDED AND SLIGHTLY FLATTENED.			
N	21270	21336	XMSCL	CLXMX	MX		
				5N			
				MASSIVE CHLORITE.			
D	21519	21584	X		XT		
				QUARTZ CRYSTALS, 2MM IN DIAMETER, 5% OF THE ROCK.			
I	22037	22069	X				
				QUARTZ CRYSTALS, 2MM IN DIAMETER, 5% OF THE ROCK.			
N	22098	22464	XMSCL	CLXMX	MX		V(
				5N			E(
				MASSIVE CHLORITE. THERE IS A SMALL CARBONATE VEIN WIT -H PYRITE AS ENVELOPE.			
	22500	22530	X	PYCP			

R

FROM 225 M, PYRITE INCREASES FROM 5% TO 80% OF THE RO
-CK AT 225.30 M. THERE IS ALSO A BIT OF CHALCOPYRITE
IN THE ROCK.

D 22530 22555 X CPPY
MASSIVE CHALCOPYRITE WITH A FAIR AMOUNT OF PYRITE
(10%).

D 22555 22636 X U1
PYRITE CUBES IN THE LAPILLI TUFF WHICH IS ALL CHLOR-
ITIZED. 5-10% PYRITE.

D 22636 22708 X
50% OF PYRITE, CHALCOPYRITE AND PYRRHOTITE ALL MIXED
TOGETHER WITH THE LAPILLI TUFF TURNED TO CHLORITE.

D 22708 22738 X D1
10-15% DISSEMINATED PYRITE.

22860 24384 TFLPPFAC CTXT FO 55
4AQZ BNFO BN 55V1 D= L+
LAPILLI TUFF WITH ANDESITIC TO DACITIC MATRIX. QUARTZ
CRYSTALS LOCALLY. THEY ARE 0.2 CM IN DIAMETER AND MA-
KE UP TO 10% OF THE ROCK, BUT FOR ONLY VERY SMALL IN-
TERVALS. LAPILLI ARE MAINLY RHYOLITIC TO RHYODACITIC,
WITH SOME QUARTZ CLASTS. THEY AREL FLATTENED BUT ROUN
DED AT THE END. THEY MAKE UP TO 90% FO THE ROCK (AT
THE BEGINNING OF THE INTERVAL DOWN TO 5% NEAR THE
CENTRE OF THE INTERVAL). AFTER 239 M THERE IS A DEF-
INITE ANKERITE ALTERATION (GOING FROM 5% TO 25%) MOS-
TLY IN VEINS AND IN BETWEEN CLASTS. IN BETWEEN 236.2
AND 239M THERE IS ABOUT 5% PYRITE IN BEDS. CHLORITE
ALTERATION IS ABOUT 5%.
IS SILMILAR TO THE UNIT RUNNING FROM 157.28 TO 164.29
M.

R
R
A001 610 671 D1909
A001 2896 2957 D1910
A001 6248 6309 D1911
A001 8839 8905 D1912
A001 11887 11948 D1913
A001 14021 14082 D1914
A001 22098 22159 D1915
END

IDEN6B0201 284 U6-58   AXT 12AUG91JFM CERRDEC69   TRIGRD000.00   0119
PRJPLACER DOME INC.
PINEBAY MINE - CERRO MINING
000   0 3048MT 243.84340.07-85.00 6071479.59 332108.26   110.35
S001   3048 6096   243.84341 00-77.00
S002   6096 9144   243.84331.00-71.00
003   9144 12192   243.84321.00-67.00
S004 12192 19202   243.84312.00-59.00
S005 19202 21793   243.84313.00-59.00
006   21793 24384   243.84313.00-54.00
NAM
LNAM
SCL   MT.2PC.0
SCL   PC.0   LCTM
A001
AUMM   SAMP
MSV   0 15728   ANVCQZ PF6CTFO   FO   50   V/
                           3A AC4XT
R   LAPILLI TUFF OF ANDESITIC COMPOSITION. LAPILLI ARE UP
                           TO 10 CM IN DIAMETER AND MAKE UP CLOSE TO 10% OF THE
                           ROCK. THEY ARE MOSTLY OF FELDSPAR. COMPOSITION WITH SO
R   ME QUARTZ CLASTS. THE ROCK IS OF A GREENISH COLOUR
                           BUT CONTAIN VERY LITTLE CHLORITE. IN THE UNIT COMPOSI
R   TION CHANGES SLIGHTLY FROM TIME TO TIME BUT ALWAYS FO
                           R SHORT INTERVALS. THUS A DACITIC COMPOSITIION IS SOM
R   -ETIME NOTICEABLE, BUT THE OVERALL UNIT IS ANDESITIC.
R   SOME SEGMENTS HAVE A VERY SPECIFIC TEXTURE; IT IS LIK
                           E A FINELY BRECCIATED ROCK BUT THEN IT CHANGES AND H-
R   AS THE APPEARANCE OF FISH SCALES (WHICH WOULD BE MORE
                           NORMAL IN A FLOW). AFTER 68.6M SMALL (0.2-0.3 CM) QU-
R   ARTZ CRYSTALS (ALTHOUGH SUB-ROUNDED) APPEAR EVERY NOW
                           AND THEN. THEY BECOME MORE ABUNDANT AFTER 75.75M MAK-
R   ING 1-2% OF THE ROCK.
R
R   6782 6858   X
R   MANY (UP TO 10%) QUARTZ CRYSTALS. SUB-ROUNDED AND AP-
R   PROXIMATELY 2-4MM IN DIAMETER.
R   11521 12192   X   BNFO   FO   45
R   BN   45   D1
R   TUFF OF ANDESITIC TO DACITIC COMPOSITION IN WHICH SI-
R   LICA BANDING (CHERT) HAVE APPEARED. THESE BANDS OF S-
R   ILICA VARY FROM 0.5 TO 10 CM IN WIDTH. THEY MAKE UP
R   15% OF THE ROCK. THE REST IS ANDESITE, BUT WITH A CE-
R   RTAIN SILICA BLEACHING. THE ANDESITIC SECTIONS ARE
R   SLIGHTLY CHLORITIC (10%).
L
L   12541 12617   X   D3
L   THIS SMALL SECTION IS MUCH MORE CHLORITIZED THAN THE
L   SURROUNDING CORE.
L   12649 13396   X   L= D1
L   THIS INTERVAL IS ALTERED BY ANKERITE IN SMALL VEINS,
L   DISSEMINATED AND IN SMALL BLEBS. CLASTS ARE A BIT MOR
L   -E DEFINED.
L   13137 13202   XRDVCQZPF   EFMX   MX
L   8AAC
R   THE PREVIOUS UNIT TURNS INTO RHYODACITIC COMPOSITION.
R   THE CONTACT IS GRADUAL BUT OVER A VERY SHORT DISTANCE
R   THUS A TUFF.THERE IS SOME (4 OVER THE INTERVAL) QUART
R   Z VEINS APPROXIMATELY 1 CM IN WIDTH, 2 AT @ 90 DEG.
R   REES TO THE C.A. AND 2 AT 66 DEG. TO THE C.A.
N   13457 13594   XRDVCQZPF   EMVV $/   V+

QZPFKFEPACHBCZMSCAD:
AKTACLLIHEMGPYPRCPS

L
D 13617 15088 X

8AAC V+
THIS IS ANOTHER RHYODACITIC TUFF BUT THE CONTACT IS N
-OT WELL DEFINED.
V=
V= D2 D= D/
PYRITE AND A LITTLE CHALCOPYRITE ARE PRESENT.

D

L
L 15163 15263 X D3
HIGHER CHLORITE ALTERATION.
15728 16429 TFLPQZPF CTBN BN 65 D1
D= D1 D=
7UAC
LAPILLI BECOME THE MAIN PART OF THE ROCK (UP TO 85%).
THEY ARE MAINLY RHYOLITIC, BUT MANY CLASTS ARE QUARTZ
FRAGMENTS. THEY ARE ALL FLATTENED AND APPROXIMATELY
0.5 TO 3 CM IN DIAMETER. THERE IS QUITE A BIT OF PYR-
ITE IN THE MATRIX (SURROUNDING THE CLASTS). LAPILLI
ARE FLATTENED BUT ROUNDED AT THE EDGE (NO RUGGED EDG-
ES). THE INTERVAL GOES FROM 5% CHLORITE ALTERATION TO
CLOSE TO 10% AT THE END OF THE INTERVAL. THE MATRIX,
ALTHOUGH HARD TO DEFINE SEAMS RHYOLITIC TO RHYODACITI
C. MANY ANKERITE VEINLETS ARE IN BETWEEN CLASTS. THE-
RE IS A BIT OF SERICITE ALTERATION.
16429 22860 TFLPPFAC CTMX MX
E= D5
2G
THIS IS A LAPILLI TUFF, BUT IT SEEMS THAT THE MATRIX
HAS NOW ALL BEEN ALTERED TO CHLORITE. LAPILLI ARE
MAINLY OF ANDESITIC COMPOSITION WITH SOME FELDSPAR CL
ASTS NEAR THE BOTTOM OF THE UNIT. CLASTS ARE NOT FLAT
-TENED (UNLIKE THE PREVIOUS UNIT) AND ARE GENERALLY B
ETWEEN 2 AND 5 CM IN DIAMETER. THEY ARE ALSO ALTERED
TO CHLORITE BUT ABOUT 10% (AS OPPOSED TO 80% FOR THE
MATRIX). MATRIX IS PROBABLY OF ANDESITIC ORIGIN BUT
IT'S VERY HARD TO SEE BETWEEN 175.28 AND 181.72M. THE
RE IS AN ANKERITIC ENVELOPE AROUND THE CLASTS. CLASTS
SEEM TO BE MUCH LESS FREQUENT AFTER 180M.
18172 18448 XMSCL MX MX
5N
MASSIVE CHLORITE.
19020 19355 X
IT SEEMS THAT ALL THE CLASTS ARE OF QUARTZ CONTENT.
19172 19208 XMSCL CLXMX MX
5N
MASSIVE CHLORITE.
19986 21270 X
ALL CLASTS ARE EITHER CHERT OR PURE WHITE QUARTZ. THE
-Y MAKE UP 90% OF THE ROCK. THE MATRIX IS STILL CHL-
ORITE. CLASTS VARY FROM 1 CM TO ABOUT 10 CM IN DIAM-
ETER. THEY ARE ROUNDED AND SLIGHTLY FLATTENED.
21270 21336 XMSCL CLXMX MX
5N
MASSIVE CHLORITE.
21519 21584 X XT
QUARTZ CRYSTALS, 2MM IN DIAMETER, 5% OF THE ROCK.
22037 22069 X
QUARTZ CRYSTALS, 2MM IN DIAMETER, 5% OF THE ROCK.
22098 22464 XMSCL CLXMX MX V(
E(
5N
MASSIVE CHLORITE. THERE IS A SMALL CARBONATE VEIN WIT
-H PYRITE AS ENVELOPE.
22500 22530 X PYCP

R
D
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R

FROM 225 M, PYRITE INCREASES FROM 5% TO 80% OF THE RO
-CK AT 225.30 M. THERE IS ALSO A BIT OF CHALCOPYRITE
IN THE ROCK.

22530 22555 X. CPPY
MASSIVE CHALCOPYRITE WITH A FAIR AMOUNT OF PYRITE
(10%).

22555 22636 X
U1
PYRITE CUBES IN THE LAPILLI TUFF WHICH IS ALL CHLOR-
ITIZED. 5-10% PYRITE.

22636 22708 X
50% OF PYRITE, CHALCOPYRITE AND PYRRHOTITE ALL MIXED
TOGETHER WITH THE LAPILLI TUFF TURNED TO CHLORITE.

22708 22738 X
D1
10-15% DISSEMINATED PYRITE.

22860 24384 TFLPPFAC CTXT FO 55
4AQZ BNFO BN 55V1 D= L+
LAPILLI TUFF WITH ANDESITIC TO DACITIC MATRIX. QUARTZ
CRYSTALS LOCALLY. THEY ARE 0.2 CM IN DIAMETER AND MA-
KE UP TO 10% OF THE ROCK, BUT FOR ONLY VERY SMALL IN-
TERVALS. LAPILLI ARE MAINLY RHYOLITIC TO RHYODACITIC,
WITH SOME QUARTZ CLASTS. THEY AREL FLATTENED BUT ROUN
DED AT THE END. THEY MAKE UP TO 90% FO THE ROCK (AT
THE BEGINNING OF THE INTERVAL DOWN TO 5% NEAR THE
CENTRE OF THE INTERVAL). AFTER 239 M THERE IS A DEF-
INITE ANKERITE ALTERATION (GOING FROM 5% TO 25%) MOS-
TLY IN VEINS AND IN BETWEEN CLASTS. IN BETWEEN 236.2
AND 239M THERE IS ABOUT 5% PYRITE IN BEDS. CHLORITE
ALTERATION IS ABOUT 5%.
IS SILMILAR TO THE UNIT RUNNING FROM 157.28 TO 164.29
M.

A001 610 671 D1909
A001 2896 2957 D1910
A001 6248 6309 D1911
A001 8839 8905 D1912
A001 11887 11948 D1913
A001 14021 14082 D1914
A001 22098 22159 D1915
/END

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IDEN6B0201  284 U6-62    AXT 10AUG91DGM   CERRAPR70       TRIGRD000.00          0119
 PRJPLACER DOME INC.                    PINEBAY MINE - LAKE ATHAPAPUSKOW
 000      0  5791MT  220.37300.00-85.00              6071479.38 332108.32    112.38
S001   5791  7620    220.37298.00-73.00
 002   7620  9449    220.37295.00-68.00
 003   9449 10668    220.37291.00-65.00
S004  10668 11552    220.37291.00-61.00
S005  11552 12497    220.37291.00-60.00
 005  12497 13289    220.37296.00-56.00
 006  13289 14478    220.37294.00-54.00
S007  14478 15301    220.37294.00-55.00
 008  15301 22037    220.37289.00-52.00
 NAM                                                    QZPFKFEPACHBCZMSCAD:
LNAM                                                    AKTACLLIHEMGPYPRCPSL
 SCL         MT.2PC.0
 SCL              PC.0        LCTM
A001
AUMM                        SAMP
 MSV      0  1707          BRAFPFQZ   FGBX1998       MX
                             5GHB   MX  2  C
R                            MASSIVE, MEDIUM GREEN, FINE GRAINED, DACITIC COMPOS-
                             ITION PYROCLASTIC BRECCIA, POSSIBLE TUFF-BRECCIA. ALT
                             -ERNATES WITH MASSIVE DACITE FLOW?, WITHOUT FRAGMENTS
R                            . FRAGMENTS ARE ANGULAR TO SUB-ANGULAR, CLAST SUPPORT
R                            ED. 5-70MM IN LENGTH, UP TO 40MM IN WIDTH. LOCALLY
                             ACCOUNTS FOR > 90% OF THE MODE.
     1707  6126          DC/FPFAC   FGMXX  3       MX
L                            5GQZ         9 O
                             MEDIUM GREEN, APHANITIC, CHERTY TEXTURED, RHYODACITIC
R                            FLOW. RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT, FINE
R                            GRAINED X'TALLITES OF PLAGIOCLASE (<<1MM, 10%). NO
                             BEDDING/BANDING, FOLIATION PRESENT. ***NOTE*** THIS
R                            IS THE SAME UNIT AS THE INITIAL INTERVAL OF DDH U6-55
R                            , A THIN SECTION HAS BEEN TAKEN OF AN EQUIVALENT INTE
                             -RVAL IN ORDER TO RESOLVE WHETHER THE UNIT IS A FLOW
                             OR TUFF. RHYODACITIC TO DACITIC.
     3903  4018        XBRAFPFAC   FGBX1997       MX
L                            3GCL   MX     C
                             FINE GRAINED, GREY-GREEN, BRECCIATED, CHLORITIC DACIT
R                            E. FRAGMENTS, ARE SUB-ANGULAR TO SUB-ROUNDED; HOWEVER
                             ALL FRAGMENTS WILL JOIN TOGETHER AT BOUNDARIES. FRAG-
R                            MENTS, SAME COMPOSITION THROUGHOUT, @ 1CM DIAMETER.
                             DEFINED BY 1MM CHLORITE INTERSTITIAL VEINING.
     5486  5537        XBRAFPFAC   FGBX1997       MX
L                            3GCL          C
     6126  8956         DCVCPFAC   FGMX9115       MX
                             5GQZ        66 O
R                            FINE GRAINED, MEDIUM GREY-GREEN, DACITIC COMPOSITION
                             TUFF. THE UNIT IS DISTINGUISHED FROM THE PREVIOUSLY
R                            ENCOUNTERED DACITIC FLOW BY THE PRESENCE OF A MATRIX
R                            OF ROUNDED TO WELL ROUNDED GRAINS OF PLAGIOCLASE AND
                             QUARTZ. QUARTZ IS TYPICALLY EQUANT, ROUNDED, 8 MM
                             DIAMETER, ACCONTS FOR <= 2% OF THE MODE. MATRIX MATER
                             -IAL IS COMBINATION/AGGREGATE OF ACTINOLITE + PLAGIO-
R                            CLASE.
     7612  8169       XDCVCPFAC   FGMX9115       MX
                             5GQZ   XT
R                            THIS INTERVAL IS TERMED "QUARTZ PORPHYRY", IN THE
R                            CERRO LOG. THE UNIT IS A DACITIC COMPOSITION TUFF IN
                             WHICH THE QUARTZ CRYSTALS ARE MUCH MORE OBVIOUS, THAN
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IN OVERLYING OR UNDERLYING LITHOLOGY. QUARTZ GRAINS ARE IN TWO MODES, VITREOUS BLACK (1MM-0.3MM, <3%), AND VITREOUS GREY-BLACK (2.5MM, <3%), THESE LATTER GRAINS ARE TYPICALLY FRACTURED, WITH FRACTURE PLANES MARKED BY WHITE QTZ. GRAINS ARE ROUND, SET IN A SUB-ROUNDED, SUB-ANGULAR, ACTINOLITE-PLAGIOCLASE MATRIX. MATRIX ACCOUNTS FOR >90% OF THE MODE.

8956 10901 DCVCPFAC FGMX MX
5GQZ
FINE GRAINED, HOMOGENEOUS, GREY-GREEN UNIT. THE UNIT IS WITHOUT DISTINGUISHING FABRICS AND TEXTURES; HOWEVER LEADS OUT OF THE QTZ X'TAL TUFF, THEREFORE SUGGESTS A TUFFACEOUS NATURE FOR THIS UNIT ALSO. FRACTURING IS PRESENT IN THE UNIT, VERY SUBTLE, CAN BE RELATED TO FLOW BRECCIATION FABRIC SEEN IN UPPER PART OF HOLE, CONSIDER THAT THIS TUFFACEOUS UNIT MAY BE IDENTICAL TO THE OVERLYING FLOW. THIN SECTION TAKEN OF UNIT FOR IDENTIFICATION PURPOSES.

10901 14646 DCVCPFAC FGXT9115 FO 55
5GQZ FOBN O P1 D)
MEDIUM GREY-GREEN, FINE GRAINED, MILDLY TO MODERATELY FOLIATED DACITIC TO ANDESITIC COMPOSITION TUFF. FROM THE BEGINNING OF THE PRINCIPLE INTERVAL ONWARDS THE UNIT UNDERGOES MAJOR TEXTURAL VARIATIONS AND SLIGHT COLOUR VARIATIONS. LOCALLY THE UNIT BECOMES RHYODACITIC TO RHYOLITIC COMPOSITION, GOOD CONTACTS OCCUR AT THESE CHANGES IN COMPOSITION. ***NOTE*** PHYLLOSILICATE CONTENT, CHLORITE AND SERICITE INCREASES, THIS IS CONCOMMITANT WITH THE INCREASING FOLIATION. PYRITE IS LOCALLY PRESENT AS HEAVY AGGREGATES OF DISSEMINATIONS, LOCALLY UP TO 3-5% OF THE MODE.

12730 12807 XRYVCPFQZ FGFOX 3 FO 55 P2
5W
MUSCOVITE CONTENT HAS INCREASED, PERVASIVE, ACTS AS A MATRIX MINERAL AS WELL AS AN ALTERATION PRODUCT OF THE SUB-ROUNDED PLAGIOCLASE GRAINS.

13025 13546 XRDVCPFAC FGFO FO 60
5GQZ
MEDIUM GREEN, EXTREMELY FINE GRAINED, VERY SILICEOUS, RHYODACITIC TUFF. COMPOSED OF GRAINS (<1MM) SUB-ROUNDED TO SUB-ANGULAR. EQUAL DISTRIBUTION AMONG PLAGIOCLASE AND ACTINOLITE (@45:45), REMAINING <=10% IS FINE GRAINED, SUB-ROUNDED QTZ. DISTINCTIVE FEATURE IS EUHEDRAL GRAINS OF PLAGIOCLASE, RANDOMLY ORIENTED AND DISTRIBUTED, CREAM WHITE, ALIGNED PARALLEL TO FOLIATION, YELLOWISH WHITE IN COLOUR, <<1MM,<2%).

12807 12913 X PY=
D+
PYRITE AS BANDS COMPOSED OF HEAVY AGGREGATES OF PY., AS WELL AS DISSEMINATIONS THROUGHOUT THE INTERVAL. PYRITE BANDS TYPICALLY 2-3MM IN THICKNESS, LOCALLY UP TO 5MM.

14106 14134 XLOST

14599 14630 XLOST

14646 16076 A3XTFLPPFAC CTFG5557 FO 60
5AQZ FO 33 C
UNIT IS LOCALLY WELL DEFINED, I.E., CLASTS, ALBEIT BEING COMPACTED, HAVE VERY OBVIOUS GRAIN BOUNDARIES AND CAN BE DISTINGUISHED FROM MATRIX MATERIAL. CLASTS RANGE IN SPHERICITY FROM SUB-ROUNDED TO SUB-ANGULAR,

GRAINS RANGE IN DIMENSION FROM 2MM IN DIAMETER TO 40 MM ALONG LONG AXIS. GRAINS WITH PROMINENT LONG AXES ARE ELLIPTICAL. LOCALLY UNIT IS CLAST SUPPORTED. UNIT IS DOMINANTLY MATRIX SUPPORTED.

14722 14783 X BD 50

L6

15444 15545 XLOST

15621 15809 XCHERQZ FGBDX BD 60

5A B)

APHANITIC X'TALLINITY, BEDDED, CHERTY VOLCANICLASTIC AND/OR CHERT ITSELF. RANDOMLY ORIENTED/DISTRIBUTED CHALCOPYRITE BLEBS IN LOWER PART OF INTERVAL. ASSAYED BY CERRO AT 0.96% CU. POSSIBLE SILICA PRECIPITATE OVERLYING MASSIVE SULPHIDE.

15819 16012 XLOST

16076 18989 A3XDCVCPFAC FGBN9113 BN 70

5GQZ

FINE GRAINED, LOCALLY BANDED ROCK, BANDS ARE COLOUR COMPOSITIONAL, LEADING TO QUESTION WHETHER THESE ARE BEDS OF TUFF OR ARE FLATTENED CLASTS, I.E., CONTINUATION OF THE LAPILLI-TUFF UNIT. BANDS MAY BE DISRUPTED BEDS, ARE MEDIUM GREEN TO BLACK IN COLOUR LOCALLY WITH BEDS DEFINED BY PYRITE AGGREGATES AND BLEBS EXCEEDING 70% OF THE MODE OVER WIDTHS OF 15MM. AS THE UNIT COMES IN PROXIMITY TO THE MASSIVE SULPHIDE THE DEGREE OF CHLORITIC ALTERATION INCREASES SUCH THAT THE CHLORITE CONTENT APPROACHES 50%.

16154 16307 XLOST

16372 18169 X

5N P6

ALTERED DACITIC TUFF, COMPOSED PREDOMINANTLY OF CHLOR-ITE. UNIT IS STRUCTURAL HANGING WALL TO MASSIVE SULPHIDE.

16785 17182 XLOST

17492 17745 XLOST

18006 18169 XMSPYCLPY BN 60

P3 X6

PERVASIVELY SULPHIDIZED (PYRITE) AND CHLORITIZED TUFF. SEMI-MASSIVE SULPHIDE IS GENERATED THROUGH EPIGENETIC REPLACEMENT PROCESSES, IS NOT A SYNGNETIC MASSIVE SULPHIDE.

18169 18428 XDCVCPFAC FGXT MX

5AQZ MX O

FINE GRAINED, ROUNDED QTZ AND PLAGIOCLASE GRAINS RANGING FROM 0.5MM FOR PLAGIOCLASE TO 0.5-3MM FOR THE QTZ GRAINS. ROUNDED GRAINS SET IN A VERY FINE GRAINED DARK GREY ACTINOLITE+QTZ+PLAGIOCLASE MATRIX WHICH ACCOUNTS FOR @45-50% OF THE MODE. THIS UNIT IS IDENTIFIED AS A QUARTZ PORPHYRY BY CERRO, IS A QTZ CRYSTAL DACITIC TO RHYODACITIC TUFF.

18428 18989 XMSPYPYQZ MX VQ

5YCP MX

MASSIVE PYRITE FROM 184.28 TO 187.15M FROM 187.15M TO 189.89M THE UNIT IS SEMI-MASSIVE PYRITE, QTZ VEIN AND CARBONATE. THIS LAST PART IS ESSENTIALLY QTZ VEIN WITH SEMI-MASSIVE PYRITE. THE QUARTZ IS NOT AT ANY KNOWN ORIENTATION, IT RUNS THROUGH THE CORE HAPHAZARDLY.

18989 19803 TFLPPFAC CTFG3667 MX

5AQZ MX 52 C FO 50 P3

CLASSIC LAPILLI TUFF, TUFF BRECCIA, MODERATELY CHLORI

TIZED. CLASTS ARE BLACK AND WHITE, SPHERICITY RANGES FROM POOR TO EXCELLENT. CLASTS ARE ANGULAR THROUGH TO ROUNDED, CLASTS RANGE FROM 2-3MM THROUGH TO 40MM ROUDED. CHLORITIZATION IS PERVASIVE THROUGH THE MATRIX. AS COME CLOSER IN PROXIMITY TO LOWER MASSIVE SULPHIDE , FOLIATION BECOMES MORE EVIDENT @50 DEGREES TO C.A. CLASTS BECOME ELLIPTICAL, ALIGNED PARALLEL TO FOLIATION.

19803 21040 MSSXPYPR FGBNX 3 MX
5YCP MX O BN X5X5

19803 19922 XMSPY LX

MOSTLY FINE GRAINED MASSIVE PYRITE AND PYRRHOTITE IN ALTERNATING BANDS. MINOR COARSE PYRITE AND CHLACOPYRITE (CERRO MINING LOGS).

19922 20839 XMSPR XX

MASSIVE FINE GRAINED PYRRHOTITE, STREAKS AND LAYERS RICH IN CHLACOPYRITE AND MINOR PYRITE BANDS UP TO 70 MM IN WIDTH (CERRO MINING).

20839 21040 XMSPY

ALTERNATING MASSIVE AND STRONGLY DISSEMINATED PYRITE. SOME LAYERS OF TALC? ARE REPORTED (CERRO MINING LOGS) . THE CORE HAS BEEN SPLIT AND WEATHERED, AS A RESULT IT IS DIFFICULT TO MAKE OUT SPECIFIC SULPHIDE MINERAL -OGIES, OR TO CONFIRM WHETHER TALC IS ACTUALLY PRESENT IN THE CORE.

21040 22037 DCVCPFAC XTFO9115 FO 50
5AQZ FG 66 O P2 D=

FINE GRAINED QUARTZ CRYSTAL TUFF (LOCALLY). ROCK IS HOMOGENEOUS TUFF, DACITIC COMPOSITION; COMPOSED OF FINE GRAINED, WELL ROUNDED QTZ GRAINS AND PLAGIOCLASE FELDSPAR GRAINS, GRAINS (1-2MM), ARE EQUALLY BUT RANDOMLY DISTRIBUTED THROUGHOUT. MINOR FOLIATION PRESENT. UNIT IS INTENSELY CHLORITIZED TO CHLORITE ROCK FROM 219.35 TO 220.37M.

21440 21689 XTFLPPFQZ FGFO5337 FO
5AAC CT C J4

AS PREVIOUSLY DESCRIBED, CLASTS ARE ELONGATED/COMPRES -SED ALONG FOLIATION PLANE. CLASTS ARE ELLIPTICAL, DIMENSIONS RANGE FROM 3MM TO UP TO 30MM. LONG DIMENSION CLASTS TYPICALLY ARE NO MORE THAN 10MM IN THICKNESS. THE LAPILI TUFF LOCALLY TAKES ON THE APPEARANCE OF A UNIT COMPRISED OF DISRUPTED FELSIC BEDS. CLASTS ARE GREY-WHITE IN COLOUR AND ACCOUNT FOR UP TO 40-60% OF THE MODE LOCALLY. UNIT ALTERNATES WITH FINE GRAIN -ED DACITIC COMPOSITION TUFF.

21745 21935 XTFLPPFQZ FGFO5337 FO 45
CT O L1

INTERVAL CONTAINS 10-15MM BANDS OF YELLOWISH, FINE GRAINED, EXTREMELY FOLIATED MATERIAL, POSSIBLE TALC?

A001 335 404 D1806
A001 2896 2977 D1807
A001 4003 4073 D1808
A001 7071 7163 D1809
A001 7945 8006 D1810
A001 10363 10434 D1811
A001 14303 14376 D1812
A001 17296 17518 D1813

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A001 21326 21440    D1814
END


IDEN6B0201284    10-86    BQ  19SEP91DGM   AMISAUG86          GRD  0.00
PRJPLACER DOME INC.                      BAKER PATTON FELSIC COMPLEX
000      0  4800MT   96.62308.00-50.00                6070654.00 332352.70      0.00
S001  4800  9662      96.62308.00-35.00
NAM                                                   QZPFKFEPACHBCZMSCAD:
NAM                                                   AKTACLLIHEMGPYPRCPSL
SCL         MT.2PC.0
SCL              PC.0        LCTM
001
UMM                        SAMP
P          0   122          CASE
MSV    122   1818          AN/FACPF    FGMX          MX
                              5G
                              UNIT IS A FINE GRAINED, MEDIUM GREEN MAFIC FLOW, COMP
                              -OSED OF ANHEDRAL BLOCKY, ACTINOLITE AND PLAGIOCLASE
                              FELDSPAR GRAINS/PHENOCRYSTS, RANDOMLY ORIENTED/DIST-
                              RIBUTED THROUGHOUT, EQUAL DISTRIBUTION.
D      1551  1597          X                              FO    45
                                                                    <1
                              INTERVAL IN WHICH HEMATITE OCCURS AS MICROVEINLETS (<
                              1MM IN THICKNESS) PARALLELING A MILD TO MODERATE FOLI
                              -ATION, POSSIBLY INDICATIVE OF A SHEAR.
P      1818  2760      BXXBRAFACPF    FGBX          FO    50
                              5G      MXFO   O                          D)
                              UNIT HAS BEEN DESCRIBED BY GRANGES AS BEING A LAPILLI
                              TUFF. UNIT IS NOT SIGNIFICANTLY DIFFERENT THAN THE OV
                              -ERLYING MAFIC (ANDESITE) FLOW, SAME COMPOSITION.
                              CLASTS ARE SUB-ANGULAR TO ANGULAR @ 20MM ALONG LONG D
                              -IMENSION, ALIGNED PARALLEL TO A MILD FOLIATION. INTE
                              RSTITIAL TO CLASTS, MATRIX IS A GREENISH-WHITE, EPID-
                              OTE+PLAGIOCLASE CONTENT > ACTINOLITE. NOTE, DO NOT
                              DISCOUNT IS A NARROW INTERVAL OF LAPILLI-TUFF; HOWEVE
                              R IS SIMILAR TO FLOWS. PYRITE CONTENT IS VARIABLE,
                              NOTED THAT ABUNDANCE INCREASES DOWN HOLE.
D      1870  2042      A5X                                                CLP4
                              5A                                          P3
                              UNIT IS LIGHT GREY, DUSTY, HAS A PINKISH-RED TINGE CA
                              -USED BY PERVASIVE HEMATIZATION AND CLAY ALTERATION.
                              VERY SIMILAR TO THE ALTERATION ONE ASSOCIATES WITH
                              EPITHERMAL ALTERATION.
P      2760  3462        AN/FACPF    FGMX          MX
                              5G
                              AS DESCRIBED IN PRINCIPLE INTERVAL 1.22-18.18. ANDES-
                              ITIC COMPOSITION, FINE GRAINED, COMPOSED OF ANHEDRAL
                              X'TALLINITY, RANDOMLY ORIENTED/DISTRIBUTED, 1-1.5MM
                              ACTINOLITE AND PLAGIOCLASE GRAINS, 50:50 DISTRIBUTION
                              . NO BRECCIATED FABRIC IS EVIDENT. PYRITE IS CONSIS-
                              TENTLY DISSEMINATED THROUGHOUT.
D      2760  2830          X
                                                                    D2
                              ACTUAL INTERVAL 26.52-28.30M , CONTAINS ABOUT 15% FIN
                              E SULPHIDES WHICH INCLUDES CONDUCTIVE VEINLETS UP TO
                              2MM WIDE.
D      2830  2965          X
                                                                    D+
                              CONTAINS ABOUT 2% FINE PYRITE.
D      2965  3081          X
                                                                    D=D=
                              CONTAINS ABOUT 10% FINE PYRITE-PYRRHOTITE, THE ROCK
                              HAS A GREEN CLOUR, PROBABLY DUE TO CHLORITE OR SERICI
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3081 3147 X

TE PERVASIVE ALTERATION.
VS 50

<3

CONDUCTOR, CONTAINING 30% PYRITE-PYRRHOTITE, IN VEIN-LETS UP TO 1CM WIDE.

3147 3397 X

D=D=

CONTAINS 15% PYRITE-PYRRHOTITE, ALL DISSEMINATED AND IN SMALL DISCONTINUOUS VEINLETS.

3397 3446 X

D+D+

VERY BLOCKY GROUND, CONTAINS ALMOST 8% PYRITE-PYRRHOT-ITE WHICH IS DISSEMINATED AND IN VEINLETS UP TO 8MM WIDE.

3462 3621 A3XRDVCPFQZ FGFO911 FO 60 P3

U=

5A

FINE GRAINED, GREY TO LIGHT GREENISH-CREAM COLOURED, FELSIC ROCK, POSSIBLE TUFF. QTZ GRAINS ARE EQUANT, VITREOUS GREY, <= 1MM IN DIAMETER, ACCOUNTS FOR @ 50% OF MODE. RANDOMLY BUT EVENLY DISTRIBUTED THROUGHOUT, INTERSTITIAL TO GRAINS IS CREAM WHITE, ANHEDRAL X'TAL LINITY PLAGIOCLASE. YELLOWISH-CREAM COLOUR OF PLAGIO-CLASE MAY INDICATE A PERVASIVE REPLACEMENT JOF THESE GRAINS BY CARBONATE. PYRITE AS RANDOMLY DISTRIBUTED E UHEDRAL GRAINS (1-2MM, <3%) AND AS VEINLETS (<1-3MM, <2%), RANDOMLY DISTRIBUTED.

3621 3791 A5XFALT P4 CLP4

D1D1

GRANGES 1986 - VERY BLOCKY CORE, ALTERATION CONSISTS OF PERVASIVE CLAY, PYRITE-PYRRHOTITE, SILICIFICATION, AND LOCALLY CHLORITE, APHANITIC TO FINE GRAINED, OVER-ALL CONTAINS ABOUT 10% PYRITE-PYRRHOTITE WHICH IS DISSEMINATED AND IN VEINLETS. VEINLETS ARE UP TO 5MM WIDE, FAULT ZONE IS NOT POSSIBLE TO MEASURE DIRECTLY BECAUSE CORE IS TOO BLOCKY.

3626 3698 XFALT VS 50

D1D1

ABOUT 50% CORE RECOVERY, IS THE MAIN FAULT ZONE, CON-SISTS OF SILICIFIED AND CLAY ALTERED ROCK.

3698 3723 X

VS 50 D1

QUARTZ-CHLORITE-PYRITE VEINS, CONTAIN ABOUT 10% FINE PYRITE.

3723 3791 A7X VS 50

>1

ALTERED ROCKS, CONTAIN CLAY-PYRITE-CHLORITE-SILICA, P-YRITE OCCURS IN VEINLETS UP TO 3CM WIDE WHICH ARE CONDUCTIVE, AND AS DISSEMINATED X'TALS, <1MM.

3791 7785 A3XTFLPACPF FGXT8225 MX H2

5G MX 66 O

FINE GRAINED, MEDIUM GREEN, DISTINCTIVELY SPOTTED ROC-K. EQUANT, SUB-ROUNDED?, ORANGE TINGED, FELDSPAR-RIC-H, LITHIC FRAGMENTS? UP TO 7MM IN DIAMETER, ACCOUNTS FOR @15% OF MODE, RANDOM ORIENTATION/DISTRIBUTION. MATRIX IS FINE GRAINED AGGREGATE OF ACTINOLITE + PLA-GIOCLASE.

4118 4148 XCHEMQHPY BDFG BD 63L7 QHL7

L3

7A

CHEMICAL PRECIPITATE, BEDDED, FINE GRAINED PYRITE AND CHERT. THE PYRITE BEDS, RANGE IN THICKNESS FROM 1-3MM

, TYPICAL THICKNESS 2MM.

THE FOLLOWING DITTO INTERVALS HAVE BEEN QUOTED FROM THE GRANGES 1986 LOG.

4589 4664 X VS 55
D1
12% PYRITE IN VEINLETS UP TO 1CM, AND DISSEMINATED IN THE GROUNDMASS.

5002 5040 X
<2
VEINLETS UP TO 5MM IN WIDTH,AND AS DISSEMINATED X'TAL 'S.

7543 7730 X
D*
CONTAINS ABOUT 4% DISSEMINATED PYRITE.

7785 9662 TFBRPFQZ CTFG6447 C/ 20
5AAC HT 52 O FO 40
CONTACT ZONE FOR THIS UNIT EXTENDS FROM 77.85 TO 79.82M. THE CONTACT ZONE IS DEFINED BY INTENSIVE SHEA -RING, EXTREMELY WELL DEVELOPED FOLIATION, POSSIBLE PERVASIVE CARBONATIZATION AS INDICATED CREAM-YELLOW/ ORANGE PATCHES IRREGULAR IN SHAPE, UP TO 3CM IN LEN- GTH AND 1.5CM IN WIDTH. THE LOWER CONTACT AT @20 DEG- REES TO THE C.A. IS VERY SHARP, DEFINES THE SLIP. THE UNIT IS A HETEROGENEOUS DACITIC COMPOSITION PYROCLAS- TIC, CLASTS ARE LARGE LAPILLI, POSSIBLE BLOCKS PRESEN -T BUT DIFFICULT TO ASCERTAIN. THREE TYPES OF CLASTS PRESENT, 1) LIGHT GREY, APHANITIC X'TALLINITY, 2) GREY-GREEN, APHANITIC X'TALLINITY, IS THE DOMINANT, CLAST TYPE, ACCOUNTS FOR @20% OF THE MODE, 3) WHITE CLASTS. ALL CLASTS SUB-ANGULAR TO ANGULAR IN SHAPE, ELONGATED SLIGHTLY IN DIRECTION OF FOLIATION, RANGE I -N SIZE FROM 3MM TO 40MM IN DIAMETER, MEAN CLAST SIZE ABOUT 15-20MM. MATRIX SUPPORTED UNIT.
LOCALLY NEAR THE BOTTOM OF THE HOLE THE TUFF BRECCIA BECOMES INTERDIGITATED WITH LAPILLI TUFF, ANDESITIC IN COMPOSITION, EXACTLY AS DESCRIBED IN THE INTERVAL 37.91-77.85M. INTERVALS OCCUR AT 91.15-91.54, 92.45- 92.57M.
*********IMPORTANT**********
THESE TWO INTERVALS INDICATE YOUNGING DIRECTION. UP HOLE! THIS IS BASED ON, IN THE FORMER, A FLAME STRUC- TURE AND IN THE LATTER CASE ON THE BASIS OF DEPOSITIO -N OF A TUFF ON AN UNEVEN BASE/SUPERPOSITION ON AN IRREGULAR PREDECESSOR UNIT.

9454 9662 XTFLPACPF FGBN8225 BN 60
5G O
UNIT IS AS DESCRIBED IN THE PRINCIPLE INTERVAL 37.91- 77.85M. DISTINCTIVE SPOTTED UNIT, COMPOSED OF FELDSPA -R-RICH LITHIC FRAGMENTS, SUBANGULAR IN SHAPE,5MM IN DIAMETER, ACCOUNTS FOR @25% OF MODE, SET IN A DARK GREEN, MILDLY CHLORITIC MATRIX ANDESITIC IN COMPOSITI -ON.

A001 828 906 D1567
A001 3947 4011 D1568
A001 4150 4217 D1569
A001 7275 7350 D1570
A001 8748 8845 D1571
/END

IDEN6B0201284 18-86 BQ 14SEP91DGM AMISJAN86 GRD 0.00
PRJPLACER DOME INC.
PINEBAY MINE - LAKE ATHAPAPUSKOW
)00 0 6000MT 81.29308.00-50.00 6072299.00 332574.00 0.00
S001 6000 8129 81.29308.00-46.00
/NAM
NAM QZPFKFEPACHBCZMSCAD:
SCL MT.2PC.0 AKTACLLIHEMGPYPRCPSL
LSCL PC.0 LCTM
001
JMM
SAMP
P 0 671 CASE
PMSV 671 2222 AN/FACPF FGMX MX
3G PP A=
FINE GRAINED, DARK GREEN, MASSIVE. CREAM TO SNOW WHIT
-E, ANHEDRAL, FINE, PLAGIOCLASE PHENOCRYSTS, 1.5MM IN
DIAMETER, ACCOUNTS FOR @ 7% OF MODE. CARBONATE AS
AMYGDULES, PINKISH-WHITE, IRREGULAR IN SHAPE, 10MM X
5MM, ACCOUNTS FOR 3% OF MODE.
671 1508 X FGMX MX
THE UNIT IS APHANITIC NOT PORPHYRITIC AS DESCRIBED IN
THE PRINCIPLE INTERVAL.
2222 3680 ANVCACPF FGXT MX
5GQZ MX
FINE GRAINED, GREY-GREEN ANDESITIC TO DACITIC COMPOS-
ITION VOLCANICLASTIC. ROCK IS DISTINGUISHED BY SUB-AN
-GULAR, GREY VITREOUS QTZ GRAINS (1-2.5MM, 5% OF MODE
). MEAN GRAIN SIZE, 2MM. SLIGHT PINKISH TINGED FELDSP
-AR GRAINS, BLOCKY (1-2.5MM, 7%). HETEROGENEITY OF
GRAIN SIZES ARE AN INDICATION OF VOLCANICLASTIC NATU-
RE. THIN SECTION.
3680 6511 AN/FACPF FGMX MX
5G
FINE GRAINED, MEDIUM GREEN, ANDESITIC COMPOSITION FLO
-W? COMPOSED OF FINE GRAINED, SUBHEDRAL, BLOCKY GRAIN
S OF ACTINOLITE AND PLAGIOCLASE, EQUAL DISTRIBUTION,
THE TEXTURE IS NOT INTERGRANULAR, NO SUB-OPHITIC TEX-
TURE, THEREFORE POSSIBILITY THAT THIS IS A MASSIVE NO
N-FABRIC TUFF.
NOTE GRANGES LOGS INDICATE THAT "OVERALL CONTAI
-NS ABOUT 1% VERY FINE PYRITE AND <1% REDDISH SPHALE-
RITE AND <1% FINE PYRRHOTITE. SULPHIDE MINERALS OCCUR
IN VEINLETS AND AS DISSEMINATED CRYSTALS, VEINLETS
AND UP TO 2MM WIDE, LOCALLY OVER CM LONG DISTANCES, T
-HESE ARE CONDUCTIVE.
4536 5643 X VS 50
D1D(<)
1% REDDISH SPHALERITE, ALL CRYSTALS ARE < 1MM LONG,
ALL SPHALERITE IS IN VEIN, AND IN VEINLETS AND IN
DISSEMINATIONS. 15% VERY FINE PYRITE, 8% FINE CHLORIT
E, 8% FINE CHLORITE, <1% FINE PYRRHOTITE.
5643 5884 X
D1 D.
CONTAINS ABOUT 10% FIEN PYRITE, TRACE SPHALERITE.
6511 8129 ANVCACPF FGXTX 4 FO 55
5G FOBN 8 O BN 55
MEDIUM GREEN, FINE GRAINED. ACTINOLITE GRAINS (1MM,
@ 25%), ANGULAR, SET IN A FINE GRAINED MATRIX OF A
ACTINOLITE AND PLAGIOCLASE. BANDS ARE COLOUR COMPOSIT
IONAL, MAXIMUM THICKNESS 3-4 MM.
6573 6825 A5XDYKEPFQZ FGXT BN 57

```
L
P
R
D     8060  8129      XANVCACPF   FGBX          MX
                                  5N            C
R
R
R
 001  1508  1608    D1581
A001  2652  2741    D1582
A001  5440  5530    D1583
 001  7044  7132    D1584
 END
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5AAC BN
FINE GRAINED, SILICEOUS, GREY ROCK, WITH ACTINOLITE G
-RAINS, PHENOCRYSTS, SUBHEDRAL (4MM, 7%), MILD BANDIN
-G.

INTERVAL IS BRECCIATED, FRAGMENTS ARE 20MM IN DIAMETE
-R, FRAGMENTS ARE SEPARATED BY INTERSTITIAL CHLORITE,
2-3MM IN THICKNESS, ACCOUNTS FOR <7% OF MODE. CLASTS
ARE COMPOSED OF NEEDLE-LIKE PLAGIOCLASE (<1MM, 2.5MM,
25%), SET IN A FINE GRAINED LIGHT GREEN PLAGIOCLASE+
EPIDOTE MATRIX. UNIT IS MASSIVE, SUBTLE BRECCIATION.

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IDEN6B0201284    19-86    BQ  14SEP91DGM   AMISJAN87          GRD  0.00
IPRJPLACER DOME INC.                                PINEBAY - LAKE ATHAPAPUSKOW
 000      0  7833MT   78.33308.00-60.00                6072375.00 332482.10      0.00
/NAM                                                        QZPFKFEPACHBCZMSCAD:
LNAM                                                        AKTACLLIHEMGPYPRCPSL
 SCL          MT.2PC.0
ASCL            PC.0        LCTM
A001
 JMM                    SAMP
          0    975        CASE
PMSV     975  3028    A5XGABRACPF   EFPA            MX
L                            5G     MX
                             MAFIC VOLCANIC WHICH HAS BEEN ASSIMILATED BY GABBRO?
                             IDENTIFIED BY GRANGES AS AN INTERMEDIATE LAPILLI TUFF
R                            . UNIT IS MEDIUM TO DARK GREEN FINE GRAINED. MATRIX,
                             GROUNDMASS, FINE GRAINED, NO TEXTURES TO DEFINITIVELY
                             IDENTIFY AS A VOLCANICLASTIC. MASSIVE. DISTINCTIVE
R                            FEATURE OF UNIT IS PATCHY, OVOID FABRIC PRODUCED BY
P                            LIME-GREEN TO DARK CHERRY-RED/PINK COARSE GRAINED (4-
                             5MM) FELDSPAR PATCHES. PATCHES UP TO 2.5CM IN DIAMETE
R                            -R AND CAN ACCOUNT FOR 40% OF MODE. THIS LEADS TO THE
R                            POSSIBILITY THAT UNIT IS AN ANDESITIC VOLCANIC, POSS-
                             IBLE FLOW OR TUFF WHICH HAS BEEN ASSIMILATED ADJACENT
R                            TO A GABBRO. @ 32M THE UNIT TAKES ON A POSSIBLE GLOM-
                             EROPORPHYRITIC TEXTURE POSSIBLE FINE GRAINED GABBRO?
     1215  1221       XQZVN                    VQ    65
                             BUFF BLUISH QUARTZ VEIN, 10% RED OXIDIZED VEINLETS,
R                            NO PYRITE (GRANGES).
P    3028  4163        AN/FACPFD:1FGMX          MX                              P1
                             5G
R                            UNIT IS FINE GRAINED MASSIVE, GREY-GREEN IN COLOUR.
                             COMPOSED OF ACTINOLITE (<1MM,60%), HORNBLENDE (1MM,10
R                            %), AND INTERSTITIAL, ANHEDRAL LIGHT GREENISH PLAGIOC
                             -LASE (<1MM). DISTINGUISHING FEATURE OF UNIT IS WHITE
R                            CRYSTALLINE PATCHES OF DOLOMITE, SLIGHT PINKISH COLOU
                             -R. PATCHES UP TO 15 MM IN DIAMETER, CAN ACCOUNT FOR
R                            UP TO 10% OF MODE LOCALLY. LOCALLY AS AMYGDULES, 5-6
                             MM IN DIAMETER (<3%).
N    4070  4163   A5XCNTZPFAC   MGBN            BN    40
                             7G     FO            FO    40
R                            ASSIMILATION/CONTACT ZONE BETWEEN THE ANDESITE FLOW A
                             -ND THE UNDERLYING DACITIC TUFF. THE UNIT IS A LIGHT
R                            GREEN THROUGH TO A YELLOWISH-ORANGE, DEPENDANT ON THE
                             AMOUNT OF FELDSPAR PRESENT WITHIN A LOCAL INTERVAL.
R                            ACTINOLITE/CHLORITE GRAINS HAVE AN ELONGATE, WHISPISH
P                            CHARACTER, THEREFORE POSSIBLE THAT THIS REPRESENTS A
                             NARROW INTERVAL OF HYALOCLASTITE.
F    4163  7833      DCVCPFAC   FGFOX  4       FO    56
L                            3A     HO    8 O
                             FINE GRAINED, GREY, TO GREY-GREEN, DACITIC COMPOSITIO
R                            -N TUFF. MILD TO MODERATE FOLIATION DEVELOPED, MINOR
                             BANDING. NO OBLITERATION OF FEATURES AS IS SOLELY A
                             FINE GRAINED, HOMOGENEOUS TUFF. IS NOT A LAPILLI-TUFF
                             AS INDICATED IN THE GRANGES LOGS.
D    6358  6400       X
L
                                                    <*       <*   <*<*
                             CONTAINS 5% QUARTZ-CHLORITE-CHALCOPYRITE-SPHALERITE
                             VEINS UP TO 4MM WIDE. VEINLETS ARE WEAKLY MAGNETIC.
A001 2510  2600    D1585
 001 3981  4071    D1586
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A001  6717  6800    D1587
/END


IDEN6B0201284   21-86   BQ  15SEP91DGM   AMISJAN87          GRD000.00          0119
LPRJPLACER DOME INC                          CABIN ZONE
 000     0  6005MT  151.49270.00-76.00            6071631.30 332498.59       1.52
S001  6005 12101    151.49270.00-74.00
S002 12101 15149    151.49270.00-58.00
 NAM                                                      QZPFKFEPACHBCZMSCAD:
 NAM                                                      AKTACLLIHEMGPYPRCPSL
/SCL        MT.2PC.0
 SCL            PC.0        LCTM
 001
AUMM                      SAMP
P          0    122        CASE
 MSV    122   3934        AN/FACPF    FGMX          MX
                              5G      HO
R                             FINE GRAINED, ANDESITE FLOW, COMPOSED OF EQUANT GRAIN
                              -S OF PLAGIOCLASE (<1MM,60%), WITH INTERSTITIAL ACTIN
                              -OLITE. HORNBLENDE GRAINS, SUBHEDRAL BLOCKY (2X1MM,
R                             <2%). UNIT IS NON-MAGNETIC. LOCALLY THE UNIT IS FELDS
                              -PAR PHYRIC OR CARBONATE AMYGDALOIDAL.
      1174   1222        XANVCPFAC   FGFO          FO     35
                              5G      BN          BN     35
R                             UNIT IS FINE GRAINED, MEDIUM TO DARK GREEN. BANDING
                              GENERATED THROUGH ALTERNATING 2CM THICK DARK GREEN
                              BANDS WITH RANDOMLY ORIENTED/DISTRIBUTED FELDSPAR
R                              X'TALS (1-2MM, 5-7%) THROUGHOUT AND 1CM THICK GREEN-
                              ISH-WHITE MORE FELSIC BANDS. POSSIBLE GRADING PRESENT
                              , MAY INDICATE THAT FACING DIRECTION DOWN-HOLE.
D     1222   1401    A3XAN/FPFAC   SHMG          SH     40
L                             5G                  BN     40
                              MODERATELY SHEARED, ANDESITIC FLOW. PLAGIOCLASE IS
                              3MM X 1MM, ACCOUNTS FOR >50% OF MODE. ACTINOLITE IS
R                             INTERSTITIAL TO PLAGIOCLASE. BANDING IS GENERATED TH-
                              ROUGH INTERVALS IN WHICH PLAGIOCLASE IS EVEN MORE DO-
                              MINANT OVER 1CM THICKNESS. ALL PLAGIOCLASE HAS BEEN
R                             ALTERED TO CLINOZOISITE.
      2345   2908      XTFLPPFAC   FGCT          FO     47
                              3G      FO      C
R                             UNIT UNDERGOES MILD VARIATION OVER INTERVAL. MODERATE
R                             FOLIATION AT 23.45M, GRADING TO MILD FOLIATION NEAR E
                              -ND OF INTERVAL. DEGREE OF FOLIATION IS CONSISTENT
R                             WITH QUANTITY OF CLASTS, FEWER CLASTS THE GREATER THE
                              DEGREE OF FOLIATION. CLAST-RICH INTERVALS, CLASTS ARE
                              IRREGULAR IN SHAPE, RANGE IN DIAMETER FROM 3-25MM,
                              MEAN CLAST SIZE, 20MM. CLASTS ARE GREENISH-WHITE, FIN
R                             -E GRAINED, ACCOUNT FOR >80% OF THE MODE, INTERSTIT-
P                             IAL TO IRREGULAR CLASTS DARK GREEN, POSSIBLY SLIGHTLT
                              -Y CHLORITIC MATRIX MATERIAL. INTER-CLAST MATERIAL
R                             ONLY 3-5MM IN THICKNESS.
N     3475   3694      XANVCACPF   FGFO          FO     40
                              3G      XTBN        BN     40
                              FINE GRAINED, TAN TO DARK GREEN, BANDED, DACITIC TO A
R                             -NDESITIC COMPOSITION TUFF. RANDOMLY ORIENTED/DISTRI-
                              BUTED THROUGHOUT, ANHEDRAL, BLOCKY, PLAGIOCLASE GRAIN
                              -S (1-2MM, 5-7%). LIGHTER COLOURED TUFF BANDS (1-3CM
R                             THICK), CAN ATTRIBUTE ORANGEY COLOUR TO SELECTIVE CAR
R                             -BONATIZATION.
      3694   3780      XVN>>       D:8                 >2                 >8
                              QZ2
R                             INTERVAL OF INTENSE QUARTZ-CARBONATE ALTERATION AND
                              MACROVEINING.
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P 3934 6493 BRTFACPF FGCT1997 BN 46
3G BN 47 C
NOTE THIS UNIT HAS MANY OF THE FABRICS ENCOUNT-
ERED IN THE FLOW BRECCIA/LAPILLI-TUFF, DACITIC COMP-
OSITION FOUND IN THE CERRO MINING HOLES AND THE PRELI
-MINARY PART OF 5-83 DRILLED BY HBED. THIS UNIT IS
BEING IDENTIFIED AS A BLOCK-ASH PYROCLASTIC. CLASTS
ARE GREENISH-WHITE, ANDESITIC TO DACITIC COMPOSITION,
MAY BE 30MM IN THICKNESS, LENGTH >50MM, THEREFORE
BLOCKS COMPRISES > 90% OF THE MODE OF THE INTERVAL.
CLASTS ARE FINE GRAINED, COMPOSED PREDOMINANTLY OF
SAUSSERITIZED PLAGIOCLASE. INTERSTITIAL TO THE CLASTS
MATRIX IS ACTINOLITE-RICH, MAXIMUM THICKNESS, 5MM.
4918 5110 XRYVCPFQZ FGXT BN 45 D=P1
5W CTBN
CREAM-WHITE COLOURED, QTZ CRYSTAL RHYOLITIC TUFF AND
RHYOLITIC COMPOSITION LAPILLI-TUFF, ONE INTERVAL IS
DIRECTLY GRADATIONAL INTO ANOTHER. CRYSTAL TUFF IS
ESSENTIALLY, FINE GRAINED, MASSIVE WITH EQUANT TO SUB
-EQUANT, VITREOUS, GREY QUARTZ GRAINS (1-3MM,<2%),
RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT A LIGHT GREE
-N TINGED (CLINOZOISITE) PLAGIOCLASE+QUARTZ DOMINANT
MATRIX. INTERVAL GRADES OVER 5CM INTO A DISTINCTLY
BANDED CLASTIC-RICH INTERVAL. THE CLASTS HAVE RAGGED
EDGES BUT ARE ELLIPTICAL, SNOW-WHITE IN COLOUR (30X15
MM, 25%).
6329 6354 XANVCACQH FGBD BD 47
5G O L1
NARROW INTERVAL OF BEDDED, FINE GRAINED, ANDESITIC TU
-FF AND LAMINATED/BEDDED CHERT AND FINE GRAINED PYRIT
-E, BEDS ONLY 10MM IN THICKNESS.
P 6493 6727 CHEMPYQH FGBDX 2 BD 50
3U 9 O L4
FROM GRANGES LOGS, "OVERALL, CONTAINS ABOUT 35% FINE
BROWN PYRITE, MOST PYRITE IS <<1MM LONG. CONSISTS OF
LAMINATED TO THIN BEDDED CHERT AND PYRITE. BEDS ARE
CONVOLUTED, APHANITIC TO FINE GRAINED, NON-MAGNETIC.
D 6591 6622 XCHEM
D2
6622 6639 XCHEM
L8
P 6727 8883 DCVCACPF FGFO FO 57
3A BN BN 57 P1
FINE GRAINED, GREENISH-GREY, WELL BANDED,DACITIC, OR
ANDESITIC TO DACITIC COMPOSITION TUFF. FROM ABOUT THE
BEGINNING OF THE INTERVAL TO 72.75M THERE IS A GRADAT
-IONAL CONTACT ZONE BETWEEN THE OVERLYING LAPILLI-TU
-FF AND MASSIVE HOMOGENEOUS, MILDLY CHLORITIZED ANDES
-ITIC TO DACITIC TUFF. THE BANDING AT THE BEGINNING O
-F THE INTERVAL IS GENERATED THROUGH FLATTENED DACITI
-C COMPOSITION CLASTS. 10MM IN THICKNESS UP TO 50 MM
IN LENGTH. FROM 72.75M ONWARDS THE UNIT IS PREDOMIN-
ANTLY MASSIVE TUFF, DARK GREEN, FINE GRAINED, COMPOSE
-D OF EQUAL PARTS OF FINE GRAINED ACTINOLITE AND PLA-
GIOCLASE, MILD CHLORITIZATION.
N 8076 8300 XBRTFACPF FGCT FO 45
5G FO
AS DESCRIBED IN THE INTERVAL 39.24-64.93M. ***NOTE***
G. GALE SAMPLE AT 81.03-81.23M. ANDESITIC COMPOSITION
8883 10993 A3XBRTFACPF FGCT FO 52

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A001 13390 13407    D1931
A001 13473 13490    D1932
A001 13625 13648    D1933
A001 13765 13790    D1934
A001 13875 13890    D1935
A001 14011 14042    D1936
A001 14386 14406    D1937
A001 14476 14491    D1938
A001 14619 14629    D1939
A001 14880 14953    D1940
/END
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IDEN6B0201284   26-86    BQ  06FEB87WSF   AMISFEB87          GRD000.00          0119
IPRJPLACER DOME INC                          CABIN ZONE
 000      0  2042MT  166.76269.90-74.00          6071692.20 332498.59       0.00
S001  2042  4785     166.76276.40-70.00
S002  4785  7529     166.76276.90-68.00
 003  7529 10577     166.76278.90-66.00
 004 10577 13929     166.76280.90-66.00
S005 13929 16676     166.76282.90-66.00
'NAM                                                  QZPFKFEPACHBCZMSCAD:
 NAM                                                  AKTACLLIHEMGPYPRCPSL
/SCL        MT.2PC.0
LSCL             PC.0        LCTM
 001
..JMM                      SAMP
P          0    3(          CASE
 MSV    305   208.          BRAFACPF   FGMX          FO    51                  A+
                               5G      FOBX    C
R                              FINE GRAINED, MEDIUM GREEN BRECCIATED FLOW?, LOCALLY
P                              THE UNIT IS MASSIVE, APHRIC ANDEISTE. CLASTS ARE SUB-
                               ANGULAR, RANGE IS SIZE FROM 30MM-10MM, CLAST SUPPORTE
K                              -D, ACCOUNTS FOR @80% OF MODE, MONOLITHIC - BETTER
R                              EVIDENCE FOR AUTOBRECCIATION/ FLOW BRECCIATION. LOCAL
                               LY CONTAINS AMYGDULES OF DOLOMITE (6MM, <3%).
       1128  1394     A5XBRAFACPF
L                              5N                                  P4
                               MODERATE TO INTENSE CHLORITIC ALTERATION, PERVASIVE.
       1974  2083       XAN/F       FGMX          MX
L                              5G                  C/    44
R                              MASSIVE, MEDIUM GREEN ANDESITE, COMPOSED OF BLOCKY FE
                               LDSPAR (1-1.5MM, <60%), SET IN A FINE ACTINOLITE MATR
K                              -IX, CONTACT WITH ANDESITIC TUFF, SHARP AT 44 DEGREES
R                              TO C.A.
       2083  4388       ANVCACPF   FGFO9115       FO    43
                               5G              O
R                              MODERATELY TO WELL DEVELOPED FOLIATED, FINE GRAINED,
                               LOCALLY CRYSTAL-RICH, ANDESITIC TUFF. CRYSTALS ARE
                               FELDSPAR, QUARTZ, ANHEDRAL. FREQUENTLY THE UNIT IS
R                              DEVOID OF CRYSTALS.
P      4388  5400       AN/FACPF   FGMX          MX
                               7G      HO
                               FINE GRAINED, GREY-GREEN, MASSIVE TO VERY VERY FINE
R                              FOLIATED ANDESITIC TO DACITIC COMPOSITION FLOW, LACK
                               OF DISTINCTIVE BANDING OR CLASTIC TEXTURES SUGGESTS F
                               -LOW; HOWEVER LACK OF STRONG DIFFERENTIATION WITH
R                              OVERLYING TUFF MAY SUGGEST THAT THIS IS A POURED IN
                               VOLCANO-SEDIMENT. NO ALTERATION PRESENT, NO MINERALIZ
                               -ATION.
       5400  6908       DCVCPFQZ   FGFO          FO    46
                               6GAC    BNHO          BN    46
                               MEDIUM GREY-GREEN TO LIGHT GREY, BANDED, GENERALLY HO
                               -MOGENEOUS, CLAST-POOR VOLCANICLASTIC. ALTERATION IS
                               LIMITED TO A FEW INTERVALS. ANDESITIC TO DACITIC COMP
                               -OSITION.
       6380  6705     A5X       FGFO          FO    40
                               5N      XTPC                        P3
                               FINE GRAINED, MODERATELY TO INTENSELY CHLORITIZED TUF
                               -F. FELDSPAR GRAINS, ANHEDRAL (<=1MM, 7%), GRAINS, AL
                               -IGNED PARALLEL TO FOLIATION. DISTINCTIVE FEATURE IS
                               CLASTS?, MEDIUM-GREY-WHITE, WHISPY, MEAN SIZE 10CM IN
                               DIAMETER, ACCOUNTS FOR 15% OF MODE. CLASTS HAVE ROUND
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                        /SMOOTH BOUNDARIES. COULD POSSIBLY BE FELSIC CLASTS,
                        AS ARE COMPOSED OF FRAGMENTS, QUARTZ+FELDSPAR, SUBROU
                        -NDED TO ANGULAR, THEREFORE IS PYROCLASTIC.
     6705  6908    A7XTFLPPFQZ   FGPC          BN    50P3                 P1
                        7T     BN     C
                        BLEACHED, CREAMY COLOURED, DACITIC TUFF BRECCIA?, BLO
                        -CK-ASH PYROCLASTIC? MODERATELY SILICIFIED, CARBONATI
                        -ZED. CLASTS ARE ELLIPTICAL, ELONGATE ALONG PLANE OF
                        FOLIATION, SUB-ROUNDED, 20X50MM, MAXIMUM SIZE, ACCOUN
                        -TS FOR 40% MODE. MATRIX IS LIGHT GREY, WITH ANGULAR
                        CLASTS (3-10MM, 50%).
     6908 11651      MSSXPYSL   MXBN
                        3YQH   LM                                    X8B)B)X=
                        SHARP CONTACT WITH BLEACHED SILICIFIED LAPILLI-TUFF,
                        CONTACT NOT MEASUREABLE BECAUSE OF SPLIT CORE. GRANGE
                        -S INDICATES THAT INTERVAL CONTAINS ABOUT 84%  PYRITE
                        , 5% SPHALERITE, <1% CHALCOPYRITE, <1% PYRRHOTITE, AN
                        -D 10% DIRTY WHITE CHERT. ALL SULPHIDES ARE FINE GRAI
                        -NED, LOCALLY PYRITE CRYSTALS ARE UP TO 4MM ACROSS;
                        HOWEVER MOST PYRITE IS <1MM LONG. ALL SPHALERITE AND
                        MOST CHALCOPYRITE CRYSTALS ARE <1MM LONG. SPHALERITE
                        IS REDDISH IN COLOUR AND TENDS TO OCCUR IN DISCONTIN-
                        UOUS VEINLET LIKE AREAS, 1-4MM WIDE. CHALCOPYRITE TEN
                        -DS TO FORM MM TO CM SIZED PATCHES IN OR NEAR CHERTY
                        BEDS. A LINEATION IN THE PLANE OF BEDDING IS WELL DE-
                        VELOPED AT THE BEGINING OF THE INTERVAL. THIS LINEATI
                        -ON PLUNGES 45-50 DEGREES TO THE SOUTH, "IF WE ASSUME
                        THAT THE BASELINE IS PARALLEL TO STRIKE."
     6908  8935      XMSSXPYSL   FGBN                L1                QHL2
                        3YQZ   MX                                      L7   L1
                        THE INTERVAL CONSISTS OF MASSIVE AND SEMI-MASSIVE PYR
                        -ITE AND SPHALERITE WITH CHERT INTERBEDS, AND QUARTZ
                        VEIN MATERIAL. WHERE QTZ VEIN IS PRESENT CHALCOPYRITE
                        BLEBS AND PATCHES ARE PRESENT. BEST LAMINATIONS ARE
                        DEFINED BY SPHALERITE-PYRRHOTITE, WHISPY, UP TO 2CM
                        IN THICKNESS.
     7500  7510      XMSSX       FGBN          BN    34
     8341  8350      XMSSX       FGBN          BN    45
     8898  8907      XMSSX       FGBN          BN    46
     8935 10455      XMSSXPYSL   FGBN
                        3Y     MX
                        THIS UNIT IS CLOSE TO 100% SULPHIDE, FINE GRAINED, IS
                        A SULPHIDIC MUD.
     9499  9505      XMSSXPYSL   LM            LM    35
     9730  9742      XMSSXPYSL   LMFG          LM    40
                        3Y                                        X8L1  L1
    10312 10321      XMSSXPYSL   LMFG          LM    39
                                                                  X8L1  L1
    10455 11089      XMSSXPYSL   MGLM          LM    46
                        3YQZ   MX
                        MEDIUM GRAINED, PYRITE-RICH, SPHALERITE-PYRRHOTITE
                        SUBORDINATED/LAMINATED, MASSIVE SULPHIDE, WITH <10%
                        CHERT BANDS, SOME DISRUPTED QUARTZ VEINS. SPHALERITE
                        BANDS UP TO 3CM IN THICKNESS LOCALLY.
    11089 11166      XMSSXPYSL   FGMX          MX
                        3YPR
    11595 11604      XMSSXPYSL   FGLM          LM    42
                        3YMG
    11651 14390       DCVCACPF   FGXT9115      FO    36
                        5G              O
```

FINE GRAINED, GREY-GREEN, ANDESITIC TO DACITIC COMPOS
-ITION TUFF. QUARTZ + FELDSPAR GRAINS, ROUNDED TO SUB
-ROUNDED, EQUANT, 1-4MM IN DIAMETER, ACCONTS FOR 20%
OF MODE, LOCALLY WITHIN BANDS UP TO 2CM IN THICKNESS.
ASSUME THAT THERE IS A SHARP CONTACT WITH THE MASSIVE
SULPHIDE, GROUND CORE IMMEDIATELY AT THE CONTACT. UNI
-T DOES NOT APPEAR TO BE ALTERED. NO SAMPLE TAKEN AS
IS SPLIT CORE.

	11847	11950	XCHEM	QH3LMBX		LM	42			
				2A	PY7FG					

FINE GRAINED, FINELY LAMINATED, CHERT (GREY IN COLOUR
) AND VERY FINE GRAINED PYRITE, ALTERNATING BETWEEN
CHERT AND PYRITE, BEDS RANGE IN THICKNESS FOR PYRITE
UP TO 10CM TO A MORE TYPICAL 1CM.

N	11950	12017	XMSSXPYQH	LMFG		LM	42			QHL3
				3YSL					L6	L1

NARROW INTERVAL OF WELL LAMINATED PYRITE, SPHALERITE,
AND MINOR GREY-WHITE CHERT, CONSISTENT WITH TRANSITIO
-N FROM PYRITE-CHERT CHEMICAL SEDIMENT.

	12349	12587	A7XHYALPFQZ	FGFO2886		FO	50	P6		P1P1
				7W	BX	11	C			

INTENSELY SILICIFIED, CREAM WHITE, LAPILLI TUFF?, HYA
LOCLASTITE? FRAGMENTS ARE ANGULAR, BLOCKY, RANGE IN
SIZE FROM <1MM-15MM, TYPICAL DIMENSION, 10MM. IN-SITU
BRECCIATION TEXTURE, FRAGMENTS FIT TOGETHER. POSSIBLE
RHYOLITE COMPOSITION NOW BUT MAY HAVE BEEN MAFIC.

	12587	12810	A5XTUFTPFQZ	FGFO		FO	42	P5		P1
				5APY	LL		LM	42		L1

INTERBEDDED CARBONATIZED, SILICIFIED, SLIGHTLY SERICI
-TIZED DACITIC TUFF? AND PYRITE. LAMINATIONS UP TO 10
MM IN THICKNESS. EVIDENCE OF CARBONATIZATION, CREAM-
YELLOW-WHITE COLOUR. BRECCIATION FABRIC CAUSED BY NET
-WORK OF CARBONATE VEINLETS AT IRREGULAR ORIENTATION,
ACCOUNTS FOR <5% OF MODE.

N	12810	13193	A7XHYAL	FGCT		MX		P6		P1
				7W	MXBX	C				

UNIT AS PREVIOUSLY DESCRIBED IN INTERVAL 123.49-125.
87. SUB-ANGULAR CLASTS, 20MM IN DIAMETER, IN-SITU BRE
-CCIATION TEXTURES, WITH VITREOUS QTZ VEINLETS (2MM,
<3% MODE), FIT TOGETHER FABRIC.

	14390	15240	DCVCQZPF	FGXT8225		FO	42			
				5GAC	FO	55	O			

IN ITS MOST DEVELOPED, TYPE LOCALES, THE UNIT IS A MI
LDLY FOLIATED, QTZ CRYSTAL TUFF OF ANDESITIC TO DACIT
-IC COMPOSITION. QTZ GRAINS ARE TWO VARIETIES, VITREO
-US WHITE AND BLACK. BLACK GRAINS ARE EQUANT, 2MM IN
DIAMETER (7%), WHITE GRAINS ARE FRACTURED, ELONGATE,
UP TO 4X8MM, ALIGNED PARALLEL OT FOLIATION, ACCOUNTS
FOR 10-15% MODE. MATRIX IS ACTINOLITE-RICH. IS A GOOD
MARKER HORIZON.

	15240	16676	DCVCACPF	FGXT9115		FO	50			
				5GQZ		O		BN	50	

TRANSITIONAL ANDESITIC TO DACITIC COMPOSITION TUFF, Q
-UARTZ AND FELDSPAR X'TALLINE LOCALLY. LOCALLY THE UN
-IT IS LAPILLI-RICH OVER 1M INTERVALS. QTZ GRAINS ARE
ANGULAR THROUGH TO SUB-ROUNDED, (2MM, <=7%). CLASTS
ARE ELLIPTICAL, 10-15 X 20-30 MM, <5% OF THE TOTAL
MODE. VERY MILD CHLORITIZATION.

D	16577	16676	X							>1

INTERVAL OF BARREN WHITE, QTZ VEINING, VEINS UP TO 10

```
R                                                  -20MM IN THICKNESS EVERY 10CM ALONG INTERVAL.
 001   1025   1096     D1983
  001   5851   5913     D1984
A001   6536   6593     D1985
A001   4520   4600     D1986
  001 13807 13884     D1987
A001 14604 14675     D1988
/END
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IDEN6B0201284    30-86    BQ  21AUG91DGM   AMISFEB87          GRD000.00          0119
 PRJPLACER DOME INC                      CABIN ZONE - LAKE ATHAPAPUSKOW
 000      0    853MT  331.01263.40-67.00              6071633.60 332620.03     22.83
S001    853   6035    331.01262.90-66.00
S002   6035  12131    331.01263.90-65.00
 003  12131  18227    331.01272.70-61.00
S004  18227  32553    331.01272.40-58.00
S005  32553  33101    331.01278.90-50.00
 NAM                                                    QZPFKFEPACHBCZMSCAD:
 NAM                                                    AKTACLLIHEMGPYPRCPSL
/SCL          MT.2PC.0
 SCL              PC.0        LCTM
 001
AUMM                        SAMP
P          0    122          CASE
 MSV     122   2577     A5XDCVCACPFPY1EMFO          FO     40                 P2
                                                                  P1       D1
                         5G
                         IS A MEDIUM GRAINED, MEDIUM TO LIGHT GREEN, DACITIC?
                         COMPOSITION TUFF, MUSCOVITE IS PERVASIVE THROUGHOUT,
                         CHLORITE, DARK GREEN TO BLACK, IS ASSOCIATED WITH SUB
                         -HEDRAL PYRITE GRAINS (1-1.5MM, <10%). MILD FOLIATION
                         , MILD BANDING, PYRITE DISSEMINATIONS, ALONG BANDS (2
                         -3MM IN THICKNESS).
 2444   2577     A7X     ACPF                        VS     07
                         3G                  O                          <=  B+
                         INTENSE CHLORITE ALTERATION, WITH VEINLETS OF PYRITE
                         AND CHALCOPYRITE, CHALCOPYRITE AS BLEBS UP TO 1CM IN
                         DIAMETER (<=5%).
 2577   6595     A3XDCVCACPF   FGFO            FO     30
                         5G                                         P1       D)
                         MILDLY CHLORITIZED, MILDLY FOLIATED, GRANULAR TEXTURE
                         -D, ACTINOLITE + PLAGIOCLASE, (<1MM), GIVEN THE MILD
                         AMOUNT OF BANDING PRESENT IS POSSIBLE FLOW. UNIT IS
                         ANDESITIC TO DACITIC IN COMPOSITION, MORE LIKELY ANDE
                         -SITIC. LOCALLY THE UNIT IS A LAPILLI TUFF. CLASTS AR
                         -E UP TO 15MMX5MM, MAXIMUM SIZE, ACCOUNTS FOR UP TO
                         10% OF MODE LOCALLY. PYRITE IS DISSEMINATED THROUGHOU
                         -T BUT ONLY UP TO ABOUT 5% OF THE MODE.
 5919   6324     A3XAN/FACPF   EFMX            MX
                         5GQZ                                       P1       Q1
                         UNIT IS A FINE GRAINED, MEDIUM GREEN, MASSIVE, FLOW,
                         ANDESITIC, MILDLY CHLORITIZED. LOCALLY PYRITE PATCHES
                         UP TO 3CM IN THICKNESS, SEMI-MASSIVE. UNIT IS NOT SIG
                         -NIFICANTLY DIFFERENT THAN THE TUFFACEOUS UNIT, EXCEP
                         -T THAT THERE IS NO BANDING PRESENT.
                         ***NOTE*** THERE IS NOT A SIGNIFICANT DIFFERENCE BETW
                         -EEN ALL OF THE INTERVALS; HOWEVER THERE IS A MILD TO
                         MODERATE CHLORITIZATION AND SULPHIDIZATION THROUGHOUT
 6595   7110     A3XHYALACPF   FGFO            FO     40
                         3G                                         P3
                         DARK GREEN "SHARD" FILLED UNIT. CHLORITE SHARDS, ANGU
                         -LAR 10MM TO A SIDE, ACCOUNTS FOR @10% OF UNIT. CHLOR
                         -ITIC CLASTS SET IN A LIGHTER GREEN-WHITE FELDSPAR MA
                         -TRIX, ACCOUNTS FOR 80% OF INTERVAL.
 7110  11521     A5XAN/FACPF   FGMX            MX
                         5G                          VS     30    P1       <1
                         FINE TO MEDIUM GRAINED, MASSIVE, NON-BANDED, NON-FOLI
                         -ATED, ANDESITIC COMPOSITION. COULD BE COMPARED WITH
                         THE TUFF BUT DOES NOT HAVE THE GRANULAR TEXTURE. PYRI
                         -TIC ALTERATION THROUGHOUT, PYRITE AS MICROVEINS UP T
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-O 1CM IN THICKNESS, PYRITE AS DISSEMINATIONS THROUGH -OUT. LOCAL INTERVALS OF ANDESITIC TUFF, BANDING AT 4 5 DEGREES TO CORE AXIS, FINER GRAINED TEXTURE THAN TH -E FLOW. INTERVALS OF TUFF OCCUR AT 75.85-76.53, AND 77.61-77.89M.

8230 8761 A5X PY2 VS 50 >2

PYRITE VEINS, ORIENTED @50 DEGREES TO C.A., GENERALLY , HOWEVER FORMS A NETWORK, COULD BE A STOCKWORK ZONE.

9528 11521 A7X PY2 VS 25 >2

INTENSELY PYRITIZED INTERVAL, PYRITE IN VEINS, AS EUH -EDRAL GRAINS, LOCALLY SEMI-MASSIVE OVER 30CM INTERVA -LS.

11521 13655 A3XANVCPFACPY1FGFO FO 50

5GHB <1

MEDIUM GRAINED, COMPOSED OF SUBHEDRAL X'TALLINITY, BL -OCKY, GREENISH-WHITE PLAGIOCLASE AND HORNBLENDE, MAT -RIX IS MEDIUM GREEN ACTINOLITE, PLAGIOCLASE/ACTINOLI -TE, EQUAL DISTRIBUTION (2.5-3MM, 40:40), HORNBLENDE BLACK, 4MM. QUITE EASILY IDENTIFIED AS FLOW, IDENTIFI -ED AS VOLCANICLASTIC ON BASIS OF BANDING/FOLIATION. INTERVAL CONTINUES TO BE MILDLY TO MODERATELY PYRITIZ -ED, WITH LOCAL SEMI-MASSIVE INTERVALS.

13372 13655 A5XANVCPFACPY2MGMX MX

5G VS 43 <2

AS DESCRIBED PREVIOUSLY, MEDIUM GRAINED, PLAGIOCLASE/ ACTINOLITE, DOMINATED, MEDIUM GREEN VOLCANIC, ANDESIT -IC VOLCANICLASTIC?, POSSIBLE FLOW? PYRITE CONTENT IN -CREASES, DENSITY OF VEINS OF AGGREGATE, SUBHEDRAL X' -TALLINITY PYRITE GRAINS (UP TO 2.5MM) UP TO 20% OF MODE.

13655 15927 DC/FPFAC MGMX MX

5AQZ <2

UNIT IS MEDIUM GRAINED, MEDIUM TO DARK GREY WITH A GR -EENISH TINGE. COMPOSED OF SUBHEDRAL X'TALLINITY PLAG -IOCLASE, WHITE (1MM, 30%), ACTINOLITE/HORNBLENDE, DA -RK GREY, ANGULAR, ANHEDRAL (1MM, 30%), SET IN A FINE GRAINED LIGHT GREY QYUARTZ-RICH MATRIX. PYRITE VEINS TYPICALLY 1CM IN WIDTH, OR AS PERVASIVE ALTERATION AC -COUNTS FOR ABOUT 20% OF MODE.

14030 15927 A5X P3

INTERVAL OF MODERATE TO INTENSE PYRITIZATION.

15927 18008 AN/FACPF FGMX MX

5G VS 60 <+

MASSIVE, FINE GRAINED, MEDIUM GREEN, ANDESITIC COMPOS -ITION FLOW, GRAINS ARE EITHER TOO FINE TO RECOGNIZE OR ARE LOCALLY MEDIUM GRAINED, SUBHEDRAL TO ANHEDRAL X'TALLINITY, EQUAL DISTRIBUTION, 50:50. MINOR BLEBS, VEINLETS OF PYRITE. ***NOTE***, THE UNIT IS PREDOMINA -NTLY UNALTERED. NO QUESTION AS TO THE SPECIES OF THE ROCK TYPE.

17482 17932 A3XDC/F VS <+

INTERVAL IN WHICH THERE IS MILD PYRITE ALTERATION, PY -RITE IN THE FORM OF VEINLETS 2MM IN WIDTH IN WHICH EUHEDRAL PYRITE GRAINS RANGING FROM 1-4MM IN DIAMETER ARE RANDOMLY DISTRIBUTED, THE MATRIX OF THE NARROW VE -INLETS IS CHLORITE.

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D    17932 18008    A3XDC/F
                         5T                                    P1
                         INTERVAL OF MILD PERVASIVE CARBONATE ALTERATION, TAN
R                        TO LIGHT ORANGE COLOUR.
R    18008 24808    A3XDCVCQZAC    FGFO          C/     30
                         5APF    BD            BD     40<1
                         FINE GRAINED, MILDLY TO MODERATELY FOLIATED, BANDED/
R                        BEDDED, DACITIC COMPOSITION TUFF, THE UNIT HAS A VERY
                         SHARP UPPER CONTACT WITH THE ANDESITE FLOW. BEDDING I
                         -S LOCALLY GRADED. ***NOTE***, AT 185.1-185.25M FINE
R                        GRADED BEDS OVER 1.5CM INTERVALS. GRADING INDICATES T
                         -HAT YOUNGING DIRECTION IS DOWN THE HOLE. THE UNIT IS
R                        MICROVEINED WITH FERROAN-DOLOMITE AT IRREGULAR ORIENT
                         ATIONS. THE VEINLETS ARE TYPICALLY 1-2MM IN THICKNESS
R                        AND SUBPARALLEL THE BEDDING FROM 40-90 DEGREES TO C.A
                         .
L    18849 18990    A5XDCVCQZD:    FGMX          MX     P2
                         3TPF                                  P3
                         PERVASIVE FE-CARBONATE AND SILICIFICATION.
L    18990 19500    A5XDCVCQZPF    FGFO          FO     35
R                        3GAC                                  P4      <=
                         PERVASIVELY, MODERATELY TO INTENSELY CHLORITIZED AND
R                        PYRITIZED TUFF. CHLORITIC ALTERATION IS MOST INTENSE
                         WHERE IN ASSOCIATION WITH PYRITE. PYRITE AS DISSEMINA
R                        -TIONS AND AS AGGREGATES FORMING VEINLETS UP TO 5MM I
                         -N THICKNESS. THE GRAINS IN THE VEINLETS ARE EUHEDRAL
R                        (2-3MM,50%), PYRITE ACCOUNTS FOR ABOUT 5% OF THE MODE
                         OVERALL.
D    19500 24300    A3XDCVCACPF    FGFO          FO     53P1          P=
                         5A                      VQ     60P1
R                        THE UNIT IS VARIABLY ALTERED AND UNALTERED IN INTERVA
R                        -LS OF @1-2M LENGTHS. ALTERATION IS EVIDENT THROUGH
                         VARIATIONS IN COLOUR INDEX. THE MOST PROMINENT ALTERA
R                        -TION IS A MILD CARBONATIZATION IN THE FORM OF MICROV
                         EINLETS AND PERVASIVE, GIVING THE CORE A TAN ORANGE T
R                        -INGE. THIS ALTERATION IS FREQUENTLY ASSOCIATED WITH
                         A SILICA AND WHITE MICA FLOODING. LESS FREQUENT ALTER
R                        -ATION IS THE CHLORITE+PYRITE ASSOCIATION, ALTERATION
                         OF THIS VARIETY OCCURS OVER <1M LENGTHS. FROM ABOUT
R                        226M DOWN HOLE, BARREN WHITE QTZ VEINS OCCUR ABOUT 30
                         CM INTERVALS, VEINS RANGE IN THICKNESS FROM 1-4 CM.
D    24300 24628    A3XDCVCPFQZ    FGFO9115      FO     60P3          N=
                         7A      XT     O                P1
R                        UNIT IS DISTINCTIVE ON THE BASIS NODULES/PATCHES OF C
                         -ALCITE, OVOID SHAPED, 1-2CM IN DIAMETER, RANDOMLY
R                        ORIENTED/DISTRIBUTED THROUGHOUT, AND EQUANT, SUB-ROUN
                         -DED (1-2MM, <5%), THE CLACITE PATCHES ARE NOT CLASTS
R                        AS INDICATED IN THE GRANGES DRILL LOGS.
D    24679 24808    A5XDCVC                               P3          P2
                         2A                                    P1
R                        INTERVAL OF MODERATE SILICIFICATION, PATCHES ARE SILI
R                        -CIFIED, AREAS OF ABOUT 10CM IN DIAMETER, INTERSPERSE
                         -D WITH REGIONS OF ONLY MILD SILICIFICATION/SERICITIZ
R                        -ATION. COLOURS VARY FROM YELLOWISH-WHITE IN THE MOST
                         INTENSELY ALTERED REGIONS TO LIGHT GREY WHERE ALTERAT
R                        -ION IS ONLY MILD.
L    24808 25589    A3XTUFTACPF    FGBDX  3      BD     55
                         5A      HO     9 O                          L1
R                        VERY MILDLY CHLORITIZED, MEDIUM GREY-GREEN, FINE GRAI
                         -NED DACITIC TUFF WITH INTERVALS OF PYRITE, VOLCANICL
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-ASTIC WITH COMPONENT OF CHEMICAL PRECIPITATE. PYRITE BEDS ARE WHISPY, 7-10MM IN THICKNESS, COMPOSED OF DIS CRETE GRAINS OF PYRITE, EUHEDRAL, COARSE GRAINED TO F -INE GRAINED/APHANITIC. THE DACITE TUFF IS ESSENTIALL -Y UNALTERED, HOMOGENEOUS.

25589 27957 A7XDCVCACPF FGHO
3G P2 P2P1B) D)
ALL CORE SPLIT, APPEARS TO BE A PYRITIC ALTERATION OF A FINE GRAINED TUFF. THIS IS NOT A MASSIVE SULPHIDE IN THE SYNGENETIC SENSE, IT IS AN EPIGENETIC SULPHIDE , PREDOMINANTLY PYRITE INTERVAL. LOCALLY THE UNIT IS SEMI-MASSIVE TO MASSIVE PYRITE. GRANGES - "OVERALL CO -NTAINS ABOUT 15% PYRITE, 10% PYRRHOTITE, <1% SPHALER -ITE. PYRRHOTITE, CHALCOPYRITE, AND SPHALERITE ARE AL -L FINE GRAINED, MAXIMUM CRYSTAL SIZE IS <1MM LONG. P -YRITE CRYSTALS ARE UP TO 2MM LONG. COMPARED WITH THE SULPHIDE INTERVALS FROM ABOUT 95 TO 160M, THIS IS MUC -H MORE INTENSELY PYRITIZED AND CHLORITIZED, ALTHOUGH IT APPEARS TO BE EPIGENETIC, THIS COULD BE THE EQUIVA -LENT OF A MASSIVE SULPHIDE ALONG STRIKE WHERE THE FLUIDS MAY HAVE DEBOUCHED AT A ROCK-WATER INTERFACE.

27957 29352 TUFTPFQZ FGBD BD 60
3A
DARK GREYISH-GREEN, FINE GRAINED, DACITIC TO ANDESITI -C COMPOSITION TUFF WTIH INTERBEDS OF PYRITE. THE INT -ERVAL IS DOMINATED BY TUFF (>=60%), SULPHIDE BEDS AR -E SUBORDINATE. IN THE BEST DEVELOPED BEDS, PYRITE IS SUBHEDRAL TO EUHEDRAL, RANGING IN SIZE FROM <<1MM TO 4MM IN DIAMETER, BEDS ARE 2-10MM IN THICKNESS. UNIT I -S COMPOSED OF @15% PYRITE AND OTHER SULPHIDE COMBINE -D.

29249 29303 X
L+L3B+
"PYRRHOTITE-CHALCOPYRITE EXHALITE TUFF; STRONGLY MAGN -ETIC; 25% FINE PYRRHOTITE, 2% PYRITE, 2% CHALCOPYRIT -E, GROUND CORE, ALL RE-DRILLED."

29352 30464 A3XDCVCACPF FGFO FO
5G HO P1 <=
FINE GRAINED, MEDIUM GREEN, MILDLY CHLORITIZED, HOMOG -ENEOUS, SLIGHTLY BANDED DACITIC TUFF. PYRITE OCCURS IN VEINLETS PARALLELING OR SUB-PARALLELING THE MILD F -OLIATION. PYRITE ALSO OCCURS AS EUHEDRAL GRAINS UP T -O 4MM/SIDE, DISSEMINATED WIDELY THROUGHOUT. THIS UNI -T IS THE END OF THE PYRITE ALTERATION THAT WAS INTER -SECTED BELOW THE TUFFITE.
NOTE FINELY BEDDED TUFF AT 302.78 M PLACED ON A -N IRREGULAR PALEOTOPOGRAPHIC SURFACE, SHOWS YOUNGING DIRECTION IS DOWN THE HOLE. THIS IS CONSISTENT WITH THE FORM OF ALTERATION AND MINERALIZATION THAT HAS BEEN FOUND IN THIS HOLE

30464 31085 DCVCQZPF FGFO8225 FO 59
2AAC XT 54 O
VERY DISTINCTIVE QTZ-FELDSPAR DACITIC COMPOSITION TUF -F, GREY-GREEN IN COLOUR, MILDLY FOLIATED. QTZ GRAINS ARE VITREOUS, SUB-ROUNDED, DARK-GREY TO BLACK (1.5-2 MM, 5%), RANDOMLY ORIENTED/DISTRIBUTED THROUGHOUT. FE LDSPAR GRAINS RNAGE FROM BEING SUBHEDRAL BLOCKY TO AM -EBOID, (1-3X7MM, 10-15%). THE GRAINS ARE HOSTED WITH -IN A FINE GRAINED TO APHANITIC QUARTZO-FELDSPATHIC GROUNDMASS THAT ACCOUNTS FOR >=80% OF MODE. WEATHERIN

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R                        -G SURFACE INDICATES THAT THE UNIT HAS BEEN MILDLY CA
                         -RBONATIZED, AS IT IS RUSTY-RED ALONG FOLIATION PLANE
                         -S.
P    31085 31932      CHERQZMS   FGBDX          BD                          >1
                         7A              O                          >+
                         CARBONATE AND PYRITE VEINED, APHANITIC X'TALLINITY, M
R                        -EDIUM TO LIGHT GREN, SILICEOUS UNIT, CHERT? VEINS AT
R                        RANDOM ORIENTATION, PYRITE VEINS UP TO 10CM IN THICKN
                         -ESS, COMPOSED OF INDIVIDUAL CRYSTALS OF PYRITE, SUBH
                         -EDRAL TO EUHEDRAL, UP TO 3MM IN DIAMETER. CARBONATE
R                        VEINS ARE COMPOSED OF QTZ+DOLOMITE, RANDOM ORIENTATIO
                         -N, BUT GREATER VOLUME THAN PYRITE VEINS.
     31450 31495      XQZVN                      VQ    90>6                  >3
L                                                     >1
R                        MASSIVE QUARTZ-CARBONATE + CHLORITE VEIN.
     31638 31818      XLOST
     31932 33101   A5XDCVCPFQZ   FGFOX  5       FO    60P2
L                        5AAC            O              P1
                         FINE GRAINED, MEDIUM GREY, HOMOGENEOUS, DACITIC COMPO
                         -SITION TUFF. COMPOSED PREDOMINANTLY OF PLAGIOCLASE +
R                        QUARTZ, ANGULAR GRAINS (<1MM). MICROVEINLETS (<=1MM)
                         AF ANKERITE SUBPARALLEL FOLIATION, VEINLETS ACCOUNT F
                         -OR <5% OF MODE. UNIT HAS BEEN MODERATELY CARBONATIZE
R                        -D, LOCALLY CHLORITIZED, AND SILICIFIED. UNIT IS ALSO
R                        PERVASIVELY, MODERATELY SILICIFIED.
     32483 32552      XQZVN    QZ4                  >4                    >6
                              D:6
R                        MASSIVE QUARTZ-CARBONATE VEIN.
     32721 32925      A5X
                              5N                                  P4
R                        PERVASIVELY CHLORITIZED DACITIC TUFF, DARK GREEN TO B
R                        -LACK.
     33000 33066      A5X
                              5N                                  P3
R                        PERVASIVELY CHLORITIZED DACITIC TUFF.
A001   693   770      D1961
A001   770   800      D1962
A001   887   912      D1963
A001  3312  3400      D1964
A001  6995  7070      D1965
A001  8323  8402      D1966
A001  9402  9419      D1967
A001 11100 11190      D1968
A001 13094 13200      D1969
A001 15753 15789      D1970
A001 16519 16595      D1971
A001 18121 18207      D1972
A001 21631 21710      D1973
A001 22494 22569      D1974
A001 22800 22823      D1975
A001 23102 23126      D1976
A001 30077 30171      D1977
A001 30935 31021      D1978
A001 31436 31500      D1979
A001 32279 32360      D1980
A001 32865 32875      D1981
/END
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APPENDIX D

TECHNICAL SERVICE LABORATORIES

DIVISION OF DURGNER TECHNICAL ENTERPRISES LIMITED

1301 PEWTER DRIVE
MISSISSAUGA, ONTARIO
L4W 1A2
(416) 625-1544 FAX: (416) 625-8388

WHOLE ROCK DISSOLUTION AND ANALYSIS

Dissolution:

Previously pulverized (<200 mesh) sample is dried overnight at 105 C. The sample is weighed into a graphite crucible containing a mixture of lithium carbonate and boric acid. The sample is fused and added to a dilute nitric acid solution containing cadmium as an internal standard. This mixture is further diluted and an aliquot is taken for analysis.

Analysis:

The determinations of all metals are performed by an Inductively Coupled Argon Plasma with a 36 channel direct-reading, background correcting, spectrometer. Calibration is performed using several international rock standards and reagent blanks for the major oxides and synthetic standards for the minor elements. For every five samples tested a reagent blank and an additional international rock standard are fused and run to verify accuracy. One sample is repeated for every 10 samples analyzed. The long term precision of the method for rock material has been demonstrated to be below 2% for elements significantly above detection limits. Spectral interference correction is automatically performed using a matrix subtraction technique for each concomitant.

APPENDIX E

PINEBAY PROJECT - PROJECT # 284

SURFACE ROCK SAMPLES SUBMITTED FOR GEOCHEMICAL ANALYSIS

Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
1626	X			Dacitic tuff, feldspar x'talline.
1627	X			Andesitic tuff, chloritized feldspar x'tals.
1628	X			Qtz.- feldspar ash-tuff, dacitic comp., extremely chloritized.
1629	X			Qtz.- feldspar ash-tuff, dacitic comp., extremely chloritized.
1630	X			Qtz.- feldspar ash-tuff, dacitic comp., extremely chloritized.
1631	X			Dacitic comp. lapilli-ash tuff.
1632	X			
1633	X			Andesitic comp., feldspar x'tal ash-tuff, unaltered.
1634	X			Massive basalt. slightly magnetic.
1635	X			Andesitic - dacitic comp. feldspar x'tal ash-tuff, minor lapilli.
1636		X		Qtz-feldspar x'tal ash-tuff, rhyolitic composition.
1637	X			Andesitic tuff.
1638	X			Dacitic to rhyodacitic comp. tuff.
1639	X			Dacitic to rhyodacitic comp. tuff. minor lithic fragments.
1640	X			Mafic dyke.
1641	X			Dacitic comp. pyroclastic flow, lapilli-tuff/tuff breccia.
1642	X			Dacitic comp. tuff-breccia.
1643	X			Rhyodacitic comp. feld. x'tal tuff.
1644	X			Basaltic-andesite comp. dyke.
1645	X			Dacitic comp. tuff.
1646	X			Pillow basalt.
1647	X			Pillow basalt.
1648	X			Massive basalt.
1649		X		Moderately foliated, pyritic, basalt flow.
1650		X		Moderately foliated, pyritic, basalt flow.
1651	X			Slightly foliated, mildly chloritized, slightly carbonatized basalt.
1652	X			Massive basaltic-andesite.
1653	X			Massive andesite.

PINEBAY PROJECT - PROJECT # 284

SURFACE ROCK SAMPLES SUBMITTED FOR GEOCHEMICAL ANALYSIS

Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
1654		X		Qtz.- feldspar x'tal ash-tuff, rhyolitic composition.
1655	X			Amygdaloidal andesite flow.
1656	X			Monolithic block-ash pyroclastic flow, tuff-breccia, matrix is andesitic
1657		X		Qtz.- feldspar x'tal ash-tuff, rhyolitic composition.
1658	X			Rhyolitic tuff (ash).
1659	X			Dacitic-rhypodacitic comp. lapilli-tuff.
1660	X			Massive basalt.
1661	X			Chloritized rhyodacite????
1662	X			Silicified basalt????/Chloritized tuff????
1663				NO SAMPLE
1664		X		Qtz.- feldspar x'tal ash-tuff, rhyolitic composition.
1665	X			Andesitic to dacitic comp. ash-tuff, lapilli-tuff.
1666	X			Qtz. x'tal rhyodacitic-rhyolitic comp. tuff.
1667	X			Dacitic comp. tuff.
1668	X			Feldspar-phyric, amygdaloidal flow?, andesitic composition?
1669	X			Rhyodacitic tuff, amphibole x'tal rich.
1670		X		Qtz.- feldspar x'tal ash-tuff, rhyolitic composition.
1671	X			Qtz.- feldspar x'tal ash-tuff, rhyolitic composition.
1672		X		Qtz.- feldspar x'tal ash-tuff, rhyolitic composition.
1673		X		Rhyodacitic comp. qtz.- feldspar x'tal ash-tuff.
1674	X			Rhyodacitic comp. qtz.- feldspar x'tal ash-tuff.
1675	X			Dacitic comp. feldspar x'tal ash tuff.
1676	X			Andesitic to dacitic comp. tuff.
1677	X			Andesitic comp., chloritization network.
1678	X			Clast contained within a pyroclast-rich unit, rhyodacitic tuff.
1679	X			Andesitic tuff.
1680	X			Andesitic to dacitic composition tuff.

PINEBAY PROJECT - PROJECT # 284

SURFACE ROCK SAMPLES SUBMITTED FOR GEOCHEMICAL ANALYSIS

Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
1681	X			Clast, dacitic composition tuff.
1682		X		Qtz.- feldspar x'tal ash-tuff, rhyolitic comp.

APPENDIX F

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
DDH 5-83	1551	X			Qtz-X'tal dacitic composition tuff, chloritized and sericitized.
	1552	X			Intensely chloritized rhyodacitic tuff.
	1553	X			Moderately chloritized dacitic, quartz x'tal tuff.
	1554	X			Intensely chloritized dacitic tuff.
	1555	X			Homogeneous dacitic tuff, moderate muscovite and chlorite content.
	1556	X			Sericite/white-mica-rich rhyodacite tuff.
	1557	X			Rhyodacitic tuff, mild carbonate alteration.
	1558	X			Rhyolitic? composition tuff, mild carbonate alteration.
	1559	X			Chloritized rhyodacitic tuff.
	1560	X			Flow banded rhyolite flow, mildly carbonatized.
	1561	X			Moderately chloritized, plagioclase x'tal- rich dacitic tuff, dark green in colour.
	1562		X		Massive rhyolite, possible flow.
	1563	X			Medium grey, fine grained, dacitic to andesitic composition tuff.
	1564			X	Pyrite-rich, chloritized, sericitized dacitic tuff.
	1565	X			Andesite flow? with distinct foliation, carbonatized plagioclase grains.
	1566		X		BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
DDH 10-86	1567	X			Massive andesite flow, 1% pyrite disseminated throughout.
	1568	X			Andesitic composition lapilli-tuff, spotted texture.
	1569	X			Andesitic composition lapilli-tuff, spotted texture, footwall to chemical sediment, 1% disseminated pyrite.
	1570	X			Andesitic composition lapilli-tuff to homogeneous tuff, likely dacitic composition, 1% disseminated pyrite.
	1571	X			Heterogeneous tuff-breccia, pyroclastic flow. Rhyodacitic composition, <1% pyrite disseminations.
DDH 11-86	1572	X			Andesitic composition hyaloclastite, <= 1% pyrite disseminations.
	1573	X			Massive andesite flow.
	1574	X			Mildly chloritized andeiste flow.
	1575	X			Andesitic flow, breccia, massive, homogeneous.
	1576	X			Silicified, sausseritized flow breccia.

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
DDH 14-86	1577	X			Qtz grain-rich andesite flow?
	1578	X			Aphyric, massive, andeiste flow.
	1579	X			BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
	1580	X			Quartz-porphyritic diorite/gabbro.
DDH 18-86	1581	X			Feldspar-phyric andesite flow.
	1582	X			Dacitic tuff, qtz x'tal, feldspar x'tal.
	1583	X			Massive andesite flow, homogeneous
	1584	X			Andesite tuff, mild banding. Andesitic to dacitic composition.
DDH 19-86	1585	X			Massive, andesitic composition volcanic, possible flow.
	1586	X			Massive, light-green andesite flow, dolomite amygdaloidal.
	1587	X			Homogeneous andesitic to dacitic composition tuff, mildly foliated.
DDH 21-86	1588	X			Massive andesite flow, homogeneous.
	1589	X			Andesitic to dacitic composition tuff-breccia.
	1590	X			Qtz-crystal lapilli-tuff, rhyolitic composition.
	1591	X			Andesitic composition lapilli-tuff.
	1592	X			PB-21-265 Tuff-breccia, andesitic composition.
	1593	X			PB-21-307 lapilli-tuff, dacitic to andesitic composition.
	1594	X			PB-21-322 Homogeneous andesitic composition tuff.
	1595	X			PB-21-343
	1596	X			PB-21-349
	1597	X			Andesitic to dacitic composition tuff, compare with D1596, contiguous.

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1598	X			PB-21-356
	1599	X			PB-21-405
	1600	X			PB-21-405a?
DDH 120-76	1683	X			Mafic dyke, sub-ophitic textured
	1684	X			Mafic dyke, sub-ophitic textured, feldspar-phyric
	1685	X			Mafic dyke
	1686	X			Dacitic comp. volcaniclastic, cherty textured
	1687	X			Andesite flow
	1688	X			Qtz-x'tal dacitic comp. tuff
	1689	X			Silicified and carbonatized interval of fine grained dacitic tuff. Py. disseminated throughout.
	1690	X			Chloritized dacitic tuff
	1691	X			Chloritized dacitic tuff, NOTE: rock may have a higher mafic content
	1692	X			Quartz crystal-rich dacitic tuff.
	1693	X			Quartz crystal-poor, chloritizedm, dacitic tuff
	1694		X		Fine grained, chloritized, dacitic tuff
	1695	X			Mafic dyke
	1696	X			Fine grained dacitic tuff
	1697	X			Fe-carbonate-rich dacitic tuff
	1698	X			" "
	1699	X			Fe-carbonate-rich dacitic tuff, likely rhyolitic composition
DDH 138-76	1700	X			Dacitic-rhyodacitic composition tuff
	1701	X			Andesitic-dacitic comp. feldspar-hornblende x'tal tuff
	1702	X			Andesitic-dacitic comp. tuff, less cloritic alteration than D 1701
	1703	X			Rhyolitic composition tuff, white mica-rich

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1704	X		Rhyodacitic to rhyolitic composition volcaniclastic, minor lapilli present.
	1705		X	Quartz-feldspar phyric rhyolite, sericitized
	1706	X		Feldspar crystal tuff, dacitic comp. possibly chloritized
	1707	X		Feldspar x'tal tuff, chloritized and silicified.
	1708	X		Rhyodacitic-rhyolitic comp. tuff
	1709	X		Laminated, dacitic-rhyodecitic comp. tuff
	1710	X		
	1711	X		Qtz.-crystal rhyolite tuff
	1712	X		Massive rhyolite, sericite-rich
	1713	X		Rhyolite tuff, qtz-sericite-rich
	1714	X		Rhyolite tuff, white mica-rich
	1715	X		Rhyolitic comp. qtz, white-mica-rich
	1716	X		Basaltic-andesite, locally feldspar-phyric
	1717	X		Basaltic-andesite
	1718	X		Basaltic-andesite, quartz amygdaloidal
DDH 139-76	1719	X		Basaltic-andesite
	1720	X		Basaltic-andesite, amygdaloidal, flow brecciated
	1721	X		Andesitic tuff, laminated
	1722		X	BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
	1723		X	BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
	1724		X	BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
	1725	X		Andesite flow
	1726	X		Andesite-dacite flow
	1727	X		Dacite flow

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
DDH 136-77	1728	X			Andesite flow, moderately chloritic
	1729	X			Dacite flow? Silicified, pink colour
	1730	X			Dacite-rhyodacite tuff. Moderately laminated
	1731	X			Dacitic-rhyodacitic tuff
	1732	X			Andesitic tuff
	1733	X			Dacitic tuff, laminated
	1734	X			Andesitic-dacitic comp. tuff
	1735	X			Dacitic-rhyodacitic comp. lapilli-tuff
	1736	X			Dacite flow, dark green
	1737	X			Feldspar x'tal tuff
	1738	X			Dacitic-rhyodacitic comp. flow, aphyric
	1739	X			Dacitic tuff, laminated, mildly chloritic
	1740	X			Andesitic comp. qtz. feldspar x'tal tuff
DDH 121-76	1742	X			Medium green, fine grained, chloritized dacite.
	1743	X			Light grey-green, fractured rhyodacite. Massive. Pyrite disseminated throughout (<3% of mode).
	1744	X			Massive, dacitic composition flow?, possibly andesitic composition.
	1745	X			Qtz-feldspar x'tal tuff, dacitic composition.
	1746	X			Medium green, chloritized? feldspar x'tal tuff, andesitic to dacitic composition.
	1747	X			Rhyodacitic tuff, unaltered. Qtz x'tals (1 mm, 10%) randomly distributed throughout.
	1748	X			Medium green, fine grained feldspar-qtz x'tal-rich, chloritized rhyolite tuff.
	1749	X			Qtz-feldspar x'tal tuff, rhyolitic composition, possibly sericitized and silicified.
	1750	X			Sericitized and silicified rhyolite tuff.
	1751	X			Light to medium green, fine grained, chloritized qtz x'tal rhyolite tuff.
	1752	X			Qtz x'tal rhyolite tuff.
	1753	X			Medium green, fine grained, mildly chloritic dacitic tuff. Qtz grains throughout, possible rhyolite.
	1754	X			Fe-carbonatized, sericitized, rhyolite tuff.

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1755	X			Fine grained rhyolite tuff, essentially sericite schist.
	1756	X			Moderately Fe-carbonatized, rhyolite tuff/sericite schist.
	1757	X			Andesitic tuff, possible volcanic wacke.
DDH 131-76	1758	X			Massive andesite, chloritized?
	1759	X			Massive, aphyric andesite. Possible moderate chloritization. Pyrite as disseminations, up to 5% of mode.
	1760	X			Qtz-feldspar x'tal? rhyodacite. Possibly chloritized.
	1761	X			Massive andesite-dacite flow, fine grained.
	1762	X			Andesitic to dacitic composition tuff, massive, no bedding.
	1763	X			Qtz-feldspar x'tal andesitic or dacitic tuff. Mild chloritization.
	1764	X			Andesitic feldspar x'tal tuff.
	1765	X			Medium green, fine-medium grained andesitic tuff, mildly foliated. Local Fe-carbonatization.
	1766	X			Qtz-feldspar x'tal tuff, dacitic? composition, mildly to moderately chloritized.
	1767	X			Andesitic tuff, homogeneous, mild foliation, black on split surfaces, chloritized?
	1768	X			Light grey-green, fine grained, mildly to moderately foliated, dacitic to ryhodacitic tuff.
	1769	X			Massive chlorite altered dacite-rhyodacite tuff?
	1770	X			Intensely chloritized rhyodacitic/dacitic tuff.
	1771	X			Dacitic-rhyodacitic tuff, sericitized.
	1772		X		Qtz-feldspar phyric rhyolite intrusion.
	1773	X			Medium grained, medium green, chloritized dacitic tuff.
	1774	X			Medium-light green, fine grained dacite flow.
DDH U6-30	1775	X			Quartz-feldspar x'tal tuff, dacitic composition
	1776	X			Dacitic to rhyodacitic tuff, sericitized and Fe-carbonatized
	1777	X			Sericite-rich rhyodacitic tuff, massive
DDH U6-42	1778	X			Rhyolitic tuff, heavily sericitized

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUSMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1779	X			Dacitic composition tuff, mildly altered
	1780	X			Rhyodacitic tuff, sericite-ric
	1781	X			Rhyodacitic to rhyolitic composition tuff, sericite-rich, 5-7% pyrite
	1782	X			Dacitic tuff,
	1783	X			Andesitic to dacitic composition tuff, slightly chloritic and sericitic
DDH U6-46	1784	X			Massive dacitic composition flow?
	1785	X			Sericitized dacitic tuff
	1786	X			Granular textured dacitic tuff, very mildly altered
	1787	X			Lapilli-tuff, intensely chloritized
	1789	X			Lapilli-block tuff. Intensely chloritized
	1790	X			Lapilli-tuff, moderately chloritized. Dacitic comp?
	1791	X			Fe-carbonatized dacitic tuff
	1792	X			Dacitic tuff, chloritized
	1793	X			Rhyodacitic composition lapilli-tuff, pyrite interstitial to clasts
	1794	X			Dacitic composition tuff, seicitic and pyritic (7%)
	1795	X			Lapilli-tuff, extremely well banded, extensive sericite alteration
	1796	X			Lapilli-tuff, dacitic composition. Intensively sericitized, possible extensive silicification
DDH U2-15	1797	X			Very mildly foliated andesite flow, possible tuff.
	1798	X			Sericitized, carbonatized, rhyodacitic tuff.
	1800		X		Sericitized qtz-feldspar phyric rhyolite-rhyodacite.
	1801	X			Qtz-feldspar x'tal dacite-rhyodacite tuff, moderately chloritized, medium green.
	1802	X			Dacitic composition tuff. Quartz crystals and felsic lapilli present, mild chlorite alteration.
	1803	X			Intensely chloritized qtz x'tal dacite tuff.
	1804	X			Fine grained dacitic to andesitic composition tuff.

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1805	X			Qtz x'tal rhyodacitic to rhyolitic composition tuff.
DDH U6-62	1806	X			Dacitic composition tuff-breccia or in-situ breccia, "Fish-scale texture."
	1807	X			Fine grained, homogeneous, dacitic composition tuff, cherty. Plagioclase x'tallites present (<<1 mm, @10%).
	1808	X			Dacitic composition flow breccia.
	1809	X			Dacitic composition tuff, fine grained.
	1810	X			Qtz x'tal tuff, dacitic composition.
	1811	X			Fine grained, homogeneous, dacitic composition tuff.
	1812	X			Homogeneous dacitic composition tuff, moderately chloritized.
	1813	X			Intensely chloritized dacitic tuff?
	1814	X			Homogeneous dacitic tuff, moderately chloritized, blebs of chalcopyrite.
DDH 5-83	1815	X			Medium green, fine grained dacitic composition flow breccia.
	1816			X	Rhyolite flow, fine grained, massive.
	1818	X			Massive dacite flow.
	1819	X			Massive dacitic composition lapilli-tuff.
	1820	X			Dacitic composition lapilli-tuff, "fish-scale textured."
	1821	X			Andesite flow or tuff, mildly chloritized.
	1822	X			Massive, homogeneous, dark green-grey, dacitic composition lapilli-tuff.
	1823	X			Dacitic composition lapilli-tuff, mildly to moderately sericitized.
	1824	X			Medium grey, homogeneous, dacitic tuff, mildly sericitized.
	1825	X			Sericite-rich rhyolite tuff, possible talc present.
DDH 137-76	1826	X			Andesite sill, slightly altered
	1827	X			Andesite sill, same unit as previous sample
	1828	X			Andesite sill, same unit as previous sample

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

Sample Number		WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1829	X			Andesite flow
	1830	X			Rhyolite tuff
	1831	X			Andesite flow, same unit as D1829
	1832	X			Rhyolite tuff, same unit as D1830
	1833	X			Rhyodacite tuff
	1834	X			Rhyodacite tuff, same unit as previous sample
	1835	X			Rhyodacite tuff, same unit as previous sample
	1836	X			Rhyodacite tuff, same unit as previous sample
	1837	X			Rhyodacite tuff, same unit as previous sample
	1838	X			Rhyodacite tuff, probably very similar to previous sample
DDH 140-77	1839	X			Andesite flow
	1840	X			Andesite flow, same unit as previous sample
	1841	X			Dacitic flow
	1842	X			Dacite flow, same unit as previous sample
	1843	X			Dacite flow, same unit as previous sample
	1844	X			Dacite flow, same unit as previous sample
	1845	X			Dacite flow, same unit as previous sample
	1846	X			Dacite tuff
	1847	X			Dacite tuff, same unit as previous sample
	1848	X			Andesite tuff
	1849	X			Dacite tuff
DDH 122-76	1850	X			Andesite tuff
	1851	X			Andesite tuff
	1852	X			Hyaloclastite, Massive basaltic-andesite flow

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
DDH 124-76	1853	X			Dacite tuff
	1854	X			Reworked volcanics, andesitic tuff section
	1855	X			Very fine grained massive andesite
	1856	X			Dacite tuff within reworked volcanics
	1857	X			Small plagioclase crystal tuff unit within the reworked volcanics
	1858	X			Andesite tuff within reworked volcanics
	1859	X			Same unit as last sample
	1860	X			Feldspar crystal andesite tuff
DDH 29-67	1861	X			Quartz crystal tuff, very highly chloritized
	1862	X			Dacite tuff, sericite and chlorite alteration
	1863	X			Quartz crystal tuff, sericite and chlorite alteration
	1864	X			Quartz crystal tuff, same unit as previous sample
	1865	X			Quartz crystal tuff, same unit as previous sample
	1866	X			Quartz crystal tuff, same unit as previous sample
	1867	X			Quartz crystal tuff, same unit as previous sample
	1868	X			Andesite tuff, sericite and chlorite alteration
	1869	X			Andesite tuff, same unit as previous sample
	1870	X			Andesite tuff, chlorite alteration
	1871	X			Dacite flow, high epidote content
	1872	X			Dacite flow, could be same unit as previous sample but finer grained
DDH 119-76	1873	X			Dacite tuff, chlorite alteration
	1874	X			Dacite tuff, little alteration
	1875	X			Dacite tuff, same unit as previous sample
	1876	X			Dacite tuff, same unit as previous sample
	1877	X			Dacite tuff, same unit as previous sample
	1878	X			Dacite tuff, same unit as previous sample

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1879	X			Dacite tuff, same unit as previous sample
	1880	X			Andesite tuff, chlorite alteration & ankerite veining
	1881	X			Andesite tuff, same unit as previous sample
	1882	X			Andesite tuff, same unit as previous sample
	1883	X			Andesite tuff, same unit as previous sample
	1884	X			Andesite tuff, chlorite alteration
	1885	X			Andesite tuff, same unit as previous sample
	1886	X			Rhyodacite tuff
DDH 124-76	1887	X			Reworked volcaniclastic, 30% sericite
DDH U6-16	1888	X			dacitic tuff, sericite & chlorite alteration
	1889	X			dacitic tuff, sericite & chlorite alteration
	1890	X			dacitic tuff, chlorite alteration
	1891	X			Quartz crystal tuff, chlorite alteration
DDH U2-16	1892	X			Andesite flow, 10% chlorite
	1893	X			Rhyodacite tuff, 70% sericitized
	1894		X		Quartz feldspar porphyry
	1895	X			Dacite tuff, sericite alteration
	1896	X			Dacite tuff, same unit as previous sample but less altered
	1897	X			Quartz crystal tuff, chlorite alteration
	1898	X			Quartz crystal tuff, same unit as previous sample
	1899	X			Quartz crystal tuff, same unit as previous sample but more chloritized
	1900	X			Quartz feldspar crystal tuff, sericite & chlorite alteration
DDH U6-55	1901	X			Dacite tuff, contains some clasts
	1902	X			Dacite tuff or flow, thin section

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1903	X			Dacite tuff or flow, same unit as previous sample
	1904	X			Dacite tuff or flow, same unit as previous sample
	1905	X			Dacite tuff or flow, same unit as previous sample, high silica content
	1906	X			Dacite tuff or flow, same unit as previous sample, high silica content
	1907	X			Dacite tuff or flow, same unit as previous sample, high silica content
	1908	X			Andesite tuff, preceding massive sulfide
DDH U6-58	1909	X			Andesite tuff
	1910	X			Andesite tuff
	1911	X			Andesite tuff
	1912	X			Andesite tuff
	1913	X			Andesite tuff, highly silicified
	1914	X			Andesite tuff, some clasts present
	1915	X			Massive chlorite
DDH 21-86	1926	X			PB-21-416
	1927	X			PB-21-418
	1928	X			PB-21-423
	1929	X			PB-21-425
	1930	X			PB-21-434
	1931	X			PB-21-434
	1932	X			PB-21-439
	1933	X			PB-21-444
	1934	X			PB-21-447
	1935	X			PB-21-457
	1936	X			PB-21-460
	1937	X			PB-21-472
	1938	X			PB-21-475

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1939	X			PB-21-480
	1940	X			Qtz crystal andesitic to dacitic tuff, possible chloritization.
DDH 24-86	1941	X			Tuff-breccia, clasts up to 5 cm, chlorite veinlets.
	1942	X			PB-24-43, sample taken adjacent to vuggy qtz-carbonate vein.
	1943	X			PB-24-128
	1944	X			Fine grained, dacitic composition lapilli-tuff.
	1945	X			BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
	1946	X			PB-24-213
	1947	X			PB-24-252
	1948	X			Andesitic composition, homogeneous tuff.
	1949	X			PB-24-280
	1950	X			PB-24-295
	1951	X			PB-24-335
	1952	X			Mildly carbonatized, tan coloured, andesitic-dacitic composition tuff.
	1953	X			Medium green, mildly chloritized, andesitic-dacitic composition tuff.
	1954	X			PB-24-387 Qtz x'tal tuff, dacitic.
	1955	X			Qtz x'tal dacitic composition tuff.
	1956	X			PB-24-415
	1957	X			PB-24-421
	1958	X			Andesitic to dacitic composition flow breccia?
	1959	X			PB-24-472
	1960	X			PB-24-492
DDH 30-86	1961	X			Pyritic dacitic tuff.
	1962	X			PB-30-26

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

Sample Number		WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
	1963	X			PB-30-31
	1964	X			Andesitic to dacitic composition tuff, mild chloritization, 1% pyrite disseminations.
	1965	X			Chloritic hyaloclastite, andesitic composition.
	1966	X			Andesite flow?
	1967	X			PB-30-306
	1968	X			Mildly foliated, andesite flow, pyritic veinlets (20%).
	1969	X			Moderately foliated andesitic tuff?
	1970	X			PB-30-517
	1971	X			Massive, unaltered, andesite flow.
	1972	X			Dacitic composition tuff, very mild carbonate alteration.
	1973	X			Unaltered, homogeneous, dacitic composition tuff.
	1974	X			Moderately silicified and sericitized dacitic tuff.
	1975	X			PB-30-735
	1976	X			PB-30-749
	1977	X			Slightly pyritic dacitic tuff (1-2% pyrite in 2-3 mm bands parallel to foliation).
	1978	X			Qtz x'tal dacitic tuff, slightly carbonatized.
	1979	X			Qtz-carbonate veined chert.
	1980	X			Mild to moderate carbonate alteration of dacitic tuff, moderate silicification.
	1981	X			PB-30-1079
	1982	X			BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
DDH 26-86	1983	X			Andesitic composition flow breccia.
	1984	X			Dacitic to rhyodacitic composition tuff.
	1985	X			Chloritized dacitic tuff.
	1986	X			Massive andesite flow?
	1987	X			Medium green, andesitic composition tuff.
	1988	X			Qtz x'tal andesitic to dacitic composition tuff, possible dacite.

PINEBAY PROJECT - PROJECT # 284

DIAMOND DRILL CORE SUBMITTED FOR GEOCHEMICAL ANALYSIS

	Sample Number	WRA	WRA + REE	WRA, Cu,Pb,Zn,Ag	Rock type/description
DDH 125-76	1989	X			Massive andesite tuff.
	1990	X			Massive to slightly foliated andesite tuff, grading to chlorite schist.
	1991	X			Chlorite schist.
	1992	X			Carbonatized chlorite schist.
	1993	X			Medium green andesite flow, massive.
	1994	X			Carbonatized? andesite tuff, highly foliated, qtz-carbonate banded (40% of mode). Possible questionalbel WRA results.
	1995	X			Massive to mildly foliated andesite tuff.
	1996	X			Fuchsitic?, carbonatized, faulted, rhyodacitic lapilli-tuff, schictose.
	1997	X			Massive basaltic-andesite tuff.Intensely chloritized andesite tuff?
	1998	X			Intensely chloritized andesite tuff.
	1999	X			BLANK - ACME 91-1577, ROCK #2, BRANDYWINE QUARRY
Trout Lake Mine	2001	X			360 m Level, #4 Lens. Dark green, highly chloritic, slightly foliated mafic tuff, possible flow.
	2002	X			360 m Level, #4 Lens. Intensely cloritized, sericitized, felsic tuff, dacitic?
	2004	X			445 X'Cut, Footwall #3 Lens. Fragmental, rhyolitic volcaniclastic. fragments grey, yitreous, ovoid (10 X 7 mm, 15%)
	2006	X			Footwall 480 Drain Level, Footwall of #3 Lens, Cu-rich lens, chlorite schist, possible mafic tuff.

APPENDIX G

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	LOI	MgO+K20	MgO+CaO +Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1800	30.18	30.73	67.93	16.04	3.04	2.94	1.12	5.86	2.30	.34	.07	.21	3.89	3.42	12.22	28.00	2.74
D1801	56.48	57.10	71.21	11.73	6.75	.93	6.51	.06	2.04	.32	.10	.10	4.05	8.55	9.54	90.00	195.50
D1802	78.00	78.79	72.97	10.90	8.64	.19	5.11	.05	1.48	.32	.06	.15	3.57	6.59	6.83	96.00	218.00
D1803	106.73	107.42	67.17	11.27	8.91	.19	11.67	.01	.04	.32	.03	.15	5.08	11.71	11.91	98.00	1127.00
D1804	135.84	136.60	73.63	11.81	7.55	.86	2.48	.12	2.70	.30	.07	.10	4.29	5.18	6.16	84.00	98.42
D1805	146.30	146.91	68.53	13.94	5.27	4.01	1.32	3.38	2.49	.46	.10	.15	6.14	3.81	11.20	34.00	4.12
D1806	3.35	4.04	72.37	13.47	4.55	2.32	.92	5.43	.37	.33	.08	.15	1.53	1.29	9.04	14.00	2.48
D1807	28.96	29.77	72.12	13.74	4.14	2.29	.79	3.20	3.08	.37	.06	.12	2.81	3.87	9.36	41.00	4.29
D1808	40.03	40.73	73.33	12.53	4.34	2.73	.57	2.40	3.43	.33	.07	.12	3.16	4.00	9.13	44.00	5.22
D1809	70.71	71.63	74.70	11.22	4.27	3.56	1.00	2.58	2.05	.29	.07	.10	3.76	3.05	9.19	33.00	4.35
D1810	79.45	80.06	71.90	12.39	4.69	3.88	1.02	3.16	2.21	.39	.08	.12	3.94	3.23	10.27	31.00	3.92
D1811	103.63	104.34	74.47	12.45	3.75	2.20	.72	3.51	2.30	.34	.06	.12	2.68	3.02	8.73	35.00	3.55
D1812	143.03	143.76	69.28	10.68	9.21	.48	9.41	.05	.10	.31	.09	.13	4.96	9.51	10.04	95.00	213.60
D1813	172.96	175.18	56.25	18.05	10.25	.12	12.74	.06	1.44	.52	.03	.13	6.38	14.18	14.36	99.00	300.83
D1814	213.26	214.40	72.51	12.88	6.69	.16	4.55	.07	2.40	.41	.04	.15	3.46	6.95	7.18	97.00	104.00
D1815	5.24	5.90	66.82	13.86	8.81	6.51	1.54	.31	1.36	.40	.15	.18	2.30	2.90	9.72	30.00	44.71
D1816	61.38	62.65	73.80	11.85	2.73	3.77	.39	3.61	3.05	.33	.13	.21	3.55	3.44	10.82	32.00	3.28
D1818	126.42	127.18	72.79	11.26	4.54	3.15	.40	1.17	6.07	.33	.11	.11	2.62	6.47	10.79	60.00	9.62
D1819	182.37	183.00	73.18	12.75	5.50	1.58	1.25	4.29	.85	.35	.08	.14	1.87	2.10	7.97	26.00	2.97
D1820	240.54	241.25	73.72	12.75	4.45	1.78	.64	3.32	2.80	.31	.05	.12	2.13	3.44	8.54	40.00	3.84
D1821	264.26	264.95	59.97	17.32	9.74	2.73	3.51	2.75	2.96	.54	.10	.19	4.30	6.47	11.95	54.00	6.30
D1822	297.14	297.91	74.29	12.40	4.74	1.77	.77	2.89	2.59	.33	.05	.12	2.05	3.36	8.02	42.00	4.29
D1823	326.17	327.00	77.43	11.65	2.80	2.07	.53	2.99	2.00	.30	.04	.10	2.53	2.53	7.59	33.00	3.90
D1824	351.87	352.67	70.26	12.77	6.35	.11	3.43	.08	1.31	.36	.04	.10	4.59	9.74	9.93	98.00	159.63
D1825	425.85	426.62	84.96	10.10	1.11	.10	.44	.20	2.67	.28	.01	.10	1.69	3.11	3.41	91.00	50.50
D1826	25.30	26.06	68.74	13.72	8.26	.38	3.41	2.38	2.33	.52	.04	.15	2.86	5.74	8.50	68.00	5.76
D1827	47.85	48.92	69.08	12.65	8.90	1.00	2.90	3.77	.88	.49	.10	.15	3.04	3.78	8.55	44.00	3.36
D1828	72.47	73.48	68.62	12.90	9.40	1.03	2.27	4.21	.76	.50	.07	.15	2.73	3.03	8.27	37.00	3.06
D1829	93.12	94.18	64.93	13.48	10.16	3.72	1.80	4.11	.72	.61	.17	.21	4.32	2.52	10.35	24.00	3.28
D1830	123.37	124.36	70.55	13.07	5.04	4.60	.99	2.01	2.64	.35	.13	.11	7.35	3.63	10.24	35.00	6.50

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL2O3	FE2O3	CAO	MGO	NA2O	K2O	TIO2	MNO	P2O5	LOI	MgO+K2O	MgO+CaO +Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1861	56.50	56.99	72.08	12.51	6.86	1.30	1.62	3.03	1.93	.40	.08	.08	3.23	3.55	7.88	45.00	4.13
D1862	82.68	83.51	74.07	11.72	7.29	.43	1.70	3.29	.91	.39	.05	.08	2.16	2.61	6.33	41.00	3.56
D1863	107.67	108.66	68.98	12.48	11.54	.86	1.88	2.94	.68	.40	.10	.06	2.86	2.56	6.36	40.00	4.24
D1864	127.86	128.62	69.59	13.29	9.84	.89	3.26	.50	1.87	.40	.15	.08	3.83	5.13	6.52	79.00	26.58
D1865	155.42	156.05	75.32	11.16	7.68	.14	2.74	.16	2.01	.36	.26	.08	3.36	4.75	5.05	94.00	69.75
D1866	181.97	182.50	75.07	11.67	5.31	.69	2.15	3.16	1.52	.26	.07	.04	2.63	3.67	7.52	49.00	3.69
D1867	206.40	207.06	74.87	12.01	5.31	.56	1.41	3.85	1.60	.25	.04	.06	2.03	3.01	7.42	41.00	3.12
D1868	236.61	237.22	50.58	16.96	13.06	5.63	8.02	3.96	.39	.61	.25	.04	7.07	8.41	18.00	47.00	4.28
D1869	251.16	251.76	53.67	16.19	12.36	5.32	5.62	3.84	1.00	.88	.53	.17	6.35	6.62	15.78	42.00	4.22
D1870	261.58	262.19	52.67	16.65	11.58	7.07	7.20	2.57	1.10	.61	.26	.08	4.05	8.30	17.94	46.00	6.48
D1871	308.46	309.07	52.53	15.90	11.96	10.60	4.63	1.85	1.19	.79	.20	.15	4.30	5.82	18.27	32.00	8.59
D1872	330.40	331.01	52.14	16.11	10.71	12.23	5.10	1.31	.58	.75	.19	.13	7.14	5.68	19.42	29.00	10.67
D1873	6.62	7.23	73.29	12.60	5.57	1.30	3.03	.08	3.55	.30	.04	.08	3.93	6.58	7.96	83.00	157.50
D1874	36.12	36.73	74.08	12.31	4.51	1.36	2.52	2.06	2.61	.30	.05	.08	3.59	5.13	8.55	60.00	5.98
D1875	59.31	59.92	64.74	16.26	9.19	.31	4.31	1.14	3.36	.41	.04	.10	3.84	7.67	9.12	94.00	14.26
D1876	81.59	82.05	67.26	16.75	5.81	1.06	2.59	2.10	3.72	.41	.06	.10	3.81	6.31	9.47	67.00	7.98
D1877	102.72	103.33	66.91	14.47	9.08	1.29	4.10	.67	2.69	.35	.10	.08	4.73	6.79	8.75	78.00	21.60
D1878	129.69	130.30	68.38	14.45	6.37	3.06	1.84	2.87	2.32	.35	.08	.06	4.31	4.16	10.09	41.00	5.03
D1879	158.13	158.74	68.98	14.04	6.39	3.17	1.79	2.74	2.30	.34	.09	.08	3.09	4.09	10.00	41.00	5.12
D1880	203.98	204.54	76.97	10.29	3.66	3.11	.89	3.62	.94	.24	.09	.08	3.47	4.83	8.56	21.00	2.84
D1881	222.05	222.73	72.85	11.97	6.19	2.14	1.92	3.26	1.07	.29	.09	.08	3.46	2.99	8.39	36.00	3.67
D1882	236.93	237.54	68.60	13.85	6.78	3.49	1.20	3.64	1.73	.32	.16	.08	4.20	2.93	10.06	29.00	3.80
D1883	258.93	259.54	69.60	15.03	6.56	.89	1.41	3.59	2.34	.36	.07	.08	2.59	3.75	8.23	46.00	4.19
D1884	274.01	274.62	66.20	14.21	10.11	1.54	3.24	2.02	1.85	.41	.10	.18	3.58	5.09	8.65	59.00	7.03
D1885	293.37	293.98	68.19	12.58	8.00	4.74	1.35	2.96	1.28	.36	.15	.15	5.00	2.63	10.33	25.00	4.25
D1886	303.89	304.50	69.89	13.43	5.58	4.05	1.20	2.85	2.17	.42	.07	.10	4.72	3.37	10.27	33.00	4.71
D1887	223.11	223.72	33.88	17.99	11.18	16.50	8.77	1.91	4.33	.67	.22	.05	20.23	13.10	31.51	42.00	9.42
D1888	1.78	2.36	70.10	12.99	7.99	.84	4.61	.07	2.69	.37	.05	.09	4.26	7.30	8.21	89.00	185.57
D1889	29.26	29.87	75.24	10.57	5.88	.43	5.91	.03	1.41	.29	.03	.06	4.02	7.32	7.78	94.00	352.33
D1890	47.55	48.07	61.95	18.75	6.56	.29	7.96	.06	3.41	.58	.02	.15	5.32	11.37	11.72	97.00	312.50

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	LOI	MgO+K20	MgO+CaO +Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1891	65.53	66.14	69.99	11.13	9.15	.29	8.10	.02	.52	.32	.05	.19	4.95	8.62	8.93	97.00	556.50
D1892	12.19	12.80	67.06	13.78	9.33	1.38	2.04	4.75	.76	.53	.11	.17	3.28	2.80	8.93	31.00	2.90
D1893	21.34	21.95	68.59	12.67	5.28	5.34	2.32	.44	4.05	.36	.13	.18	7.95	6.37	12.15	52.00	28.80
D1894	27.43	28.04	68.41	16.19	3.06	2.59	1.35	5.15	2.79	.36	.06	.19	3.90	4.84	11.58	33.00	3.14
D1895	45.72	46.33	71.94	12.22	6.46	1.20	4.92	.05	2.56	.33	.05	.08	4.69	7.48	8.73	86.00	244.40
D1896	56.39	56.98	65.55	13.98	8.96	.70	8.21	.05	1.57	.37	.12	.13	5.71	9.78	10.53	93.00	279.60
D1897	77.72	78.33	66.60	13.38	10.13	.21	7.58	.02	1.29	.40	.03	.15	4.73	8.87	9.10	97.00	669.00
D1898	100.58	101.19	74.49	8.56	7.68	.62	8.04	.01	.04	.24	.04	.06	4.55	8.08	8.71	93.00	856.00
D1899	149.35	149.96	70.87	13.33	7.38	1.74	3.10	.17	2.74	.32	.07	.08	4.51	5.84	7.75	75.00	78.41
D1900	153.92	154.53	69.66	14.19	6.53	1.31	2.18	1.03	4.35	.45	.04	.12	3.70	6.53	8.87	74.00	78
D1901	3.05	3.66	75.23	12.09	3.87	2.04	.93	3.81	1.34	.36	.08	.14	2.22	2.27	8.12	28.00	.
D1902	18.29	18.90	71.54	13.69	4.47	2.67	.88	3.08	3.01	.38	.07	.12	3.26	3.89	9.64	40.00	
D1903	39.62	40.23	71.80	11.25	5.15	5.40	1.09	1.94	2.55	.31	.14	.08	5.29	3.64	10.98	33.00	
D1904	56.39	57.00	75.19	12.24	4.33	1.73	.94	2.12	2.88	.32	.05	.10	2.76	3.82	7.67	50.00	
D1905	79.25	79.86	72.22	10.97	4.53	5.47	.82	3.07	2.12	.29	.14	.08	5.26	2.94	11.48	26.00	3..
D1906	102.11	102.72	74.76	12.19	4.26	1.37	.73	3.31	2.83	.35	.04	.12	1.95	3.56	8.24	43.00	3.64
D1907	123.44	124.05	72.24	10.79	11.11	.26	1.73	.10	2.90	.34	.10	.09	5.81	4.63	4.99	93.00	107.90
D1908	172.21	172.82	71.14	12.20	9.23	.17	4.11	.06	2.34	.39	.04	.10	4.89	6.45	6.68	97.00	203.33
D1909	6.10	6.71	72.79	13.19	5.12	1.67	1.08	4.96	.60	.37	.08	.12	1.54	1.68	8.31	20.00	2.66
D1910	28.96	29.57	75.51	11.75	3.41	2.09	.33	2.74	3.65	.31	.06	.10	2.26	3.98	8.81	45.00	4.29
D1911	62.48	63.09	69.51	11.55	5.28	6.82	1.35	2.18	2.36	.31	.15	.06	6.55	3.71	12.71	29.00	5.30
D1912	88.39	89.05	73.00	11.55	3.31	5.49	.77	2.25	2.82	.32	.12	.11	5.31	3.59	11.33	32.00	5.13
D1913	118.87	119.48	72.05	12.15	5.39	3.12	1.56	3.47	1.56	.34	.10	.12	3.80	3.12	9.71	32.00	3.50
D1914	140.21	140.82	70.50	16.29	5.95	1.23	1.87	2.20	3.12	.43	.10	.19	3.40	4.99	8.42	59.00	6.50
D1915	220.98	221.59	31.08	24.84	16.51	.01	25.73	.01	.02	.40	.06	.14	10.68	25.75	25.77	100.00	2484.00
D1926	126.36	126.66	77.24	9.69	3.05	3.83	1.96	2.48	1.18	.23	.08	.06	4.40	3.14	9.45	33.00	3.91
D1927	127.82	127.99	74.51	10.26	4.75	3.88	2.87	1.92	1.13	.24	.12	.07	5.10	4.00	9.80	41.00	5.34
D1928	129.27	129.54	74.95	11.39	5.99	.68	3.29	2.18	1.04	.27	.05	.06	2.90	4.33	7.19	60.00	5.22
D1929	130.57	130.78	70.75	13.04	6.07	2.09	3.31	2.61	1.53	.30	.07	.05	4.10	4.84	9.54	51.00	5.00
D1930	132.27	132.45	72.25	11.71	4.72	3.66	3.14	2.98	.87	.28	.08	.07	4.00	4.01	10.65	38.00	3.93

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1581		15.08	16.08	69.46	11.22	5.66	2.43	1.25	1.84	4.82	0.28	0.14	0.08	1371	83	114	26	18	2.94	100.11
D1582		26.52	27.41	67.42	13.01	5.60	2.00	2.49	2.85	3.14	0.42	0.15	0.10	870	103	149	24	20	3.37	100.55
D1583		54.40	55.30	70.54	12.03	6.25	1.17	1.49	2.32	2.92	0.30	0.36	0.06	1064	51	122	24	18	3.08	100.50
D1584		70.44	71.32	68.38	11.98	6.11	1.44	1.38	2.37	2.86	0.29	0.18	0.12	1127	43	177	30	20	3.46	98.56
D1585		25.10	26.00	69.81	12.44	6.13	1.16	1.52	4.57	0.98	0.31	0.06	0.08	260	105	146	34	19	2.73	99.80
D1586		39.81	40.71	71.98	10.54	4.77	1.82	2.03	1.77	2.70	0.25	0.05	0.06	413	27	122	24	16	4.05	100.05
D1587		67.17	68.00	68.39	12.87	6.29	0.21	4.97	0.25	2.84	0.38	0.07	0.08	403	13	142	24	21	3.56	99.92
D1588		5.38	6.19	74.74	10.33	3.97	1.28	2.19	0.90	3.08	0.25	0.05	0.06	732	19	120	24	16	3.44	100.31
D1589		45.33	46.30	70.94	11.69	6.91	0.97	2.93	3.10	1.16	0.28	0.07	0.06	287	107	119	30	19	2.87	100.97
D1590		49.69	50.53	73.62	9.01	1.33	3.20	2.46	2.23	1.94	0.21	0.09	0.06	505	43	112	24	13	5.22	99.39
D1591		55.40	56.20	71.49	10.54	4.93	3.17	2.13	4.24	0.20	0.24	0.06	0.06	65	177	118	24	15	3.41	100.49
D1592	P821-265	81.03	81.23	67.30	12.70	5.70	2.02	2.80	2.33	1.62	0.28	0.07	0.07	-1	-1	-1	-1	-1	4.20	99.09
D1593	P821-307	93.81	94.17	76.50	10.40	2.56	2.36	1.01	2.17	1.81	0.23	0.08	0.07	-1	-1	-1	-1	-1	3.30	100.49
D1594	P821-322	98.12	98.52	69.70	10.90	4.42	4.43	1.49	2.79	1.11	0.25	0.18	0.07	-1	-1	-1	-1	-1	5.20	100.54
D1595	P821-343	104.73	104.96	68.70	12.50	5.11	1.74	3.04	3.83	0.68	0.28	0.12	0.06	-1	-1	-1	-1	-1	4.00	100.06
D1596	P821-349	106.00	106.26	71.20	11.40	6.91	2.05	2.91	3.26	0.30	0.27	0.13	0.08	-1	-1	-1	-1	-1	3.60	102.11
D1597		106.26	106.90	62.87	13.79	7.85	1.91	3.37	3.20	1.20	0.34	0.12	0.06	359	123	176	36	24	3.64	98.28
D1598	P821-356	108.91	109.14	72.90	11.10	5.42	1.36	2.74	3.80	0.13	0.24	0.09	0.05	-1	-1	-1	-1	-1	3.20	101.03
D1599	P821-405	123.68	123.92	65.50	14.60	6.98	0.56	4.71	0.46	2.67	0.34	0.04	0.06	-1	-1	-1	-1	-1	4.30	100.22
D1600	P821-410	124.87	125.00	69.40	12.70	6.64	0.44	4.00	0.82	2.15	0.29	0.05	0.06	-1	-1	-1	-1	-1	3.60	100.15
D1626		-1.00	-1.00	76.34	10.30	3.36	0.98	1.32	1.27	4.34	0.23	0.04	0.08	539	25	117	22	13	2.31	100.77
D1627		-1.00	-1.00	70.82	11.58	5.67	1.17	1.77	3.81	2.02	0.27	0.07	0.08	701	34	162	30	15	2.80	100.05
D1628		-1.00	-1.00	71.48	12.01	5.57	0.86	1.65	2.03	4.06	0.32	0.06	0.08	1214	45	165	18	16	2.74	100.87
D1629		-1.00	-1.00	69.77	11.86	6.22	0.61	2.93	0.08	4.10	0.31	0.06	0.08	525	9	155	22	17	3.21	99.22
D1630		-1.00	-1.00	76.88	9.38	3.82	0.87	2.05	0.04	3.62	0.24	0.09	0.08	395	13	122	14	13	2.87	99.93
D1631		-1.00	-1.00	71.13	11.58	6.37	0.14	2.94	0.04	4.80	0.30	0.03	0.10	798	9	174	22	15	2.73	100.14
D1632		-1.00	-1.00	69.20	11.05	5.87	0.70	2.74	0.68	3.94	0.28	0.09	0.08	899	25	170	18	14	4.90	99.53
D1633		-1.00	-1.00	72.13	11.99	5.95	0.95	1.44	4.37	0.72	0.37	0.09	0.10	135	52	187	24	17	2.67	100.78
D1634		-1.00	-1.00	68.92	12.12	6.77	1.48	1.17	4.38	0.58	0.37	0.13	0.08	92	57	167	24	17	3.06	99.06

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1635		-1.00	-1.00	70.82	11.25	8.52	0.13	2.25	0.22	1.66	0.32	0.06	0.06	472	17	197	30	13	3.04	98.34
D1637		-1.00	-1.00	52.65	15.93	12.33	6.25	4.83	2.87	1.30	0.91	0.18	0.16	468	331	179	26	38	2.98	100.40
D1638		-1.00	-1.00	49.34	16.08	11.03	10.62	4.52	2.75	0.18	0.56	0.18	0.08	92	146	120	10	46	5.57	100.92
D1639		-1.00	-1.00	51.51	15.49	10.35	10.18	5.19	3.30	0.26	0.53	0.18	0.08	166	130	99	12	43	2.56	99.63
D1640		-1.00	-1.00	55.39	14.42	10.79	6.79	4.31	3.31	0.68	0.35	0.16	0.08	338	245	129	10	39	2.30	98.57
D1641		-1.00	-1.00	51.37	16.44	11.41	7.87	4.99	1.27	0.60	0.38	0.15	0.04	140	178	113	8	39	5.42	99.95
D1642		-1.00	-1.00	51.67	16.28	10.25	7.21	4.79	2.58	0.30	0.41	0.14	0.04	62	138	115	6	40	4.49	98.16
D1643		-1.00	-1.00	53.71	17.06	8.84	8.46	5.00	2.04	0.52	0.55	0.14	0.10	149	241	117	6	36	3.24	99.65
D1644		-1.00	-1.00	55.58	14.43	11.59	6.71	4.61	3.08	0.36	0.35	0.17	0.06	209	267	144	12	38	2.88	99.83
D1645		-1.00	-1.00	51.76	16.17	9.53	6.46	6.39	4.89	0.28	0.55	0.19	0.06	168	150	118	10	44	3.11	99.41
D1646		-1.00	-1.00	50.25	17.40	10.40	6.15	5.94	4.81	0.32	0.60	0.17	0.08	173	222	123	14	47	3.71	99.85
D1647		-1.00	-1.00	47.62	15.65	9.62	12.18	4.64	2.78	0.24	0.51	0.16	0.06	156	243	93	10	43	5.60	99.07
D1648		-1.00	-1.00	49.05	15.97	12.29	10.40	6.25	1.23	0.32	0.59	0.23	0.08	163	300	137	10	48	3.19	99.61
D1651		-1.00	-1.00	47.13	15.36	10.65	7.32	6.17	1.89	2.00	0.57	0.25	0.04	679	77	102	10	45	9.31	100.70
D1652		-1.00	-1.00	49.46	16.52	10.16	9.69	5.85	1.51	0.56	0.61	0.30	0.08	197	360	118	10	49	3.86	98.59
D1653		-1.00	-1.00	49.66	16.27	11.11	8.28	6.74	2.08	0.56	0.60	0.20	0.06	240	478	142	12	48	3.35	98.92
D1655		-1.00	-1.00	56.68	14.05	7.39	9.95	2.55	2.28	0.14	0.29	0.12	0.06	101	295	114	6	35	4.65	98.16
D1656		-1.00	-1.00	49.34	19.46	10.89	3.76	6.54	3.65	1.64	0.31	0.15	0.04	627	156	114	4	51	4.21	99.99
D1658		-1.00	-1.00	55.25	15.17	7.75	9.20	4.84	1.79	0.18	0.29	0.13	0.04	46	51	113	6	35	5.74	100.38
D1659		-1.00	-1.00	50.64	21.17	6.32	6.66	4.78	2.53	3.08	0.24	0.13	0.06	815	194	80	4	26	3.81	99.42
D1660		-1.00	-1.00	47.99	17.19	12.23	8.25	5.82	3.28	0.36	0.59	0.19	0.08	194	356	116	8	47	3.60	99.57
D1662		-1.00	-1.00	72.40	10.59	5.58	2.41	0.92	4.40	0.52	0.28	0.11	0.10	196	83	114	16	15	2.87	100.18
D1665		-1.00	-1.00	48.78	18.04	11.42	5.91	6.04	3.54	0.22	0.31	0.14	0.06	99	143	110	4	49	3.88	98.35
D1666		-1.00	-1.00	65.69	12.38	6.31	4.85	1.59	2.62	1.30	0.26	0.15	0.06	570	323	124	10	20	2.32	97.52
D1667		-1.00	-1.00	52.07	17.49	9.34	6.01	6.39	3.46	0.18	0.36	0.14	0.04	37	101	77	2	43	5.36	100.86
D1668		-1.00	-1.00	54.06	20.39	4.91	7.50	3.37	5.50	0.32	0.31	0.09	0.10	53	116	92	6	29	3.31	99.85
D1669		-1.00	-1.00	53.15	19.07	7.88	8.66	3.67	2.53	0.36	0.29	0.12	0.08	70	218	109	4	33	3.08	98.90
D1671		-1.00	-1.00	70.11	13.04	5.19	3.38	2.13	2.32	1.32	0.30	0.06	0.10	223	150	140	16	18	2.08	100.01
D1674		-1.00	-1.00	61.38	12.40	5.68	3.00	4.39	4.15	0.94	0.26	0.06	0.08	285	104	117	12	25	5.26	97.60
D1675		-1.00	-1.00	48.57	19.28	11.23	7.21	6.24	1.90	1.16	0.50	0.14	0.06	236	346	147	12	43	4.18	100.48

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1551		419.23	419.97	74.74	12.78	4.41	0.11	2.61	0.19	2.58	0.41	0.02	0.12	782	15	145	20	17	2.92	100.88
D1552		434.22	435.00	31.29	24.25	13.03	0.11	18.56	0.11	1.22	0.74	0.08	0.16	1112	9	234	72	24	9.63	99.18
D1553		463.36	464.00	65.55	11.31	5.72	0.12	8.95	0.04	0.60	0.35	0.04	0.10	239	4	119	18	16	4.98	97.76
D1554		464.00	464.39	43.82	16.76	10.70	0.13	16.62	0.03	0.38	0.55	0.08	0.16	177	5	173	42	23	8.10	99.31
D1555		515.60	516.35	69.16	12.55	6.53	0.11	3.90	0.13	1.90	0.33	0.03	0.12	728	14	140	24	16	3.17	97.92
D1556		539.20	539.93	76.47	13.59	0.80	0.11	0.82	0.27	3.78	0.39	0.01	0.10	1119	21	150	26	17	2.08	98.41
D1557		616.40	617.10	68.32	11.99	5.58	1.73	2.69	0.76	2.86	0.34	0.06	0.10	628	46	160	26	16	4.33	98.76
D1558		621.60	622.30	62.61	12.94	5.45	2.91	2.69	0.51	4.18	0.37	0.05	0.12	764	67	161	28	17	6.63	98.46
D1559		643.70	644.40	46.50	8.98	14.99	5.95	8.22	0.03	0.60	0.28	0.09	0.20	166	167	92	8	32	12.25	98.11
D1560		655.30	656.00	46.01	7.80	7.34	11.03	4.84	1.76	1.72	0.21	0.20	0.10	641	220	73	10	14	16.78	97.78
D1561		679.70	680.40	54.61	14.49	12.41	2.04	5.03	1.19	2.08	0.40	0.25	0.14	496	77	112	24	24	6.61	99.25
D1562		704.87	705.82	61.51	10.61	5.61	4.66	3.24	2.31	2.56	0.28	0.09	0.14	697	140	118	22	18	9.53	100.53
D1563		732.10	733.10	71.74	11.81	5.90	0.13	2.55	0.52	2.50	0.32	0.17	0.08	523	15	115	22	16	4.00	99.75
D1564		782.86	783.60	67.09	9.70	8.73	0.24	2.10	0.27	2.62	0.27	0.05	0.08	364	26	103	22	13	7.79	98.93
D1565		799.00	799.80	64.03	12.21	8.54	1.57	2.30	3.54	0.96	0.48	0.12	0.16	334	56	115	22	23	4.51	98.41
D1566		-1.00	-1.00	50.83	16.04	11.06	8.48	7.61	3.58	0.62	1.41	0.16	0.28	204	456	125	16	24	0.05	100.13
D1567		8.27	9.06	74.19	11.62	6.09	0.09	2.89	0.15	2.14	0.31	0.03	0.08	642	12	176	38	17	3.12	100.71
D1568		39.47	40.11	71.28	11.56	6.27	0.35	3.96	1.05	2.06	0.29	0.13	0.08	251	14	116	24	15	3.72	100.75
D1569		41.50	42.17	72.42	11.57	5.23	0.29	4.12	0.97	2.08	0.29	0.10	0.08	275	14	141	30	16	3.31	100.47
D1570		72.75	73.50	67.95	12.47	6.91	0.44	3.13	3.20	0.86	0.33	0.11	0.08	187	23	158	32	19	2.81	98.29
D1571		87.48	88.45	70.70	12.41	4.47	0.20	3.62	2.13	1.94	0.31	0.04	0.10	360	22	143	30	17	3.05	98.97
D1572		5.39	5.94	69.36	12.70	5.84	0.70	3.44	0.61	3.48	0.37	0.02	0.12	623	17	103	24	20	3.68	100.29
D1573		34.29	35.05	71.49	11.28	5.98	0.64	4.11	1.45	2.06	0.28	0.05	0.06	405	41	121	32	15	3.40	100.79
D1574		47.28	48.08	69.84	12.89	6.42	0.55	2.96	3.39	1.84	0.33	0.05	0.06	583	71	154	34	19	2.27	100.61
D1575		84.43	85.20	69.07	11.67	6.39	1.20	3.98	1.83	2.54	0.30	0.06	0.04	648	45	130	30	19	3.23	100.31
D1576		93.05	93.70	66.53	11.23	6.21	3.05	2.36	1.59	3.28	0.29	0.11	0.06	683	61	135	26	17	5.62	100.35
D1577		8.77	9.47	68.57	12.98	7.29	0.24	3.86	1.62	2.46	0.44	0.07	0.10	550	58	198	20	21	3.28	100.91
D1578		21.88	22.81	64.46	12.75	6.64	2.15	4.11	3.69	1.26	0.41	0.23	0.08	439	76	137	18	23	4.91	100.69
D1579		-1.00	-1.00	51.78	16.02	11.13	8.50	7.55	3.66	0.62	1.45	0.16	0.22	213	471	140	20	25	0.01	100.73
D1580		57.00	57.80	68.53	12.35	7.11	0.45	4.16	0.86	2.44	0.44	0.05	0.08	685	22	126	20	20	3.66	100.12

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1676		-1.00	-1.00	51.03	17.85	9.14	9.05	5.12	1.85	0.42	0.33	0.14	0.04	85	82	120	12	38	5.75	100.71
D1677		-1.00	-1.00	73.71	11.27	5.47	0.83	1.53	2.49	2.84	0.23	0.07	0.06	704	59	179	28	13	2.38	100.87
D1678		-1.00	-1.00	58.60	14.99	8.64	9.59	2.98	1.89	0.18	0.43	0.11	0.12	91	241	130	8	29	2.04	99.57
D1679		-1.00	-1.00	58.85	15.10	8.75	4.94	6.02	1.20	0.64	0.42	0.10	0.12	151	143	145	6	29	4.09	100.23
D1680		-1.00	-1.00	55.87	13.88	9.98	7.18	5.54	1.45	0.14	0.43	0.14	0.10	30	206	150	6	32	5.63	100.33
D1681		-1.00	-1.00	56.44	15.78	9.39	8.70	4.06	2.12	0.24	0.57	0.15	0.12	100	136	165	10	31	2.67	100.21
D1683		7.21	7.62	50.09	16.36	11.02	9.53	6.73	1.76	0.44	0.62	0.16	0.08	133	273	136	14	47	3.94	100.71
D1684		40.48	40.74	47.68	15.63	12.62	10.25	6.53	0.65	0.20	0.60	0.20	0.04	84	258	103	12	45	4.51	98.93
D1685		87.83	88.47	49.17	15.32	10.57	6.21	7.64	3.20	1.00	0.75	0.19	0.12	306	218	142	20	40	4.96	99.13
D1686		136.75	137.26	67.74	12.38	5.61	0.46	3.61	1.60	2.74	0.35	0.08	0.10	666	26	175	26	15	3.22	97.88
D1687		5.18	5.65	47.79	15.52	11.31	7.96	6.38	2.93	0.26	0.56	0.18	0.06	71	107	114	16	42	6.02	98.96
D1688		149.15	149.55	65.82	12.69	5.39	1.75	4.01	0.70	3.42	0.33	0.13	0.08	794	19	142	28	15	4.93	99.25
D1689		159.19	159.64	60.97	12.35	9.59	3.02	1.53	4.48	0.90	0.57	0.15	0.14	372	132	164	28	24	5.50	99.21
D1690		169.87	170.66	62.08	12.21	8.10	3.00	1.96	4.00	1.72	0.51	0.14	0.12	393	119	145	26	21	6.52	100.37
D1691		183.27	183.79	63.07	12.36	9.65	1.97	2.50	3.80	0.68	0.57	0.15	0.16	254	65	178	24	24	3.79	98.70
D1692		182.88	183.21	67.65	12.60	4.72	1.23	2.46	4.16	1.52	0.26	0.06	0.06	559	94	147	20	15	3.33	93.04
D1693		214.27	214.57	61.90	13.04	9.11	0.42	6.15	1.11	1.22	0.51	0.18	0.16	244	22	189	30	23	3.96	97.76
D1695		239.01	239.40	53.24	13.64	12.62	4.31	4.02	3.10	0.50	0.62	0.15	0.10	314	133	157	20	35	5.32	97.63
D1696		265.43	265.81	59.99	13.15	12.89	0.31	5.09	0.38	1.06	0.59	0.12	0.10	261	14	156	28	26	4.16	97.83
D1697		300.18	300.61	61.65	8.59	6.03	6.47	2.74	0.94	2.60	0.20	0.18	0.02	355	131	128	22	12	10.74	100.18
D1698		320.95	321.41	65.51	9.80	4.13	4.20	2.66	0.09	4.10	0.24	0.10	0.06	363	56	120	24	13	7.60	98.47
D1699		339.48	339.98	69.65	10.94	2.06	2.69	1.84	0.15	5.06	0.28	0.05	0.08	825	49	133	24	14	5.45	98.26
D1700		13.36	13.72	71.97	10.80	2.11	2.12	1.23	4.96	0.68	0.28	0.06	0.10	137	95	109	22	11	3.31	97.62
D1701		25.40	25.78	62.90	12.78	5.54	2.83	3.22	0.65	2.64	0.36	0.08	0.12	885	103	155	24	14	6.49	97.60
D1702		27.36	27.79	61.41	15.15	8.05	1.45	1.57	5.41	0.76	0.43	0.06	0.20	162	137	194	22	16	3.18	97.68
D1703		53.49	54.20	76.46	9.15	1.66	1.73	1.25	1.14	2.16	0.24	0.04	0.08	314	42	104	20	11	3.67	97.57
D1704		81.38	81.92	67.03	13.27	2.31	4.13	0.50	3.13	2.68	0.41	0.06	0.12	630	90	128	20	20	4.66	98.31
D1706		105.05	105.56	66.14	13.46	4.49	2.62	1.85	2.27	2.56	0.39	0.05	0.12	485	112	143	22	16	3.88	97.85
D1707		118.87	119.28	66.22	13.21	6.41	1.80	3.29	0.20	3.18	0.35	0.06	0.10	603	50	165	28	14	5.37	100.19
D1708		132.59	132.99	67.50	10.84	3.19	5.50	0.51	3.17	1.40	0.28	0.07	0.10	371	112	120	16	11	5.26	97.61

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1709		156.92	157.84	66.75	11.58	5.32	3.87	1.71	2.30	2.02	0.31	0.08	0.08	713	111	118	24	11	6.56	100.57
D1710		186.66	187.20	63.58	13.06	5.72	2.96	1.73	0.94	2.92	0.33	0.07	0.08	1076	104	158	24	14	6.20	97.60
D1711		195.00	195.43	67.21	11.29	4.15	3.41	0.82	3.25	1.64	0.36	0.09	0.08	539	98	126	20	14	5.39	97.70
D1712		203.61	204.19	70.45	10.34	3.34	4.14	0.26	3.99	1.10	0.28	0.08	0.08	363	124	147	20	10	5.21	99.27
D1713		212.12	212.60	61.81	10.31	5.42	4.66	1.95	2.64	1.70	0.29	0.14	0.14	429	132	109	18	15	8.57	97.62
D1714		227.10	227.53	57.80	10.00	7.00	6.59	2.93	1.13	2.20	0.28	0.17	0.12	309	138	112	18	15	12.00	100.23
D1715		235.84	236.45	58.45	11.81	6.46	4.79	2.58	2.43	2.10	0.34	0.13	0.16	396	107	148	24	18	9.52	98.77
D1716		242.98	243.54	53.45	13.16	12.06	3.28	5.74	3.26	0.36	0.61	0.15	0.06	226	59	144	22	33	7.13	99.26
D1717		260.58	261.01	54.26	13.53	12.46	2.30	5.47	3.78	0.68	0.64	0.16	0.08	364	85	144	20	34	4.33	97.67
D1718		272.47	272.90	66.38	13.47	5.82	0.22	5.66	2.52	1.90	0.44	0.06	0.10	584	32	123	22	17	3.27	99.85
D1719		23.62	24.08	63.10	12.68	9.41	1.68	2.52	4.11	1.06	0.54	0.13	0.18	393.00	73.00	157.00	28.00	23.00	2.38	97.79
D1720		45.80	46.33	67.58	11.65	8.50	1.71	1.07	4.18	0.88	0.54	0.12	0.18	682.00	115.00	137.00	26.00	21.00	1.38	97.78
D1721		59.56	59.97	66.32	12.91	5.57	3.87	1.80	1.46	2.76	0.40	0.10	0.10	554.00	72.00	139.00	26.00	16.00	4.79	100.07
D1725		73.56	74.02	71.43	12.04	5.31	1.76	1.90	2.38	1.94	0.26	0.06	0.06	414.00	53.00	182.00	32.00	13.00	2.52	99.67
D1726		115.95	116.41	70.94	11.08	5.06	0.81	2.14	1.27	3.14	0.23	0.09	0.04	707.00	31.00	185.00	32.00	12.00	2.78	97.60
D1727		145.75	146.25	67.99	11.92	5.45	1.60	2.49	4.11	1.10	0.31	0.04	0.06	499.00	99.00	151.00	22.00	14.00	2.59	97.67
D1728		34.52	34.95	63.11	15.28	6.86	1.30	3.05	0.14	5.54	0.40	0.06	0.10	693.00	20.00	167.00	26.00	16.00	4.36	100.27
D1729		47.14	47.52	66.58	13.51	3.03	2.41	1.68	3.96	2.58	0.38	0.06	0.12	1099.00	85.00	200.00	26.00	15.00	3.61	97.92
D1730		72.34	72.85	72.51	10.88	2.57	2.72	1.19	2.62	2.20	0.28	0.09	0.08	533.00	79.00	109.00	22.00	10.00	4.10	99.24
D1731		86.46	86.97	71.94	11.09	3.98	1.78	1.45	2.67	1.80	0.29	0.05	0.10	298.00	47.00	168.00	22.00	12.00	2.90	98.03
D1732		104.90	105.41	66.25	12.07	7.17	2.75	2.21	1.89	2.00	0.29	0.10	0.08	523.00	94.00	165.00	26.00	15.00	4.39	99.20
D1733		115.42	116.05	68.30	10.69	4.90	3.91	1.89	1.81	2.28	0.25	0.12	0.08	456.00	88.00	112.00	22.00	14.00	5.43	100.65
D1734		121.51	122.25	70.36	11.77	6.21	1.45	1.89	3.85	0.98	0.32	0.08	0.08	584.00	99.00	188.00	22.00	13.00	3.18	100.16
D1735		147.22	147.83	74.74	11.08	2.80	1.71	1.51	3.13	1.88	0.30	0.05	0.06	688.00	77.00	157.00	20.00	12.00	3.14	100.42
D1736		159.56	160.12	71.89	10.68	3.32	2.44	0.95	3.57	1.32	0.24	0.06	0.10	421.00	56.00	128.00	18.00	13.00	2.93	97.50
D1737		178.77	179.30	64.87	11.33	6.29	4.23	1.67	2.26	2.28	0.26	0.15	0.04	443.00	96.00	161.00	20.00	14.00	6.69	100.07
D1738		195.07	195.66	71.06	10.73	3.80	2.42	0.93	2.85	1.74	0.25	0.08	0.08	329.00	71.00	112.00	20.00	14.00	3.67	97.61
D1739		208.58	209.22	65.63	11.89	6.43	3.39	1.91	3.69	0.92	0.32	0.11	0.08	379.00	154.00	172.00	26.00	13.00	3.91	98.28
D1740		215.80	216.36	67.88	11.21	5.52	4.03	0.95	1.79	1.78	0.26	0.09	0.08	432.00	116.00	136.00	24.00	14.00	4.14	97.71
D1742		10.63	11.07	71.72	12.62	5.33	1.66	1.23	4.21	0.86	0.35	0.08	0.12	356	188	139	20	15	1.81	100.00

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1743		42.98	43.43	70.58	11.50	3.66	2.57	0.83	3.28	2.36	0.31	0.08	0.08	520	91	134	18	11	3.06	98.32
D1744		63.96	64.51	69.82	12.72	4.79	1.50	1.59	3.50	2.06	0.40	0.05	0.10	511	56	175	24	14	3.02	99.56
D1745		82.91	83.39	64.32	11.98	5.36	6.37	0.89	2.33	2.06	0.40	0.14	0.08	515	125	164	18	14	6.40	100.33
D1746		108.13	108.71	65.83	13.85	6.56	1.89	2.67	0.81	2.72	0.35	0.07	0.10	994	99	170	20	16	3.98	98.83
D1747		142.72	143.26	59.63	12.99	7.62	7.33	1.32	1.79	1.64	0.42	0.12	0.08	342	125	149	18	17	7.59	100.53
D1748		173.56	174.09	62.06	14.92	6.79	2.29	3.11	1.46	2.62	0.49	0.09	0.10	770	71	194	22	19	5.25	99.20
D1749		176.56	177.11	72.89	11.91	2.02	4.37	0.33	1.70	2.62	0.39	0.09	0.12	900	121	111	16	13	4.45	100.86
D1750		201.09	201.65	77.21	8.99	2.16	2.39	0.98	2.33	1.36	0.28	0.07	0.08	260	98	121	14	9	3.77	99.63
D1751		234.75	235.31	67.61	13.94	4.69	2.30	2.37	2.53	2.40	0.45	0.04	0.10	733	146	160	20	15	3.61	100.06
D1752		261.52	262.00	68.80	12.33	4.08	3.59	0.53	2.42	1.96	0.39	0.07	0.10	531	105	157	16	14	4.08	98.37
D1753		285.60	286.10	61.32	14.00	7.56	3.12	1.42	2.54	2.02	0.42	0.09	0.18	528	83	145	18	22	4.92	97.58
D1754		306.32	306.93	68.24	10.46	4.96	3.32	1.32	1.79	2.14	0.29	0.10	0.06	424	88	102	16	13	6.29	98.97
D1755		333.71	334.21	64.25	10.82	5.49	4.02	1.67	1.17	2.48	0.31	0.12	0.14	383	83	107	18	17	7.80	98.26
D1756		346.35	346.86	64.49	8.21	5.28	5.04	2.37	1.48	1.60	0.24	0.10	0.08	235	89	89	14	12	9.15	98.04
D1757		360.05	360.63	62.37	13.92	11.18	0.60	4.33	1.09	2.90	0.33	0.13	0.02	466	50	183	26	18	3.29	100.15
D1758		2.94	3.35	66.27	11.88	7.41	1.45	2.27	3.64	1.04	0.47	0.11	0.10	531	53	149	18	20	3.45	98.09
D1759		60.88	61.34	57.96	18.00	8.33	0.95	3.04	2.73	3.48	0.44	0.11	0.08	1345	133	236	34	24	3.09	98.23
D1760		224.33	224.76	65.73	12.69	4.88	3.94	1.52	2.26	2.66	0.42	0.08	0.08	503	124	133	16	16	5.07	99.34
D1761		279.96	280.42	68.31	10.41	4.91	3.88	1.59	1.93	1.80	0.25	0.11	0.04	527	122	143	18	14	4.70	97.93
D1762		421.69	422.15	60.00	12.41	6.08	1.86	2.34	4.23	0.96	0.33	0.07	0.08	176	101	134	22	16	3.44	99.82
D1763		479.78	480.21	60.84	13.64	8.33	2.06	3.83	3.17	1.58	0.45	0.06	0.04	433	95	151	16	25	4.29	98.29
D1764		501.70	502.28	67.52	13.07	5.00	1.84	2.42	2.63	2.52	0.34	0.08	0.06	721	94	149	28	18	3.90	99.36
D1765		576.99	577.52	68.61	12.99	4.95	1.26	1.28	2.29	3.08	0.33	0.05	0.08	745	58	163	26	18	3.05	97.96
D1766		632.76	633.37	65.40	12.52	5.30	3.79	1.50	2.22	2.64	0.42	0.07	0.10	596	117	169	16	16	5.06	99.04
D1767		686.41	686.89	61.47	11.54	8.46	4.26	2.33	2.48	0.98	0.34	0.11	0.12	255	92	149	20	20	5.66	97.77
D1768		725.68	726.19	63.35	12.79	6.56	0.35	8.63	0.14	1.34	0.42	0.03	0.06	449	12	154	14	20	4.99	98.67
D1769		772.79	773.35	30.50	24.67	13.80	0.08	18.63	0.14	1.72	0.77	0.05	0.02	1068	10	331	60	26	9.47	99.82
D1770		794.36	794.84	26.21	21.61	18.15	0.17	21.67	0.01	0.04	0.48	0.06	0.04	26	5	296	266	20	10.77	99.21
D1771		831.16	831.75	73.63	11.98	3.15	0.10	3.70	0.22	2.34	0.35	0.01	0.06	765	17	141	30	13	2.92	98.45
D1773		884.22	884.71	66.57	11.69	6.25	1.32	4.03	0.19	2.70	0.33	0.26	0.06	453	35	141	24	14	5.92	99.31

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1774		177.72	178.18	68.67	10.11	4.93	3.93	1.73	2.01	1.64	0.25	0.11	0.04	394	102	131	24	13	4.93	98.35
D1775		6.50	7.19	65.91	10.47	5.68	5.17	2.11	1.65	1.70	0.28	0.13	0.08	413	110	131	26	11	6.12	99.28
D1776		14.45	15.01	53.00	8.10	7.16	9.12	5.35	1.29	1.62	0.22	0.27	0.06	78	266	111	18	8	13.85	100.02
D1777		39.62	40.23	71.77	12.59	2.39	2.66	0.74	3.08	2.50	0.33	0.04	0.12	678	132	115	18	15	3.29	99.52
D1778		3.15	3.71	69.33	11.43	4.65	1.71	2.28	0.16	3.92	0.31	0.07	0.08	1164	58	130	26	12	5.91	99.84
D1779		9.40	10.31	69.20	12.73	5.76	0.25	4.36	0.06	2.90	0.35	0.06	0.10	541	9	170	30	14	4.35	100.15
D1780		20.70	21.34	63.44	10.59	4.96	3.53	3.58	0.06	3.54	0.29	0.09	0.06	927	176	144	24	11	7.47	97.61
D1781		26.57	27.38	66.59	11.66	6.58	1.32	1.77	0.09	3.86	0.32	0.15	0.08	1175	49	146	28	12	6.58	99.02
D1782		46.20	46.94	73.27	9.80	7.88	0.07	4.87	0.03	1.12	0.27	0.03	0.04	378	5	141	24	11	3.53	100.92
D1783		70.36	71.07	72.54	9.96	5.33	0.69	5.13	0.04	1.70	0.26	0.03	0.08	689	12	140	18	10	4.19	99.95
D1784		5.00	5.64	71.03	12.24	4.02	2.18	0.58	3.32	2.40	0.32	0.06	0.12	700	72	152	22	10	2.85	99.09
D1785		36.20	36.86	69.77	13.03	4.74	1.83	1.53	2.67	2.30	0.34	0.05	0.10	619	95	161	28	12	3.98	100.33
D1786		44.50	45.19	68.60	11.79	7.61	0.46	2.51	0.16	2.54	0.31	0.08	0.08	649	20	184	28	11	3.90	98.05
D1787		64.24	64.85	56.25	14.32	8.65	0.11	11.32	0.03	1.06	0.40	0.08	0.10	2..	5	197	34	16	6.88	99.19
D1789		84.58	85.24	49.67	14.90	10.60	1.33	13.02	0.02	0.60	0.40	0.08	0.48	152	15	217	28	16	7.75	98.85
D1790		99.54	100.25	66.38	10.89	8.00	0.33	6.26	0.94	1.20	0.29	0.03	0.06	353	7	155	30	11	4.26	97.74
D1791		114.93	115.57	66.24	11.44	6.10	1.62	3.87	0.05	2.74	0.32	0.06	0.08	940	41	150	22	13	5.25	97.77
D1792		122.40	123.14	65.07	12.45	10.98	0.24	6.26	0.04	0.94	0.35	0.04	0.06	291	14	190	34	15	4.31	100.74
D1793		134.49	135.13	67.58	11.75	9.13	0.08	2.29	0.10	2.62	0.32	0.02	0.06	669	11	161	30	12	5.64	99.59
D1794		151.41	152.22	69.81	12.25	4.78	0.22	4.38	0.07	2.56	0.32	0.05	0.08	486	8	175	32	13	4.47	98.99
D1795		169.42	169.76	56.06	9.81	5.63	3.30	7.13	0.11	3.52	0.27	0.08	0.06	582	121	139	22	11	11.76	97.74
D1796		174.04	174.73	68.80	11.80	5.45	0.60	2.58	0.70	3.88	0.32	0.05	0.08	998	21	144	28	12	5.95	100.21
D1797		10.82	11.58	64.90	12.61	8.30	1.76	2.09	4.49	0.56	0.47	0.13	0.18	238	60	139	30	23	3.63	99.12
D1798		20.83	21.41	62.19	11.94	5.38	5.11	1.84	1.97	2.78	0.35	0.14	0.18	372	90	84	20	21	8.40	100.27
D1800		30.18	30.73	65.46	15.46	2.93	2.83	1.08	5.65	2.22	0.33	0.07	0.20	648	488	158	10	4	3.89	100.11
D1801		56.48	57.10	68.46	11.28	6.49	0.89	6.26	0.06	1.96	0.31	0.10	0.10	311	17	123	24	14	4.85	100.77
D1802		78.00	78.79	69.95	10.45	8.28	0.18	4.90	0.05	1.42	0.31	0.06	0.14	469	7	116	20	19	3.57	99.31
D1803		106.73	107.42	62.77	10.53	8.33	0.18	10.91	0.01	0.04	0.30	0.03	0.14	37	4	81	16	17	5.08	98.28
D1804		135.84	136.60	70.57	11.29	7.22	0.82	2.37	0.11	2.58	0.29	0.07	0.10	730	23	95	22	13	4.29	99.70
D1805		146.30	146.91	64.48	13.12	4.96	3.77	1.24	3.18	2.34	0.43	0.09	0.14	822	173	139	20	18	6.14	99.88

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1806		3.35	4.04	69.49	12.93	4.37	2.23	0.88	5.21	0.36	0.32	0.08	0.14	229	222	109	22	15	1.53	97.53
D1807		28.96	29.77	70.77	13.48	4.06	2.25	0.78	3.14	3.02	0.36	0.06	0.12	660	73	144	24	15	2.81	100.86
D1808		40.03	40.73	71.49	12.21	4.23	2.66	0.56	2.34	3.34	0.32	0.07	0.12	727	63	162	24	14	3.16	100.49
D1809		70.71	71.63	72.01	10.82	4.12	3.43	0.96	2.49	1.98	0.28	0.07	0.10	343	82	127	22	12	3.76	100.02
D1810		79.45	80.06	69.63	12.00	4.54	3.76	0.99	3.06	2.14	0.38	0.08	0.12	468	121	141	18	17	3.94	100.64
D1811		103.63	104.34	73.18	12.23	3.69	2.16	0.71	3.45	2.26	0.33	0.06	0.12	512	72	137	22	15	2.68	100.88
D1812		143.03	143.76	66.39	10.23	8.03	0.46	9.02	0.05	0.10	0.30	0.09	0.12	43	9	77	20	16	4.96	100.55
D1813		172.96	175.18	53.23	17.08	9.70	0.11	12.06	0.06	1.36	0.49	0.03	0.12	527	7	173	44	24	6.38	100.63
D1814		213.26	214.40	68.27	12.13	6.30	0.15	4.28	0.07	2.26	0.39	0.04	0.14	673	8	141	22	18	3.46	97.50
D1815		5.24	5.90	65.91	13.67	8.69	6.42	1.52	0.31	1.34	0.39	0.15	0.18	395	161	89	22	23	2.30	100.89
D1816		61.38	62.65	69.71	11.19	2.58	3.56	0.37	3.41	2.88	0.31	0.12	0.20	995	118	85	18	20	3.55	97.89
D1818		126.42	127.18	69.26	10.71	4.32	3.00	0.38	1.11	5.78	0.31	0.10	0.10	1005	76	106	22	15	2.62	97.70
D1819		182.37	183.00	72.27	12.59	5.43	1.56	1.23	4.24	0.84	0.35	0.08	0.14	371	129	123	24	16	1.87	100.59
D1820		240.54	241.25	71.02	12.28	4.29	1.71	0.62	3.20	2.70	0.30	0.05	0.12	817	84	142	22	14	2.13	98.42
D1821		264.26	264.95	57.52	16.61	9.34	2.62	3.37	2.64	2.84	0.52	0.10	0.18	577	166	150	28	22	4.30	100.04
D1822		297.14	297.91	73.49	12.27	4.69	1.75	0.76	2.86	2.56	0.33	0.05	0.12	518	52	123	20	16	2.05	100.93
D1823		326.17	327.00	75.76	11.40	2.74	2.03	0.52	2.93	1.96	0.29	0.04	0.10	454	76	121	18	12	2.53	100.31
D1824		351.87	352.67	67.42	12.25	6.09	0.11	8.09	0.08	1.26	0.35	0.04	0.10	204	9	121	24	15	4.59	100.35
D1825		425.85	426.62	84.06	9.99	1.10	0.10	0.44	0.20	2.64	0.28	0.01	0.10	755	15	88	22	12	1.69	100.60
D1826		25.30	26.06	66.19	13.21	7.95	0.37	3.28	2.29	2.24	0.50	0.04	0.14	476	43	153	30	22	2.86	99.07
D1827		47.85	48.92	66.09	12.10	8.51	0.96	2.77	3.61	0.84	0.47	0.10	0.14	234	72	169	30	20	3.04	98.62
D1828		72.47	73.48	65.09	12.24	8.92	0.98	2.15	3.99	0.72	0.47	0.07	0.14	308	68	158	26	21	2.73	97.51
D1829		93.12	94.18	61.11	12.69	9.56	3.50	1.69	3.87	0.68	0.57	0.16	0.12	383	137	183	26	25	4.32	98.26
D1830		123.37	124.36	66.39	12.30	4.74	4.33	0.93	1.89	2.46	0.33	0.12	0.10	428	92	126	22	13	7.35	100.95
D1831		117.81	118.36	64.90	13.00	8.69	1.47	1.73	0.27	2.90	0.51	0.07	0.16	572	47	180	30	22	4.01	97.69
D1832		150.93	151.51	70.32	10.68	3.03	5.22	0.29	2.61	2.02	0.30	0.05	0.10	359	99	157	38	14	6.02	100.64
D1833		155.24	156.06	67.11	12.51	5.45	2.56	0.95	4.72	0.82	0.34	0.10	0.08	300	124	164	30	15	4.08	98.71
D1834		170.54	171.14	72.98	11.35	2.86	3.04	0.52	3.26	1.50	0.25	0.05	0.06	350	96	132	22	12	4.14	100.01
D1835		186.92	187.63	65.05	10.81	3.99	5.53	0.87	2.55	1.60	0.33	0.09	0.12	502	127	114	20	17	7.05	97.99
D1836		191.24	191.90	64.69	13.39	5.70	3.80	1.16	1.60	2.04	0.37	0.08	0.12	962	163	165	18	20	6.57	99.51

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1837		205.89	206.45	64.93	12.97	6.75	3.97	1.40	2.19	1.74	0.38	0.10	0.12	569	143	137	32	20	5.92	100.46
D1838		238.12	238.96	63.33	13.01	6.65	3.48	2.78	0.70	2.72	0.35	0.08	0.10	658	93	191	16	19	6.83	100.01
D1839		12.50	12.95	67.89	12.33	7.04	0.37	2.33	3.54	1.84	0.30	0.07	0.12	468.00	47.00	149.00	18.00	15.00	1.98	97.80
D1840		36.20	36.68	47.39	15.16	10.34	4.98	8.04	3.94	0.24	0.35	0.15	0.04	50.00	110.00	124.00	6.00	38.00	7.37	97.99
D1841		45.19	46.13	69.45	11.12	5.83	2.16	2.01	1.15	2.40	0.25	0.07	0.06	300.00	39.00	144.00	26.00	13.00	3.29	97.81
D1842		67.36	67.82	69.59	11.43	5.55	2.18	1.06	2.72	1.74	0.24	0.11	0.08	381.00	77.00	166.00	34.00	12.00	3.23	97.94
D1843		95.40	95.86	66.99	10.92	5.18	3.83	0.94	2.48	2.00	0.23	0.14	0.06	448.00	78.00	159.00	30.00	11.00	4.77	97.55
D1844		124.41	124.87	71.77	11.19	4.75	2.23	0.93	1.59	2.56	0.24	0.09	0.06	409.00	41.00	158.00	28.00	11.00	3.32	98.73
D1845		146.61	147.07	70.11	10.88	5.35	1.90	1.70	0.66	3.10	0.23	0.12	0.06	636.00	41.00	183.00	28.00	12.00	4.12	98.24
D1846		158.50	158.98	68.88	12.59	6.36	2.13	1.48	3.89	1.38	0.37	0.07	0.06	439.00	62.00	164.00	28.00	13.00	2.93	100.15
D1847		181.84	182.27	69.42	12.05	5.23	1.73	1.43	3.78	1.08	0.33	0.07	0.10	196.00	70.00	154.00	28.00	12.00	2.37	97.58
D1848		219.00	219.46	71.33	10.74	5.22	3.54	1.63	1.45	2.24	0.30	0.14	0.08	497.00	56.00	144.00	28.00	12.00	3.89	100.54
D1849		237.13	237.49	70.24	11.94	4.88	1.58	1.65	2.46	2.82	0.33	0.14	0.10	1620.00	43.00	158.00	30.00	12.00	2.47	98.60
D1850		31.75	32.36	63.88	13.07	5.83	3.46	3.10	0.26	3.22	0.60	0.07	0.14	598	88	201	20	15	5.21	98.85
D1851		42.49	43.10	50.89	16.51	10.35	9.49	5.49	1.51	0.16	0.43	0.16	0.06	45	258	98	12	39	4.83	99.84
D1852		157.73	158.80	47.48	13.73	13.02	10.36	7.17	1.36	0.06	1.18	0.21	0.08	59	190	122	32	42	2.88	97.55
D1853		26.14	26.75	55.08	13.81	9.79	4.80	5.99	3.18	1.38	0.43	0.19	0.10	710	406	148	14	31	3.80	98.53
D1854		39.93	40.54	54.55	14.81	10.98	4.14	5.63	3.15	2.32	0.61	0.15	0.12	651	404	157	12	35	3.81	100.26
D1855		61.42	62.03	53.34	15.74	9.02	5.89	6.02	2.21	1.84	0.59	0.10	0.12	529	227	126	8	31	4.06	98.92
D1856		81.76	82.45	59.60	14.41	9.36	5.70	4.52	1.96	0.98	0.57	0.12	0.12	416	246	129	12	28	2.93	100.27
D1857		111.33	112.01	56.16	14.04	8.81	6.11	5.31	1.91	1.48	0.43	0.12	0.08	347	211	163	18	26	3.16	97.60
D1858		124.69	125.27	59.17	14.58	8.09	5.51	3.70	2.89	0.56	0.54	0.10	0.14	141	198	154	18	18	3.37	98.65
D1859		154.13	154.84	65.34	14.04	6.39	4.01	3.67	3.07	0.70	0.46	0.08	0.12	341	279	142	24	17	2.60	100.49
D1860		183.92	184.58	57.08	12.67	8.15	7.82	5.90	2.09	0.26	0.44	0.15	0.06	113	186	107	10	26	6.08	100.70
D1861		56.50	56.99	70.18	12.18	6.68	1.27	1.58	2.95	1.88	0.39	0.08	0.08	323	48	193	34	15	3.23	100.50
D1862		82.68	83.51	71.72	11.35	7.06	0.42	1.65	3.19	0.88	0.38	0.05	0.08	301	35	136	22	14	2.16	98.94
D1863		107.67	108.66	67.34	12.18	11.27	0.84	1.84	2.87	0.66	0 39	0.10	0.06	731	31	185	30	14	2.86	100.40
D1864		127.86	128.62	66.87	12.77	9.46	0.86	3.13	0.48	1.80	0.38	0.14	0.08	744	27	144	20	12	3.83	99.78
D1865		155.42	156.05	73.53	10.89	7.50	0.14	2.67	0.16	1.96	0.35	0.25	0.08	457	13	141	24	13	3.36	100.87
D1866		181.97	182.50	73.84	11.48	5.22	0.69	2.11	3.11	1.50	0.26	0.07	0.04	522	38	164	34	11	2.63	100.93

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1867		206.40	207.06	73.94	11.86	5.24	0.55	1.39	3.80	1.58	0.25	0.04	0.06	558	56	207	40	11	2.03	100.75
D1868		236.61	237.22	46.67	15.65	12.05	5.19	7.40	3.65	0.36	0.56	0.23	0.04	266	106	122	12	39	7.07	98.86
D1869		251.16	251.76	49.43	14.91	11.38	4.90	5.18	3.54	0.92	0.81	0.49	0.14	602	140	163	24	32	6.35	98.06
D1870		261.58	262.19	49.88	15.77	10.97	6.70	6.82	2.43	1.04	0.58	0.25	0.08	478	175	132	10	40	4.05	98.59
D1871		308.46	309.07	50.14	15.18	11.42	10.12	4.42	1.77	1.14	0.75	0.19	0.14	432	370	145	18	31	4.30	99.57
D1872		330.40	331.01	48.64	15.03	9.99	11.41	4.76	1.41	0.54	0.70	0.18	0.12	168	255	125	16	35	7.14	99.95
D1873		6.62	7.23	70.17	12.06	5.53	1.24	2.90	0.08	3.40	0.29	0.04	0.08	894	28	141	28	15	3.93	99.53
D1874		36.12	36.73	72.09	11.98	4.39	1.32	2.45	2.00	2.54	0.29	0.05	0.08	602	42	144	22	15	3.59	100.78
D1875		59.31	59.92	62.49	15.69	8.87	0.30	4.16	1.10	3.24	0.40	0.04	0.10	909	36	229	36	21	3.84	100.22
D1876		81.59	82.05	64.45	16.05	5.57	1.02	2.48	2.01	3.56	0.39	0.06	0.10	1060	87	196	36	22	3.81	99.49
D1877		102.72	103.33	64.09	13.86	8.70	1.24	3.93	0.64	2.58	0.34	0.10	0.08	653	54	197	32	17	4.73	100.30
D1878		129.69	130.30	65.89	13.92	6.14	2.95	1.77	2.77	2.24	0.34	0.08	0.08	630	100	150	32	17	4.31	100.49
D1879		158.13	158.74	67.22	13.68	6.23	3.09	1.74	2.67	2.24	0.33	0.09	0.08	636	100	155	28	16	3.09	100.45
D1880		203.98	204.54	75.10	10.04	3.57	3.03	0.87	3.53	0.92	0.23	0.09	0.08	275	200	116	22	13	3.47	100.93
D1881		222.05	222.73	70.68	11.61	6.01	2.08	1.86	3.14	1.04	0.28	0.09	0.08	405	146	147	28	15	3.46	100.36
D1882		236.93	237.54	66.01	13.33	6.52	3.36	1.15	3.50	1.66	0.31	0.15	0.08	610	161	187	34	17	4.20	100.26
D1883		258.93	259.54	63.28	14.75	6.44	0.87	1.38	3.52	2.30	0.35	0.07	0.08	1042	88	187	32	18	2.59	100.63
D1884		274.01	274.62	64.42	13.33	9.84	1.50	3.15	1.97	1.80	0.40	0.10	0.18	964	105	163	24	19	3.58	100.77
D1885		293.37	293.98	65.04	12.09	7.63	4.52	1.29	2.82	1.22	0.34	0.14	0.14	316	128	136	20	17	5.00	100.14
D1886		303.89	304.50	67.12	12.90	5.36	3.89	1.15	2.74	2.08	0.40	0.07	0.10	566	142	151	22	14	4.72	100.55
D1887		223.11	223.72	27.28	14.54	9.03	13.33	7.09	1.54	3.50	0.70	0.18	0.04	341	550	97	16	42	20.23	97.56
D1888		1.78	2.36	65.35	12.15	7.37	0.79	4.31	0.07	2.52	0.35	0.05	0.08	665	23	180	28	14	4.26	97.59
D1889		29.26	29.87	72.78	10.22	5.69	0.42	5.72	0.03	1.36	0.28	0.03	0.06	443	9	148	24	11	4.02	100.60
D1890		47.55	48.07	58.86	17.81	5.23	0.28	7.56	0.06	3.24	0.55	0.02	0.14	803	13	193	34	19	5.32	100.05
D1891		65.53	66.14	67.33	10.66	8.76	0.28	7.76	0.02	0.50	0.31	0.05	0.18	143	7	147	24	13	4.95	100.49
D1892		12.19	12.80	65.08	13.36	9.04	1.34	1.98	4.60	0.74	0.51	0.11	0.16	360	55	211	32	20	3.28	100.11
D1893		21.34	21.95	62.60	11.56	4.82	4.87	2.12	0.40	3.70	0.33	0.12	0.16	362	74	130	18	16	7.95	98.62
D1894		27.43	28.04	65.76	15.56	2.96	2.49	1.01	4.95	2.68	0.35	0.06	0.18	720	389	237	14	4	3.90	99.88
D1895		45.72	46.33	68.02	11.55	6.11	1.15	4.55	0.05	2.42	0.31	0.05	0.08	559	40	137	22	12	4.69	99.03
D1896		56.39	56.98	61.70	13.16	8.43	0.66	7.73	0.05	1.48	0.35	0.11	0.12	287	14	133	24	14	5.71	99.52

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1897		77.72	78.33	63.85	12.83	9.71	0.20	7.27	0.02	1.24	0.33	0.03	0.14	474	6	161	20	19	4.73	100.39
D1898		100.58	101.19	70.60	8.11	7.28	0.59	7.62	0.01	0.04	0.23	0.04	0.06	26	7	101	12	10	4.55	99.13
D1899		149.35	149.95	67.83	12.76	7.06	1.67	2.97	0.16	2.62	0.31	0.07	0.08	635	51	168	28	13	4.51	100.03
D1900		153.92	154.53	67.61	13.77	6.34	1.27	2.12	1.00	4.22	0.44	0.04	0.12	416	69	161	26	15	3.70	100.62
D1901		3.05	3.66	74.11	11.90	3.81	2.01	0.92	3.75	1.32	0.35	0.08	0.14	715	141	135	24	14	2.22	100.62
D1902		18.29	18.90	69.88	13.37	4.37	2.61	0.86	3.01	2.94	0.37	0.07	0.12	776	84	169	26	13	3.26	100.84
D1903		39.62	40.23	68.01	10.66	4.88	5.11	1.03	1.84	2.42	0.29	0.13	0.08	465	81	142	24	11	5.29	99.74
D1904		56.39	57.00	72.56	11.81	4.18	1.67	0.91	2.05	2.78	0.31	0.05	0.10	453	41	183	24	11	2.76	99.19
D1905		79.25	79.86	68.92	10.47	4.32	5.22	0.78	2.93	2.02	0.28	0.13	0.08	478	101	130	28	13	5.26	100.43
D1906		102.11	102.72	74.08	12.08	4.22	1.36	0.72	3.28	2.80	0.35	0.04	0.12	836	64	137	24	11	1.95	101.00
D1907		123.44	124.05	67.37	10.06	10.36	0.24	1.61	0.09	2.70	0.32	0.09	0.08	642	15	147	18	14	5.81	98.74
D1908		172.21	172.82	68.22	11.70	8.85	0.16	3.94	0.04	2.24	0.37	0.04	0.10	620	10	160	26	14	4.89	100.56
D1909		6.10	6.71	72.33	13.11	5.09	1.66	1.07	4.93	0.60	0.37	0.08	0.12	306	194	131	28	14	1.54	100.89
D1910		28.96	29.57	74.38	11.57	3.36	2.06	0.33	2.70	3.60	0.31	0.06	0.10	1098	82	151	26	10	2.26	100.72
D1911		62.48	63.09	65.39	10.87	4.97	6.42	1.27	2.05	2.22	0.29	0.14	0.06	336	99	120	28	12	6.53	100.21
D1912		88.39	89.05	69.41	10.98	3.15	5.22	0.73	2.14	2.68	0.30	0.11	0.10	551	111	130	20	9	5.31	100.13
D1913		118.87	119.48	69.48	11.72	5.20	3.01	1.50	3.35	1.50	0.33	0.10	0.12	473	138	139	24	13	3.80	100.10
D1914		140.21	140.82	68.23	13.83	5.76	1.19	1.81	2.13	3.02	0.42	0.10	0.18	1140	83	134	26	20	3.40	100.07
D1915		220.98	221.59	27.43	21.92	14.57	0.01	22.71	0.01	0.02	0.35	0.05	0.12	65	5	227	38	11	10.68	97.89
D1926	P821-416	126.36	126.66	76.1	9.30	2.93	3.67	1.88	2.38	1.13	0.22	0.08	0.06	-1	-1	-1	-1	-1	4.40	100.15
D1927	P821-418	127.82	127.99	73.2	9.80	4.54	3.71	2.74	1.83	1.08	0.23	0.11	0.07	-1	-1	-1	-1	-1	5.10	100.41
D1928	P821-423	129.27	129.54	72.4	11.00	5.79	0.66	3.18	2.11	1.00	0.26	0.05	0.06	-1	-1	-1	-1	-1	2.90	99.41
D1929	P821-425	130.57	130.78	67.8	12.5	5.82	2.00	3.17	2.50	1.47	0.29	0.07	0.05	-1	-1	-1	-1	-1	4.10	99.77
D1930	P821-434	132.27	132.45	69.7	11.3	4.55	3.53	3.03	2.87	0.84	0.27	0.08	0.07	-1	-1	-1	-1	-1	4.90	101.14
D1932	P821-439	134.73	134.90	60.2	15.1	8.03	1.14	5.44	1.11	2.42	0.37	0.08	0.05	-1	-1	-1	-1	-1	5.30	99.26
D1933	P821-444	136.25	136.48	67.3	12.6	5.90	2.19	2.41	3.60	0.75	0.29	0.07	0.06	-1	-1	-1	-1	-1	3.80	99.17
D1934	P821-447	137.65	137.90	73.5	10.2	2.73	3.16	1.31	2.95	1.39	0.25	0.09	0.06	-1	-1	-1	-1	-1	4.00	99.64
D1935	P821-457	138.75	138.90	65.9	9.6	4.35	5.96	2.18	2.52	1.02	0.23	0.20	0.07	-1	-1	-1	-1	-1	7.00	99.03
D1936	P821-460	140.11	140.42	71.5	11.0	4.73	2.73	1.77	3.87	0.52	0.26	0.09	0.06	-1	-1	-1	-1	-1	3.20	100.33
D1937	P821-472	143.86	144.06	59.6	11.3	5.10	7.86	2.26	2.53	1.76	0.38	0.20	0.07	-1	-1	-1	-1	-1	8.90	99.96

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+Cao+ +Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1581	15.08	16.08	71.42	11.54	5.82	2.50	1.29	1.89	4.96	.29	.14	.08	2.94	6.25	10.64	59.00	6.11
D1582	26.52	27.41	69.30	13.37	5.76	2.06	2.56	2.93	3.25	.43	.15	.10	3.37	5.79	10.78	54.00	4.56
D1583	54.40	55.30	72.34	12.34	6.41	1.20	1.53	2.38	2.99	.31	.37	.04	3.08	4.52	8.10	56.00	5.18
D1584	70.44	71.32	71.81	12.58	6.42	1.51	1.45	2.49	3.00	.30	.19	.13	3.46	4.45	8.45	53.00	5.05
D1585	25.10	26.00	71.86	12.81	6.31	1.19	1.56	4.70	1.01	.32	.06	.08	2.73	2.57	8.46	30.00	2.73
D1586	39.81	40.71	74.86	10.96	4.96	1.89	2.11	1.84	2.81	.26	.05	.06	4.05	4.92	8.65	57.00	5.96
D1587	67.17	68.00	70.88	13.34	6.52	.22	5.15	.26	2.94	.39	.07	.08	3.56	8.09	8.57	94.00	51.31
D1588	5.38	6.19	77.06	10.65	4.09	1.32	2.26	.93	3.16	.26	.05	.06	3.44	5.44	7.69	71.00	11.45
D1589	45.33	46.33	72.26	11.91	7.04	.99	2.98	3.16	1.18	.29	.07	.06	2.87	4.16	8.31	50.00	3.77
D1590	49.69	50.53	77.96	9.54	1.41	3.39	2.61	2.36	2.05	.22	.10	.06	5.22	4.66	10.41	45.00	4.04
D1591	55.40	56.20	73.56	10.84	5.07	3.26	2.19	4.36	.21	.25	.06	.06	3.41	2.40	10.02	24.00	2.49
D1592	81.03	81.23	70.80	13.36	6.00	2.12	2.95	2.45	1.70	.29	.07	.07	4.20	4.65	9.22	50.00	5.45
D1593	93.81	94.17	78.63	10.69	2.63	2.43	1.04	2.23	1.86	.24	.08	.07	3.30	2.90	7.56	38.00	4.79
D1594	98.12	98.52	72.91	11.40	4.62	4.63	1.56	2.92	1.16	.26	.19	.07	5.20	2.72	10.27	26.00	3.90
D1595	104.73	104.96	71.40	12.99	5.31	1.81	3.16	3.98	.71	.29	.12	.06	4.00	3.87	9.66	40.00	3.26
D1596	106.00	106.26	72.19	11.56	7.01	2.08	2.95	3.31	.30	.27	.13	.08	3.60	3.25	8.64	38.00	3.49
D1597	106.26	106.90	66.34	14.48	8.28	2.02	3.56	3.38	1.27	.36	.13	.06	3.64	4.83	10.23	47.00	4.28
D1598	108.91	109.14	74.44	11.33	5.53	1.39	2.80	3.88	.13	.25	.09	.05	3.20	2.93	8.20	36.00	2.92
D1599	123.68	123.92	63.16	15.19	7.25	.58	4.90	.48	2.78	.35	.04	.06	4.30	7.68	8.74	88.00	31.65
D1600	124.87	125.00	71.79	13.14	6.87	.46	4.14	.85	2.22	.30	.05	.06	3.60	6.36	7.67	83.00	15.46
D1626	-1.00	-1.00	77.64	10.48	3.42	1.00	1.34	1.29	4.41	.23	.04	.08	2.51	5.75	8.04	72.00	8.12
D1627	-1.00	-1.00	72.77	11.90	5.83	1.20	1.82	3.91	2.08	.28	.07	.08	2.80	3.90	9.01	43.00	3.04
D1628	-1.00	-1.00	72.79	12.23	5.67	.88	1.68	2.07	4.13	.33	.06	.08	2.74	5.81	8.76	66.00	5.91
D1629	-1.00	-1.00	72.59	12.34	6.47	.63	3.05	.08	4.27	.32	.06	.08	3.21	7.32	8.03	91.00	154.25
D1630	-1.00	-1.00	79.14	9.66	3.93	.90	2.11	.04	3.73	.25	.09	.08	2.87	5.84	6.78	86.00	241.50
D163:	-1.00	-1.00	72.97	11.88	6.53	.14	3.02	.04	4.92	.31	.03	.10	2.73	7.94	8.12	98.00	297.00
D1632	-1.00	-1.00	72.95	11.65	6.19	.74	2.89	.72	4.15	.30	.09	.08	4.90	7.04	8.50	83.00	16.18
D1633	-1.00	-1.00	73.47	12.21	6.06	.97	1.47	4.45	.73	.38	.09	.10	2.67	2.20	7.62	29.00	2.74
D1634	-1.00	-1.00	71.72	12.61	7.05	1.54	1.22	4.56	.60	.39	.14	.08	3.06	1.82	7.92	23.00	2.77
D1635	-1.00	-1.00	74.24	11.79	8.93	.14	2.36	.23	1.74	.34	.06	.06	3.04	4.10	4.47	92.00	51.26

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	LOI %	MgO+K20 %	MgO+Cao+ +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1637	-1.00	-1.00	54.01	16.34	12.65	6.41	4.95	2.94	1.33	.93	.18	.16	2.98	6.28	15.63	40.00	5.56
D1638	-1.00	-1.00	51.59	16.81	11.53	11.10	4.73	2.88	.19	.59	.19	.08	5.57	4.92	18.90	26.00	5.84
D1639	-1.00	-1.00	53.03	15.95	10.66	10.48	5.34	3.40	.27	.55	.19	.08	2.56	5.61	19.49	29.00	4.69
D1640	-1.00	-1.00	57.50	14.97	11.20	7.05	4.47	3.44	.71	.36	.17	.08	2.30	5.18	15.67	33.00	4.35
D1641	-1.00	-1.00	54.18	17.34	12.03	8.30	5.26	1.34	.63	.40	.16	.04	5.42	5.89	15.53	38.00	12.94
D1642	-1.00	-1.00	55.05	17.34	10.92	7.68	5.10	2.75	.32	.44	.15	.04	4.49	5.42	15.85	34.00	6.31
D1643	-1.00	-1.00	55.65	17.68	9.16	8.77	5.18	2.11	.54	.57	.15	.10	3.24	5.72	16.60	34.00	8.38
D1644	-1.00	-1.00	57.28	14.87	11.94	6.92	4.75	3.17	.37	.36	.18	.06	2.88	5.12	15.21	34.00	4.69
D1645	-1.00	-1.00	53.70	16.77	9.89	6.70	6.63	5.07	.29	.57	.20	.08	3.11	6.92	18.69	37.00	3.31
D1646	-1.00	-1.00	52.20	18.07	10.80	6.39	6.17	5.00	.33	.62	.18	.08	3.71	6.50	17.89	36.00	3.61
D1647	-1.00	-1.00	50.78	16.69	10.26	12.99	4.95	2.96	.26	.54	.17	.06	5.60	5.21	21.16	25.00	5.64
D1648	-1.00	-1.00	50.82	16.55	12.73	10.78	6.48	1.27	.33	.61	.24	.08	3.19	6.81	18.86	36.00	13.03
D1651	-1.00	-1.00	51.13	16.66	11.55	7.94	6.69	2.05	2.17	.62	.27	.04	9.31	8.86	18.85	47.00	8.13
D1652	-1.00	-1.00	52.13	17.41	10.71	10.21	6.17	1.59	.59	.64	.32	.08	3.86	6.76	18.56	36.00	10.95
D1653	-1.00	-1.00	51.90	17.00	11.61	8.65	7.04	2.17	.59	.63	.21	.08	3.35	7.63	18.45	41.00	7.83
D1655	-1.00	-1.00	60.48	14.99	7.89	10.62	2.72	2.43	.15	.31	.13	.06	4.65	2.87	15.92	18.00	6.17
D1656	-1.00	-1.00	51.42	20.28	11.35	3.92	6.82	3.80	1.71	.32	.16	.04	4.21	8.53	16.25	52.00	5.34
D1658	-1.00	-1.00	58.19	15.98	8.16	9.69	5.10	1.89	.19	.31	.14	.04	5.74	5.29	16.87	31.00	8.46
D1659	-1.00	-1.00	52.89	22.11	6.60	6.96	4.99	2.64	3.22	.25	.14	.06	3.81	8.21	17.81	46.00	8.38
D1660	-1.00	-1.00	49.94	17.89	12.73	8.59	6.06	3.41	.37	.61	.20	.08	3.60	6.43	18.43	35.00	5.25
D1661	-1.00	-1.00	72.79	12.64	5.45	.89	1.41	3.54	2.72	.29	.13	.08	2.33	4.13	8.56	48.00	3.57
D1662	-1.00	-1.00	74.34	10.87	5.73	2.47	.94	4.52	.53	.29	.11	.10	2.87	1.47	8.46	17.00	2.40
D1665	-1.00	-1.00	51.56	19.07	12.07	6.25	6.38	3.74	.23	.33	.15	.06	3.88	6.61	16.60	40.00	5.10
D1666	-1.00	-1.00	68.96	13.00	6.62	5.09	1.67	2.75	1.36	.27	.16	.06	2.32	3.03	10.87	28.00	4.73
D1667	-1.00	-1.00	54.37	18.26	9.75	6.28	6.67	3.61	.19	.38	.15	.04	5.36	6.86	16.75	41.00	5.06
D1668	-1.00	-1.00	55.94	21.10	5.08	7.76	3.49	5.69	.33	.32	.09	.10	3.31	3.82	17.27	22.00	3.71
D1669	-1.00	-1.00	55.41	19.88	8.22	9.03	3.83	2.64	.38	.30	.13	.08	3.08	4.21	15.88	27.00	7.53
D1671	-1.00	-1.00	71.56	13.31	5.30	3.45	2.17	2.37	1.35	.31	.06	.10	2.08	3.52	9.34	38.00	5.62
D1674	-1.00	-1.00	66.28	13.39	6.13	3.24	4.74	4.48	1.02	.28	.06	.09	5.26	5.76	13.48	43.00	2.99
D1675	-1.00	-1.00	50.35	19.99	11.64	7.47	6.47	1.97	1.20	.52	.15	.06	4.18	7.67	17.11	45.00	10.15

APPENDIX H

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1998		221.70	222.40	43.93	4.62	9.28	7.76	22.26	0.20	0.08	0.13	0.13	<0.02	54	131	82	2	21	10.75	99.06
D1999		-1.00	-1.00	51.12	15.55	11.41	8.55	7.64	3.62	0.62	1.45	0.17	0.20	209	434	160	18	21	0.01	100.08
D2001		-1.00	-1.00	56.54	11.38	17.33	1.49	6.03	0.51	0.80	1.60	0.08	0.66	176	26	312	62	46	4.07	100.49
D2002		-1.00	-1.00	80.91	6.90	3.82	0.35	4.24	0.07	1.20	0.13	0.11	<0.02	215	11	173	68	1	2.87	100.60
D2004		-1.00	-1.00	80.12	7.94	2.98	0.95	1.88	0.07	2.22	0.22	0.12	0.06	477	10	188	44	5	2.85	99.41
D2006		-1.00	-1.00	31.17	18.83	16.65	0.08	21.97	0.04	1.60	0.22	0.10	<0.02	64	3	518	80	2	9.24	99.86

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1968		111.00	111.90	68.75	9.84	10.07	0.15	1.41	0.07	2.24	0.27	0.03	0.06	740	5	125	24	15	5.29	98.17
D1969		130.94	132.00	66.27	11.23	12.90	0.20	3.45	0.07	1.38	0.29	0.08	0.02	532	2	172	32	17	4.40	100.31
D1970	PB30-517	157.33	157.89	62.60	11.00	13.88	0.05	3.32	0.07	1.28	0.31	0.08	0.06	-1	-1	-1	-1	-1	5.40	98.05
D1971		165.19	165.95	71.22	11.21	8.71	0.30	2.69	0.10	2.20	0.30	0.07	0.06	722	17	159	28	15	3.33	100.18
D1972		181.21	182.07	68.29	12.40	7.18	1.07	3.83	0.07	3.14	0.33	0.05	0.04	928	20	153	32	16	4.19	100.59
D1973		216.31	217.10	72.00	12.11	5.83	0.13	3.24	1.53	2.60	0.34	0.04	0.06	717	20	136	30	16	3.02	100.89
D1974		224.94	225.69	71.18	10.45	5.65	1.39	2.86	2.27	1.96	0.28	0.07	0.06	528	68	115	24	12	4.19	100.36
D1975	PB30-735	228.00	228.25	70.10	11.20	8.98	0.06	3.23	0.06	1.50	0.30	0.10	0.05	-1	-1	-1	-1	-1	3.20	98.79
D1976	PB30-749	231.02	231.26	68.70	12.20	6.66	0.46	3.77	1.15	2.27	0.33	0.05	0.06	-1	-1	-1	-1	-1	3.60	99.25
D1977		300.77	301.71	68.86	12.17	10.27	0.19	2.07	0.15	2.88	0.32	0.10	0.06	541	10	151	28	16	3.54	100.61
D1978		309.35	310.21	66.15	12.12	5.22	2.81	2.08	0.91	4.08	0.41	0.07	0.08	883	71	131	16	17	5.53	99.46
D1979		314.36	315.00	67.12	11.16	6.65	2.30	1.92	1.13	3.56	0.27	0.17	0.06	1030	90	135	24	15	4.65	98.97
D1980		322.79	323.60	71.11	9.64	4.17	3.33	1.67	1.38	2.86	0.23	0.10	0.04	455	76	96	20	13	5.58	100.11
D1981	PB301079	328.65	328.75	60.40	17.00	7.07	1.03	3.74	0.07	4.91	0.44	0.07	0.05	-1	-1	-1	-1	-1	5.00	99.78
D1982		-1.00	-1.00	51.87	15.72	11.26	8.42	7.32	3.46	0.68	1.42	0.16	0.20	208	458	158	20	20	-1.00	100.32
D1983		10.25	10.96	74.79	9.80	3.69	1.72	2.62	0.92	2.88	0.25	0.05	0.06	439	30	109	22	13	3.85	100.64
D1984		58.51	59.13	78.01	10.17	2.84	1.08	1.51	2.44	1.78	0.25	0.06	0.06	401	48	85	20	13	2.61	100.81
D1985		65.36	65.93	59.91	14.46	9.46	1.05	5.05	0.17	2.90	0.35	0.05	0.04	728	39	176	26	21	5.18	98.62
D1986		45.20	46.00	70.80	10.05	4.43	3.55	1.87	1.32	1.94	0.24	0.10	0.06	518	133	122	20	14	4.68	99.02
D1987		138.07	138.84	65.92	11.41	6.93	2.45	2.97	2.21	1.36	0.25	0.11	0.04	480	97	141	28	15	4.85	98.51
D1988		146.04	146.75	65.66	12.85	5.60	4.27	1.93	1.67	2.86	0.43	0.09	0.08	768	99	115	20	18	5.13	100.57
D1989		12.62	13.40	54.49	12.21	11.48	5.95	4.46	3.11	0.60	1.12	0.15	0.24	205	125	149	36	29	6.34	100.13
D1990		68.50	69.35	57.25	14.37	9.77	3.00	5.69	4.21	0.58	0.45	0.14	0.08	386	106	103	12	32	4.99	100.54
D1991		73.24	73.92	49.35	7.55	11.25	5.79	13.47	0.18	0.06	0.25	0.10	<0.02	32	24	78	4	45	12.70	100.65
D1992		82.19	83.05	48.81	12.37	10.39	6.18	6.50	0.97	2.50	0.51	0.15	0.06	494	154	101	12	34	11.49	99.93
D1993		101.15	101.98	51.20	14.64	12.28	6.57	5.53	2.45	0.70	0.94	0.16	0.14	276	333	130	20	35	5.39	100.00
D1994		157.76	158.51	42.61	7.39	9.15	9.64	11.55	0.08	0.66	0.18	0.17	<0.02	194	186	88	4	32	17.17	98.61
D1995		192.27	193.16	55.73	11.49	8.40	7.10	6.14	2.43	0.56	0.22	0.14	<0.02	299	163	70	6	35	8.75	100.96
D1996		200.97	201.81	31.83	5.39	8.30	18.97	8.05	0.09	1.04	0.12	0.17	<0.02	269	258	59	2	28	25.04	99.01
D1997		215.93	216.53	53.68	12.63	11.04	5.47	6.90	3.83	1.38	0.44	0.19	0.10	633	170	136	8	39	3.98	99.63

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL WHOLE ROCK GEOCHEMICAL DATA TAKEN OVER THE PINEBAY PROPERTY

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1938	PB21-475	144.76	144.91	67.4	13.7	4.91	2.39	1.95	2.47	2.61	0.45	0.06	0.10	-1	-1	-1	-1	-1	4.10	100.14
D1939	PB21-480	146.19	146.29	65.8	14.3	5.01	2.69	1.81	2.65	2.89	0.46	0.06	0.10	-1	-1	-1	-1	-1	4.40	100.17
D1940		148.80	149.53	65.56	12.66	5.51	4.07	1.82	2.34	2.80	0.42	0.09	0.10	787	182	106	22	19	4.87	100.24
D1941		11.28	12.06	66.40	12.62	7.79	0.66	4.14	2.13	2.16	0.30	0.05	0.04	280	63	145	26	19	3.31	99.62
D1942	PB-24-43	13.13	13.35	60.4	16.60	8.69	0.21	5.17	0.10	3.49	0.39	0.05	0.07	-1	-1	-1	-1	-1	4.60	99.77
D1943	PB24-128	38.85	39.14	74.7	10.40	5.10	0.82	2.68	2.72	0.92	0.25	0.04	0.06	-1	-1	-1	-1	-1	3.00	100.69
D1944		51.55	52.33	67.45	10.14	3.94	5.15	3.02	2.12	1.66	0.24	0.12	0.06	407	128	136	20	16	6.19	100.10
D1945		-1.00	-1.00	51.49	15.88	11.50	8.68	7.40	3.66	0.62	1.46	0.16	0.20	218	478	122	20	23	0.01	100.64
D1946	PB24-213	64.96	65.14	68.3	13.60	5.61	1.33	2.65	2.78	1.85	0.33	0.10	0.07	-1	-1	-1	-1	-1	3.90	100.52
D1947	PB24-252	76.59	76.74	56.2	15.20	8.92	2.20	5.52	0.73	2.61	0.39	0.08	0.06	-1	-1	-1	-1	-1	7.00	98.91
D1948		83.35	83.94	67.90	12.70	5.25	2.00	3.28	1.88	2.46	0.32	0.09	0.08	757	42	165	28	20	4.50	100.54
D1949	PB24-280	85.30	85.44	61.8	15.70	8.26	0.48	5.34	0.16	2.81	0.37	0.04	0.06	-1	-1	-1	-1	-1	4.80	99.82
D1950	PB24-295	89.89	90.03	67.8	10.60	4.73	3.35	4.15	2.63	1.02	0.23	0.11	0.06	-1	-1	-1	-1	-1	6.90	101.58
D1951	PB24-335	101.97	102.15	73.6	10.90	4.27	2.97	1.71	3.40	0.75	0.26	0.08	0.07	-1	-1	-1	-1	-1	4.00	102.01
D1952		95.32	95.88	71.74	8.63	2.99	3.74	2.95	1.78	1.68	0.21	0.10	0.06	374	78	144	20	14	6.24	100.15
D1953		102.84	103.76	69.43	11.10	5.89	2.59	2.36	3.52	0.60	0.26	0.09	0.06	259	148	130	24	17	3.32	99.21
D1954	PB24-387	117.96	118.21	67.8	13.00	3.96	4.36	1.41	2.16	2.92	0.43	0.08	0.10	-1	-1	-1	-1	-1	5.20	101.42
D1955		118.30	119.03	67.11	12.62	4.90	4.24	1.63	2.14	2.84	0.43	0.09	0.12	665	133	146	18	20	4.21	100.34
D1956	PB24-415	126.43	126.71	70.0	11.50	4.34	2.96	2.55	1.58	2.65	0.28	0.08	0.06	-1	-1	-1	-1	-1	5.40	101.40
D1957	PB24-421	128.05	128.26	70.2	11.30	5.19	1.84	2.57	1.86	2.23	0.27	0.07	0.06	-1	-1	-1	-1	-1	4.40	99.99
D1958		139.57	144.03	67.08	11.23	5.65	2.57	2.69	1.53	4.06	0.28	0.11	0.08	785	43	139	28	18	4.48	99.74
D1959	PB24-472	144.03	144.25	68.7	12.10	4.44	1.94	2.20	1.65	4.30	0.29	0.08	0.06	-1	-1	-1	-1	-1	4.10	99.86
D1960	PB24-492	150.02	150.12	69.7	10.20	4.51	3.22	2.07	1.29	2.87	0.25	0.13	0.06	-1	-1	-1	-1	-1	5.70	100.00
D1961		6.93	7.70	66.97	11.89	8.71	0.12	0.75	0.11	3.38	0.32	0.01	0.08	1619	5	136	30	17	6.02	98.38
D1962	PB-30-26	7.70	8.00	64.10	11.40	11.47	0.10	1.07	0.10	2.85	0.32	0.01	0.07	-1	-1	-1	-1	-1	6.90	98.39
D1963	PB-30-31	8.87	9.12	60.60	11.90	13.16	0.11	2.19	0.10	2.21	0.34	0.04	0.10	-1	-1	-1	-1	-1	7.10	97.85
D1964		33.12	34.00	73.19	10.22	9.06	0.35	2.29	0.05	1.70	0.27	0.04	0.08	903	3	120	24	14	2.89	100.13
D1965		69.95	70.70	58.73	12.22	16.20	0.21	5.36	0.03	0.60	0.30	0.09	0.02	316	2	122	28	18	4.18	97.93
D1966		83.23	84.02	75.76	10.45	6.60	0.11	0.97	0.08	2.52	0.28	0.02	0.06	1100	5	144	24	16	2.94	99.79
D1967	PB30-306	94.02	94.19	77.70	11.00	3.71	0.07	0.87	0.08	2.76	0.32	0.02	0.06	-1	-1	-1	-1	-1	2.10	90.69

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	LOI %	MgO+K20 %	MgO+Cao+ +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1551	419.23	419.97	76.23	13.04	4.50	.11	2.66	.19	2.63	.42	.02	.12	2.92	5.29	5.59	95.00	68.63
D1552	434.22	435.00	34.61	26.82	14.41	.12	20.53	.12	1.35	.82	.09	.18	9.63	21.88	22.12	99.00	223.50
D1553	463.36	464.00	70.47	12.16	6.15	.13	9.02	.04	.65	.38	.04	.11	4.98	10.27	10.44	98.00	304.00
D1554	464.00	464.39	47.72	20.43	11.65	.14	18.10	.03	.41	.60	.09	.17	8.10	18.51	18.68	99.00	681.00
D1555	515.60	516.35	72.92	13.23	6.88	.12	4.11	.14	2.00	.35	.03	.13	3.17	6.11	6.37	96.00	94.50
D1556	539.20	539.93	79.35	14.10	.83	.11	.85	.28	3.92	.40	.01	.10	2.08	4.77	5.16	92.00	50.36
D1557	616.40	617.10	72.21	12.67	5.90	1.83	2.84	.80	3.02	.36	.06	.11	4.33	5.86	8.49	69.00	15.84
D1558	621.60	622.30	67.87	14.03	5.91	3.15	2.92	.55	4.53	.40	.05	.13	6.63	7.45	11.15	67.00	25.51
D1559	643.70	644.40	53.31	10.30	17.19	6.82	9.42	.03	.69	.32	.10	.23	12.25	10.11	16.96	60.00	343.33
D1560	655.30	656.00	55.13	9.35	8.79	13.22	5.80	2.11	2.06	.25	.24	.12	16.78	7.86	23.19	34.00	4.43
D1561	679.70	680.40	58.69	15.57	13.34	2.19	5.41	1.28	2.24	.43	.27	.15	6.61	7.65	11.12	69.00	12.16
D1562	704.87	705.82	66.99	11.55	6.11	5.07	3.53	2.52	2.79	.30	.10	.15	9.53	6.32	13.91	45.00	4.58
D1563	732.10	733.10	74.80	12.31	6.15	.14	2.66	.54	2.61	.33	.18	.08	4.00	5.27	5.95	89.00	22.80
D1564	782.86	783.60	73.16	10.58	9.52	.26	2.29	.29	2.86	.29	.05	.09	7.79	5.15	5.70	90.00	36.48
D1565	799.00	799.80	68.05	12.98	9.08	1.67	2.44	3.76	1.02	.51	.13	.17	4.51	3.46	8.89	39.00	3.45
D1566	-1.00	-1.00	50.79	16.03	11.05	8.47	7.60	3.58	.62	1.41	.16	.28	.05	8.22	20.27	41.00	4.48
D1567	8.27	9.06	75.95	11.90	6.23	.09	2.96	.15	2.19	.32	.03	.08	3.12	5.15	5.39	96.00	79.33
D1568	39.47	40.11	73.36	11.90	6.45	.36	4.08	1.08	2.12	.30	.13	.08	3.72	6.20	7.64	81.00	11.02
D1569	41.50	42.17	74.46	11.90	5.38	.30	4.24	1.00	2.14	.30	.10	.08	3.31	6.38	7.68	83.00	11.90
D1570	72.75	73.50	71.11	13.05	7.23	.46	3.28	3.35	.90	.35	.12	.08	2.81	4.18	7.99	52.00	3.90
D1571	87.48	88.45	73.66	12.93	4.66	.21	3.77	2.22	2.02	.32	.04	.10	3.05	5.79	8.22	70.00	5.82
D1572	5.39	5.94	71.70	13.13	6.04	.72	3.56	.63	3.60	.38	.02	.12	3.68	7.16	8.51	84.00	20.84
D1573	34.29	35.05	73.32	11.57	6.13	.66	4.22	1.49	2.11	.29	.05	.06	3.40	6.33	8.48	75.00	7.77
D1574	47.28	48.08	70.98	13.10	6.53	.56	3.01	3.45	1.87	.34	.05	.06	2.27	4.88	8.89	55.00	3.80
D1575	84.43	85.20	71.07	12.01	6.58	1.23	4.10	1.88	2.61	.31	.06	.04	3.23	6.71	9.82	68.00	6.39
D1576	93.05	93.70	70.01	11.82	6.53	3.21	2.48	1.67	3.45	.31	.12	.06	5.62	5.93	10.81	55.00	7.08
D1577	8.77	9.47	70.16	13.28	7.46	.25	3.95	1.66	2.52	.45	.07	.10	3.28	6.47	8.38	77.00	8.00
D1578	21.88	22.81	67.14	13.28	6.92	2.24	4.28	3.84	1.31	.43	.24	.08	4.91	5.59	11.67	48.00	3.46
D1579	-1.00	-1.00	51.41	15.91	11.05	8.44	7.50	3.63	.62	1.44	.16	.22	.01	8.12	20.19	40.00	4.38
D1580	57.00	57.80	70.95	12.79	7.36	.47	4.31	.89	2.53	.46	.05	.08	3.66	6.84	8.20	83.00	14.37

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	LOI %	MgO+K20 %	MgO+Cao+ +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1774	177.72	178.18	73.32	10.79	5.26	4.20	1.85	2.15	1.75	.27	.12	.04	4.93	3.60	9.95	36.00	5.02
D1775	6.50	7.19	70.48	11.20	6.07	5.53	2.26	1.76	1.82	.30	.14	.09	6.12	4.08	11.37	36.00	6.36
D1776	14.45	15.01	60.33	9.22	8.15	10.38	6.09	1.47	1.84	.25	.31	.07	13.85	7.93	19.78	40.00	6.27
D1777	39.62	40.23	74.50	13.07	2.48	2.76	.77	3.20	2.60	.34	.04	.12	3.29	3.37	9.33	36.00	4.08
D1778	3.15	3.71	73.55	12.13	4.93	1.81	2.42	.17	4.16	.33	.07	.08	5.91	6.58	8.56	77.00	71.35
D1779	9.40	10.31	72.10	13.26	6.00	.27	4.54	.06	3.02	.36	.06	.10	4.35	7.56	7.89	96.00	221.00
D1780	20.70	21.34	69.97	11.68	5.47	3.89	3.95	.07	3.90	.32	.10	.07	7.47	7.85	11.81	66.00	166.86
D1781	26.57	27.38	71.72	12.56	7.09	1.42	1.91	.10	4.16	.34	.16	.09	6.58	6.07	7.59	80.00	125.60
D1782	46.20	46.94	75.14	10.05	8.08	.07	4.99	.03	1.15	.28	.03	.04	3.53	6.14	6.24	98.00	335.00
D1783	70.36	71.07	75.62	10.38	5.56	.72	5.35	.04	1.77	.27	.03	.08	4.19	7.12	7.88	90.00	259.50
D1784	5.00	5.64	73.74	12.71	4.17	2.26	.60	3.45	2.49	.33	.06	.12	2.85	3.09	8.80	35.00	3.68
D1785	36.20	36.86	72.30	13.50	4.91	1.90	1.59	2.77	2.38	.35	.05	.10	3.98	3.97	8.64	46.00	4.87
D1786	44.50	45.19	72.75	12.50	8.07	.49	2.66	.17	2.69	.33	.08	.08	3.90	5.35	6.01	89.00	73.53
D1787	64.24	64.85	60.64	15.44	9.33	.12	12.20	.03	1.14	.43	.09	.11	6.88	13.34	13.49	99.00	514.67
D1789	84.58	85.24	54.19	16.26	11.56	1.45	14.20	.02	.65	.44	.09	.52	7.75	14.85	16.32	91.00	813.00
D1790	99.54	100.25	70.87	11.63	8.54	.35	6.68	.04	1.28	.31	.03	.06	4.26	7.96	8.35	95.00	290.75
D1791	114.93	115.57	71.39	12.33	6.57	1.75	4.17	.05	2.95	.34	.06	.09	5.25	7.12	8.92	80.00	246.60
D1792	122.40	123.14	67.36	12.89	11.37	.25	6.48	.04	.97	.36	.04	.06	4.31	7.45	7.74	96.00	322.25
D1793	134.49	135.13	71.70	12.47	9.69	.08	2.43	.11	2.78	.34	.02	.06	5.64	5.21	5.40	96.00	113.36
D1794	151.41	152.22	73.71	12.93	5.05	.23	4.62	.07	2.70	.34	.05	.06	4.47	7.32	7.62	96.00	184.71
D1795	169.42	169.76	64.26	11.24	6.45	3.78	8.17	.13	4.03	.31	.09	.07	11.76	12.20	16.11	76.00	86.46
D1796	174.04	174.73	72.73	12.47	5.76	.63	2.73	.74	4.10	.34	.05	.08	5.95	6.83	8.20	83.00	16.85
D1797	10.82	11.58	67.87	13.19	8.68	1.84	2.19	4.70	.59	.49	.14	.19	3.63	2.78	9.32	30.00	2.81
D1798	20.83	21.41	67.22	12.91	5.82	5.52	1.99	2.13	3.00	.38	.15	.19	8.40	4.99	12.64	39.00	6.06

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SiO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+CaO+ +Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1709	156.92	157.84	70.70	12.27	5.63	4.10	1.81	2.44	2.14	.33	.08	.08	6.56	3.95	10.49	38.00	5.03
D1710	186.66	187.20	69.28	14.23	6.23	3.23	1.89	1.02	3.18	.36	.08	.09	6.20	5.07	9.32	54.00	13.95
D1711	195.00	195.43	72.59	12.19	4.48	3.68	.89	3.51	1.77	.39	.10	.09	5.39	2.66	9.85	27.00	3.47
D1712	203.61	204.19	74.69	10.96	3.54	4.39	.28	4.23	1.17	.30	.08	.08	5.21	1.45	10.07	14.00	2.59
D1713	212.12	212.60	68.88	11.49	6.04	5.19	2.17	2.94	1.89	.32	.16	.16	8.57	4.06	12.19	33.00	3.91
D1714	227.10	227.53	64.57	11.17	7.82	7.36	3.27	1.26	2.46	.31	.19	.13	12.00	5.73	14.35	40.00	8.87
D1715	235.84	236.35	64.88	13.11	7.17	5.32	2.86	2.70	2.33	.38	.14	.18	9.52	5.19	13.21	39.00	4.86
D1716	242.98	243.54	57.72	14.21	13.02	3.54	6.20	3.52	.39	.66	.16	.06	7.13	6.59	13.65	48.00	4.04
D1717	260.58	261.01	58.02	14.47	13.32	2.46	5.85	4.04	.73	.68	.17	.09	4.33	6.56	13.08	50.00	3.58
D1718	272.47	272.90	68.66	13.93	6.02	.23	5.85	2.61	1.97	.46	.06	.10	3.27	7.82	10.66	73.00	5.34
D1719	23.62	24.08	66.10	13.28	9.86	1.76	2.64	4.31	1.11	.57	.14	.19	2.38	3.75	9.82	38.00	3.08
D1720	45.80	46.33	70.09	12.08	8.82	1.77	1.11	4.34	.91	.56	.12	.19	1.38	2.02	8.13	25.00	2.78
D1721	59.56	59.97	69.45	13.52	5.83	4.05	1.88	1.53	2.89	.42	.10	.10	4.79	4.77	10.35	46.00	8.84
D1725	73.56	74.02	73.48	12.39	5.46	1.81	1.95	2.45	2.00	.27	.06	.06	2.52	3.95	8.21	48.00	5.06
D1726	115.95	116.41	74.75	11.68	5.33	.85	2.26	1.34	3.31	.24	.09	.04	2.78	5.57	7.76	72.00	8.72
D1727	145.75	146.25	71.46	12.53	5.73	1.68	2.62	4.32	1.16	.33	.04	.06	2.59	3.78	9.78	39.00	2.90
D1728	34.52	34.95	65.68	15.90	7.14	1.44	3.17	.15	5.77	.42	.06	.10	4.36	8.94	10.53	85.00	106.00
D1729	47.14	47.52	70.50	14.31	3.21	2.55	1.78	4.19	2.73	.40	.06	.13	3.61	4.51	11.25	40.00	3.42
D1730	72.34	72.85	76.08	11.42	2.70	2.85	1.25	2.75	2.31	.29	.09	.08	4.10	3.56	9.16	39.00	4.15
D1731	86.46	86.97	75.56	11.65	4.18	1.87	1.52	2.80	1.89	.30	.05	.11	2.90	3.41	8.08	42.00	4.16
D1732	104.90	105.41	69.74	12.71	7.55	2.89	2.33	1.99	2.11	.31	.11	.08	4.39	4.44	9.32	48.00	6.39
D1733	115.42	116.05	72.19	11.30	5.18	4.13	2.00	1.91	2.41	.26	.13	.08	6.43	4.41	10.45	42.00	5.92
D1734	121.51	122.25	72.48	12.12	6.40	1.49	1.95	3.97	1.01	.33	.08	.08	3.18	2.96	8.42	35.00	3.05
D1735	147.22	147.83	76.75	11.38	2.88	1.76	1.55	3.21	1.93	.31	.05	.06	3.14	3.48	8.45	41.00	3.55
D1736	159.56	160.12	75.95	11.28	3.51	2.58	1.00	3.77	1.39	.25	.06	.11	2.93	2.39	8.74	27.00	2.99
D1737	178.77	179.30	69.16	12.08	6.71	4.51	1.78	2.41	2.43	.28	.16	.04	6.69	4.21	11.13	38.00	5.01
D1738	195.07	195.66	75.54	11.41	4.04	2.57	.99	3.03	1.85	.27	.09	.09	3.67	2.84	8.44	34.00	3.77
D1739	208.58	209.22	69.44	12.58	6.80	3.59	2.02	3.90	.97	.34	.12	.08	3.91	2.99	10.48	29.00	3.23
D1740	215.80	216.36	72.41	11.96	5.89	4.30	1.01	1.91	1.90	.28	.10	.09	4.14	2.91	9.12	32.00	6.26
D1742	10.63	11.07	73.02	12.85	5.43	1.69	1.25	4.29	.88	.36	.08	.12	1.81	2.13	8.11	26.00	3.00

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+CaO+ +Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1676	-1.00	-1.00	53.56	18.74	9.59	9.50	5.37	1.94	.44	.35	.15	.04	5.75	5.81	17.25	34.00	9.66
D1677	-1.00	-1.00	74.80	11.44	5.55	.84	1.55	2.53	2.88	.23	.07	.06	2.38	4.43	7.80	57.00	4.52
D1678	-1.00	-1.00	60.06	15.36	8.86	9.83	3.05	1.94	.18	.44	.11	.12	2.04	3.23	15.00	22.00	7.92
D1679	-1.00	-1.00	61.11	15.68	9.09	5.13	6.25	1.25	.66	.44	.10	.12	4.09	6.91	13.29	52.00	12.54
D1680	-1.00	-1.00	58.81	14.61	10.51	7.56	5.83	1.53	.15	.45	.15	.11	5.63	5.98	15.07	40.00	9.55
D1681	-1.00	-1.00	57.82	16.17	9.62	8.91	4.13	2.17	.25	.58	.15	.12	2.67	4.38	15.46	28.00	7.45
D1683	7.21	7.62	51.68	16.88	11.37	9.83	6.94	1.82	.45	.64	.17	.08	3.94	7.39	19.04	39.00	9.27
D1684	40.48	40.74	50.39	16.52	13.34	10.83	6.90	.69	.21	.63	.21	.04	4.51	7.11	18.63	38.00	23.94
D1685	87.83	88.47	52.09	16.23	11.20	6.58	8.09	3.39	1.06	.79	.20	.13	4.98	9.15	19.12	48.00	4.79
D1686	136.75	137.26	71.48	13.06	5.92	.49	3.81	1.69	2.89	.37	.08	.11	3.22	6.70	8.88	75.00	7.73
D1687	5.18	5.65	51.23	16.64	12.12	8.55	6.84	3.14	.28	.60	.19	.06	6.02	7.12	18.81	38.00	5.30
D1688	149.15	149.55	69.61	13.42	5.70	1.85	4.24	.74	3.62	.35	.14	.08	4.93	7.86	10.45	75.00	18.14
D1689	159.19	159.64	64.86	13.14	10.20	3.21	1.63	4.77	.96	.61	.16	.15	5.50	2.59	10.57	25.00	2.75
D1690	169.87	170.66	65.87	12.96	8.59	3.18	2.08	4.24	1.82	.54	.15	.13	6.52	3.90	11.32	34.00	3.06
D1691	183.27	183.79	66.35	13.00	10.15	2.07	2.63	4.00	.72	.60	.16	.17	3.79	3.35	9.42	36.00	3.25
D1692	182.88	183.21	71.35	13.29	4.98	1.30	2.59	4.39	1.60	.27	.06	.06	3.33	4.19	9.88	42.00	3.03
D1693	214.27	214.57	65.88	13.88	9.70	.45	6.55	1.18	1.30	.54	.19	.17	3.96	7.85	9.48	83.00	11.76
D1695	239.01	239.40	57.50	14.73	13.63	4.66	4.34	3.35	.54	.67	.16	.11	5.32	4.88	12.89	38.00	4.40
D1696	265.43	265.81	63.93	14.01	13.74	.33	5.42	.40	1.13	.63	.13	.11	4.16	6.55	7.28	90.00	35.03
D1697	300.18	300.61	68.14	9.49	6.66	7.15	3.03	1.04	2.87	.22	.20	.02	10.74	5.90	14.09	42.00	9.13
D1698	320.95	321.41	71.66	10.72	4.52	4.59	2.91	.10	4.49	.26	.11	.07	7.60	7.40	12.09	61.00	107.20
D1699	339.48	339.98	74.81	11.75	2.21	2.89	1.98	.16	5.44	.30	.05	.09	5.45	7.42	10.47	71.00	73.44
D1700	13.36	13.72	76.22	11.44	2.23	2.25	1.30	5.25	.72	.30	.06	.11	3.31	2.02	9.52	21.00	2.18
D1701	25.40	25.78	68.73	13.96	6.05	3.09	3.52	.71	2.88	.39	.09	.13	6.49	6.40	10.20	63.00	19.66
D1702	27.36	27.79	64.92	16.01	8.51	1.53	1.66	5.72	.80	.45	.06	.21	3.18	2.46	9.71	25.00	2.80
D1703	53.49	54.20	81.31	9.73	1.77	1.84	1.33	1.21	2.30	.26	.04	.09	3.67	3.63	6.68	54.00	8.04
D1704	81.38	81.92	71.41	14.14	2.46	4.40	.53	3.33	2.86	.44	.06	.13	4.66	3.39	11.12	30.00	4.25
D1706	105.05	105.56	70.27	14.30	4.77	2.78	1.97	2.41	2.72	.41	.05	.13	3.88	4.69	9.88	47.00	5.93
D1707	118.87	119.28	69.64	13.89	6.74	1.89	3.46	.21	3.34	.37	.06	.11	5.37	6.80	8.90	76.00	66.14
D1708	132.59	132.99	72.88	11.70	3.44	5.72	.55	3.42	1.51	.30	.08	.11	5.26	2.06	11.20	18.00	3.42

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	LOI %	MgO+K20 %	MgO+Cao+ +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1743	42.98	43.43	74.02	12.06	3.84	2.70	.87	3.44	2.48	.33	.08	.08	3.06	3.35	9.49	35.00	3.51
D1744	63.96	64.51	72.26	13.16	4.96	1.55	1.65	3.62	2.13	.41	.05	.10	3.02	3.78	8.95	42.00	3.64
D1745	82.91	83.39	68.18	12.70	5.68	6.75	.94	2.47	2.18	.42	.15	.08	6.40	3.12	12.34	25.00	5.14
D1746	108.13	108.71	69.29	14.58	6.90	1.99	2.81	.85	2.86	.37	.07	.11	3.98	5.67	8.51	67.00	17.15
D1747	142.72	143.26	63.79	13.90	8.15	7.84	1.41	1.91	1.75	.45	.13	.09	7.59	3.16	12.91	24.00	7.28
D1748	173.56	174.09	65.87	15.84	7.21	2.43	3.30	1.55	2.78	.52	.10	.11	5.25	6.08	10.06	60.00	10.22
D1749	176.56	177.11	75.46	12.33	2.09	4.52	.34	1.76	2.71	.40	.09	.12	4.45	3.05	9.33	33.00	7.01
D1750	201.09	201.65	80.43	9.36	2.25	2.49	1.02	2.43	1.42	.29	.07	.08	3.77	2.44	7.36	33.00	3.85
D1751	234.75	235.31	70.01	14.43	4.86	2.38	2.45	2.62	2.49	.47	.04	.10	3.61	4.94	9.94	50.00	5.51
D1752	261.52	262.00	72.84	13.05	4.32	3.80	.56	2.56	2.00	.41	.07	.11	4.08	2.64	9.00	29.00	5.10
D1753	285.60	286.10	66.01	15.07	8.14	3.36	1.53	2.73	2.17	.45	.10	.19	4.92	3.70	9.79	38.00	5.52
D1754	306.32	306.93	73.33	11.24	5.33	3.57	1.42	1.92	2.30	.31	.11	.06	6.29	3.72	9.21	40.00	5.85
D1755	333.71	334.21	70.58	11.89	6.03	4.42	1.83	1.29	2.72	.34	.13	.15	7.80	4.55	10.26	44.00	9.22
D1756	346.35	346.86	71.92	9.16	5.89	5.62	2.64	1.65	1.78	.27	.11	.09	9.15	4.42	11.69	38.00	5.55
D1757	360.05	360.63	64.32	14.36	11.53	.62	4.47	1.12	2.99	.34	.13	.02	3.29	7.46	9.20	81.00	12.82
D1758	2.94	3.35	69.94	12.54	7.82	1.53	2.40	3.84	1.10	.50	.12	.11	3.45	3.50	8.87	39.00	3.27
D1759	60.88	61.34	60.86	18.90	8.75	1.00	3.19	2.87	3.65	.46	.12	.08	3.09	6.84	10.71	64.00	6.59
D1760	224.33	224.76	69.54	13.43	5.16	4.17	1.61	2.39	2.81	.44	.08	.08	5.07	4.42	10.98	40.00	5.62
D1761	279.96	280.42	73.10	11.14	5.25	4.15	1.70	2.07	1.93	.27	.12	.04	4.70	3.63	9.85	37.00	5.38
D1762	421.69	422.15	70.47	12.86	6.30	1.93	2.43	4.38	.99	.34	.07	.08	3.44	3.42	9.73	35.00	2.94
D1763	479.78	480.21	64.60	14.48	8.84	2.19	4.07	3.37	1.68	.48	.06	.04	4.29	5.75	11.31	51.00	4.30
D1764	501.70	502.28	70.62	13.67	5.23	1.92	2.53	2.75	2.64	.36	.08	.06	3.90	5.17	9.84	53.00	4.97
D1765	576.99	577.52	72.22	13.67	5.21	1.33	1.35	2.41	3.24	.35	.05	.08	3.05	4.59	8.33	55.00	5.67
D1766	632.76	633.37	69.41	13.29	5.62	4.02	1.59	2.36	2.80	.45	.07	.11	5.06	4.39	10.77	41.00	5.63
D1767	686.41	686.89	66.51	12.49	9.15	4.61	2.52	2.61	1.06	.37	.12	.13	5.66	3.58	10.87	33.00	4.66
D1768	725.68	726.19	67.45	13.62	6.98	.37	9.19	.15	1.43	.45	.03	.06	4.99	10.62	11.14	95.00	90.80
D1769	772.79	773.35	33.45	27.06	15.14	.09	20.43	.15	1.89	.84	.05	.02	9.47	22.32	22.56	99.00	180.40
D1770	794.36	794.84	29.29	24.15	20.28	.19	24.21	.01	.04	.54	.07	.04	10.77	24.25	24.45	99.00	2415.00
D1771	831.16	831.75	77.01	12.53	3.29	.10	3.87	.23	2.45	.37	.01	.06	2.92	6.32	6.65	95.00	54.48
D1773	884.22	884.71	71.03	12.47	6.67	1.41	4.30	.20	2.88	.35	.28	.06	5.92	7.18	8.79	82.00	62.35

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	LOI	MgO+K20	MgO+CaO +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1831	117.81	118.36	69.16	13.85	9.26	1.57	1.84	.29	3.09	.54	.07	.17	4.01	4.93	6.79	73.00	47.76
D1832	150.93	151.51	74.05	11.25	3.19	5.50	.31	2.75	2.13	.32	.05	.11	6.02	2.44	10.69	23.00	4.09
D1833	155.24	156.06	70.80	13.20	5.75	2.70	1.00	4.98	.87	.36	.11	.08	4.08	1.87	9.55	20.00	2.65
D1834	170.54	171.14	75.99	11.82	2.98	3.17	.54	3.39	1.56	.26	.05	.06	4.14	2.10	8.66	24.00	3.49
D1835	186.92	187.63	71.16	11.83	4.36	6.05	.95	2.79	1.75	.36	.10	.13	7.05	2.70	11.54	23.00	4.24
D1836	191.24	191.90	69.30	14.34	6.11	4.07	1.24	1.71	2.19	.40	.09	.13	6.57	3.43	9.21	37.00	8.39
D1837	205.89	206.45	68.44	13.67	7.12	4.18	1.48	2.31	1.83	.40	.11	.13	5.92	3.31	9.80	34.00	5.92
D1838	238.12	238.96	67.65	13.90	7.10	3.72	2.97	.75	2.91	.37	.09	.11	6.83	5.88	10.35	57.00	18.53
D1839	12.50	12.95	70.82	12.86	7.34	.39	2.43	3.69	1.92	.31	.07	.13	1.98	4.35	8.43	52.00	3.49
D1840	36.20	36.68	52.09	16.63	11.35	5.46	8.82	4.32	.26	.38	.16	.04	7.37	9.08	18.86	48.00	3.85
D1841	45.19	46.13	73.39	11.75	6.16	2.28	2.12	1.22	2.54	.26	.07	.06	3.29	4.66	8.16	57.00	9.63
D1842	67.36	67.82	73.40	12.06	5.85	2.30	1.12	2.87	1.84	.25	.12	.08	3.23	2.96	8.13	36.00	4.20
D1843	95.40	95.86	72.03	11.74	5.57	4.12	1.01	2.67	2.15	.25	.15	.06	4.77	3.16	9.95	32.00	4.40
D1844	124.41	124.87	75.14	11.72	4.97	2.33	.97	1.66	2.68	.25	.09	.06	3.32	3.65	7.64	48.00	7.06
D1845	146.61	147.07	74.36	11.54	5.67	2.02	1.80	.70	3.29	.24	.13	.06	4.12	5.09	7.81	65.00	16.49
D1846	158.50	158.98	70.79	12.94	6.54	2.19	1.52	4.00	1.42	.38	.07	.06	2.93	2.94	9.13	32.00	3.23
D1847	181.84	182.27	72.87	12.65	5.49	1.82	1.50	3.97	1.13	.35	.07	.10	2.37	2.63	8.42	31.00	3.19
D1848	219.00	219.46	73.69	11.10	5.39	3.66	1.68	1.50	2.31	.31	.14	.08	3.89	3.99	9.15	44.00	7.40
D1849	237.13	237.49	73.02	12.41	5.07	1.64	1.72	2.56	2.93	.34	.15	.10	2.47	4.65	8.85	53.00	4.85
D1850	31.75	32.36	68.03	13.92	6.21	3.68	3.30	.28	3.43	.64	.07	.15	5.21	6.73	10.69	63.00	49.71
D1851	42.49	43.10	53.44	17.34	10.87	9.97	5.76	1.59	.17	.45	.17	.02	4.83	5.93	17.49	34.00	10.91
D1852	157.73	158.80	50.11	14.49	13.74	10.93	7.57	1.44	.08	1.25	.22	.08	2.88	7.65	20.02	38.00	10.06
D1853	26.14	26.75	58.06	14.56	10.32	5.06	6.31	3.35	1.45	.45	.20	.11	3.80	7.76	16.17	48.00	4.35
D1854	39.93	40.54	56.48	15.33	11.37	4.29	5.83	3.26	2.40	.63	.16	.12	3.81	8.23	15.78	52.00	4.70
D1855	61.42	62.03	56.14	16.56	9.49	6.20	6.34	2.33	1.94	.62	.11	.13	4.06	8.28	16.81	49.00	7.11
D1856	81.76	82.45	61.18	14.79	9.61	5.85	4.64	2.01	1.01	.59	.12	.12	2.93	5.65	13.51	42.00	7.36
D1857	111.33	112.01	59.40	14.85	9.32	6.46	5.62	2.02	1.57	.45	.13	.08	3.16	7.19	15.67	46.00	7.35
D1858	124.69	125.27	62.03	15.28	8.48	5.78	3.88	3.03	.59	.57	.10	.15	3.37	4.47	13.28	34.00	5.04
D1859	154.13	154.84	66.70	14.33	6.52	4.09	3.75	3.13	.71	.47	.08	.12	2.60	4.46	11.68	38.00	4.58
D1860	183.92	184.58	60.11	13.34	8.58	8.23	6.21	2.20	.27	.46	.16	.06	6.08	6.48	16.91	38.00	6.06

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	LOI	MgO+K20	MgO+CaO +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1932	134.73	134.90	63.89	16.02	8.52	1.21	5.79	1.18	2.57	.39	.08	.05	5.30	8.36	10.75	78.00	13.58
D1933	136.25	136.48	70.46	13.19	6.18	2.29	2.52	3.98	.79	.30	.07	.06	3.80	3.31	9.58	35.00	3.31
D1934	137.65	137.90	76.73	10.65	2.85	3.30	1.37	3.08	1.45	.26	.09	.06	4.00	2.82	9.20	31.00	3.46
D1935	138.75	138.90	71.25	10.38	4.70	6.44	2.36	2.72	1.10	.25	.22	.08	7.00	3.46	12.62	27.00	3.82
D1936	140.11	140.42	73.96	11.38	4.89	2.82	1.83	4.00	.54	.27	.09	.06	3.80	2.37	9.19	26.00	2.85
D1937	143.86	144.06	64.93	12.31	5.56	8.56	2.46	2.76	1.92	.41	.22	.08	8.90	4.38	15.70	28.00	4.46
D1938	144.76	144.91	70.06	14.24	5.10	2.48	2.03	2.57	2.71	.47	.06	.10	4.10	4.74	9.79	48.00	5.54
D1939	146.19	146.29	68.57	14.90	5.22	2.80	1.89	2.76	3.01	.48	.06	.10	4.40	4.90	10.46	47.00	5.40
D1940	148.80	149.53	60.58	13.24	5.76	4.26	1.90	2.45	2.93	.44	.09	.10	4.87	4.83	11.54	42.00	5.40
D1941	11.28	12.06	68.87	13.09	8.08	.68	4.29	2.21	2.24	.31	.05	.04	3.31	6.53	9.42	69.00	5.92
D1942	13.13	13.35	63.33	17.41	9.11	.22	5.42	.10	3.66	.41	.05	.07	4.60	9.08	9.40	97.00	174.10
D1943	38.85	39.14	76.40	10.64	5.22	.84	2.74	2.78	.94	.26	.04	.06	3.00	3.68	7.30	50.00	3.83
D1944	51.55	52.33	71.55	10.76	4.18	5.46	3.20	2.25	1.76	.25	.13	.06	6.19	4.96	12.67	39.00	4.78
D1945	-1.00	-1.00	51.17	15.78	11.43	8.63	7.35	3.64	.62	1.45	.16	.20	.01	7.97	20.24	39.00	4.34
D1946	64.96	65.14	70.58	14.05	5.80	1.37	2.74	2.87	1.91	.34	.10	.07	3.90	4.65	8.89	32.00	4.90
D1947	76.59	76.74	60.84	16.46	9.66	2.38	5.98	.79	2.83	.42	.09	.06	7.00	8.81	11.98	74.00	20.84
D1948	83.35	83.94	70.64	13.20	5.46	2.08	3.41	1.95	2.56	.33	.09	.08	4.50	5.97	10.00	60.00	6.77
D1949	85.30	85.44	64.89	16.48	8.67	.50	5.61	.17	2.95	.39	.04	.06	4.80	8.56	9.23	93.00	96.94
D1950	89.89	90.03	71.28	11.14	4.97	3.52	4.36	2.76	1.07	.24	.12	.06	6.90	5.43	11.71	46.00	4.04
D1951	101.97	102.15	74.98	11.10	4.35	3.03	1.74	3.46	.76	.26	.08	.07	4.00	2.50	8.99	28.00	3.21
D1952	95.32	95.88	76.10	9.15	3.17	3.97	3.13	1.89	1.78	.22	.11	.06	6.24	4.91	10.77	46.00	4.84
D1953	102.84	103.76	72.32	11.56	6.14	2.70	2.46	3.67	.63	.27	.09	.06	3.32	3.09	9.46	33.00	3.15
D1954	117.96	118.21	70.28	13.48	4.10	4.52	1.46	2.24	3.03	.45	.08	.10	5.20	4.49	11.25	40.00	6.02
D1955	118.30	119.03	69.69	13.10	5.09	4.40	1.69	2.22	2.95	.45	.09	.12	4.21	4.64	11.26	41.00	5.90
D1956	126.43	126.71	72.71	11.95	4.51	3.07	2.65	1.64	2.75	.29	.08	.06	5.40	5.40	10.11	53.00	7.29
D1957	128.05	128.26	73.30	11.80	5.42	1.92	2.68	1.94	2.33	.28	.07	.06	4.40	5.01	8.87	56.00	6.08
D1958	139.57	144.03	70.28	11.77	5.92	2.69	2.82	1.60	4.25	.29	.12	.08	4.48	7.07	11.36	62.00	7.36
D1959	144.03	144.25	71.62	12.61	4.63	2.02	2.29	1.72	4.48	.30	.08	.06	4.10	6.77	10.51	64.00	7.33
D1960	150.02	150.12	73.67	10.78	4.77	3.40	2.19	1.36	3.03	.26	.14	.06	5.70	5.22	9.98	52.00	7.93
D1961	6.93	7.70	72.24	12.83	9.40	.13	.81	.12	3.65	.35	.01	.09	6.02	4.46	4.71	95.00	106.92

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	LOI	MgO+K20	MgO+CaO +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1962	7.70	8.00	69.72	12.40	12.68	.11	1.16	.11	3.10	.35	.01	.08	6.90	4.26	4.48	95.00	112.73
D1963	8.87	9.12	66.43	13.04	14.43	.12	2.40	.11	2.42	.37	.04	.11	7.10	4.82	5.05	95.00	118.55
D1964	33.12	34.00	75.20	10.50	9.31	.36	2.35	.06	1.75	.28	.04	.08	2.89	4.10	4.52	91.00	175.00
D1965	69.95	70.70	62.53	13.01	17.25	.22	5.71	.03	.64	.32	.10	.02	4.18	6.35	6.60	96.00	433.67
D1966	83.23	84.02	78.16	10.78	6.81	.11	1.00	.08	2.60	.29	.02	.06	2.94	3.60	3.79	95.00	134.75
D1967	94.02	94.19	80.41	11.38	3.84	.07	.90	.08	2.86	.33	.02	.06	2.10	3.76	3.91	96.00	142.25
D1968	111.00	111.90	73.81	10.56	10.81	.16	1.51	.08	2.40	.29	.03	.06	5.29	3.91	4.15	94.00	132.00
D1969	130.94	132.00	68.96	11.69	13.42	.21	3.59	.07	1.44	.30	.08	.02	4.40	5.03	5.31	95.00	167.00
D1970	157.33	157.89	67.36	11.84	14.94	.05	3.57	.08	1.38	.33	.09	.06	5.40	4.95	5.08	97.00	148.00
D1971	165.19	165.95	73.46	11.56	8.98	.31	2.77	.10	2.27	.31	.07	.06	3.33	5.04	5.45	92.00	115.60
D1972	181.21	182.07	70.72	12.84	7.44	1.11	3.97	.07	3.25	.34	.05	.04	4.19	7.22	8.40	86.00	183.43
D1973	216.31	217.10	73.50	12.36	5.95	.13	3.31	1.56	2.65	.35	.04	.06	3.02	5.96	7.65	78.00	7.92
D1974	224.94	225.69	73.89	10.85	5.86	1.44	2.97	2.36	2.03	.29	.07	.06	4.19	5.00	8.80	57.00	4.60
D1975	228.00	228.23	73.26	11.70	9.38	.06	3.38	.06	1.57	.31	.10	.06	3.20	4.95	5.07	98.00	195.00
D1976	231.02	231.26	71.73	12.74	6.95	.48	3.94	1.20	2.37	.34	.05	.06	3.60	6.31	7.99	79.00	10.62
D1977	300.77	301.71	70.85	12.52	10.57	.20	2.13	.15	2.96	.33	.10	.06	3.54	5.09	5.44	94.00	83.47
D1978	309.35	310.21	70.21	12.86	5.54	2.98	2.21	.97	4.33	.44	.07	.08	5.53	6.54	10.49	62.00	13.26
D1979	314.36	315.09	71.00	11.81	7.03	2.43	2.03	1.20	3.77	.29	.18	.06	4.65	5.80	9.43	62.00	9.84
D1980	322.79	323.60	74.99	10.17	4.40	3.51	1.76	1.46	3.02	.24	.11	.04	5.58	4.78	9.75	49.00	6.97
D1981	328.65	328.75	63.57	17.89	7.44	1.08	3.94	.07	5.17	.46	.07	.05	5.00	9.11	10.26	89.00	255.57
D1982	-1.00	-1.00	51.19	15.51	11.11	8.31	7.22	3.41	.67	1.40	.16	.20	-1.00	7.89	19.61	40.00	4.55
D1983	10.25	10.96	77.16	10.11	3.81	1.77	2.70	.95	2.97	.26	.05	.06	3.85	5.67	8.39	68.00	10.64
D1984	58.51	59.13	79.39	10.35	2.89	1.10	1.54	2.48	1.81	.25	.06	.06	2.61	3.35	6.93	48.00	4.17
D1985	65.36	65.93	63.94	15.43	10.10	1.12	5.39	.18	3.10	.37	.05	.04	5.18	8.49	9.79	87.00	85.72
D1986	45.20	46.00	74.88	10.63	4.69	3.75	1.98	1.40	2.05	.25	.11	.06	4.68	4.03	9.18	44.00	7.59
D1987	136.07	138.84	70.21	12.15	7.38	2.61	3.16	2.35	1.45	.27	.12	.04	4.85	4.61	9.57	48.00	5.17
D1988	146.04	146.75	68.62	13.43	5.85	4.46	2.02	1.75	2.99	.45	.09	.08	5.13	5.01	11.22	45.00	7.67
D1989	12.62	13.40	57.86	12.97	12.19	6.32	4.74	3.30	.64	1.19	.16	.25	6.34	5.38	15.00	36.00	3.93
D1990	68.50	69.35	59.77	15.00	10.20	3.13	5.94	4.40	.61	.47	.15	.08	4.99	6.55	14.08	47.00	3.41
D1991	73.24	73.92	55.22	8.45	12.59	6.48	15.07	.20	.07	.28	.11	.02	12.70	15.14	21.82	69.00	42.25

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

NORMALIZED ON A VOLATILE FREE BASIS AND MANIPULATED TO INCLUDE ALTERATION INDICES

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	LOI	MgO+K20	MgO+CaO +Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
D1992	82.19	83.05	54.46	13.80	11.59	6.90	7.25	1.08	2.79	.57	.17	.07	11.49	10.04	18.02	56.00	12.78
D1993	101.15	101.98	53.96	15.43	12.94	6.92	5.83	2.58	.74	.99	.17	.15	5.39	6.57	16.07	41.00	5.98
D1994	157.76	158.51	50.73	8.80	10.89	11.48	13.75	.10	.79	.21	.20	.02	17.17	14.54	26.12	56.00	88.00
D1995	192.27	193.16	59.98	12.37	9.04	7.64	6.61	2.62	.60	.24	.15	.02	8.75	7.21	17.47	41.00	4.72
D1996	200.97	201.81	40.28	6.82	10.50	24.01	10.19	.11	1.32	.15	.22	.03	25.04	11.51	35.63	32.00	62.00
D1997	215.93	216.53	56.03	13.18	11.52	5.71	7.20	4.00	1.44	.46	.20	.10	3.98	8.64	18.35	47.00	3.30
D1998	221.70	222.40	49.16	5.17	10.38	8.68	24.91	.22	.09	.15	.15	.02	10.75	25.00	33.90	74.00	23.50
D1999	-1.00	-1.00	51.08	15.54	11.40	8.54	7.63	3.62	.62	1.45	.17	.20	.01	8.25	20.41	40.00	4.29
D2001	-1.00	-1.00	58.54	11.78	17.94	1.54	6.24	.53	.83	1.66	.08	.68	4.07	7.07	9.14	77.00	22.23
D2002	-1.00	-1.00	82.72	7.05	3.91	.36	4.33	.07	1.23	.13	.11	.02	2.87	5.56	5.99	93.00	100.71
D2004	-1.00	-1.00	82.91	8.22	3.08	.98	1.95	.07	2.30	.23	.12	.05	2.85	4.25	5.30	80.00	117.43
D2006	-1.00	-1.00	34.10	20.60	18.22	.09	24.04	.04	1.75	.24	.11	.02	9.24	25.79	25.92	99.00	515.00

APPENDIX I

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL SURFACE GRAB SAMPLES, PINEBAY 1991 FIELD SEASON AND G. GALE DATA (BAKER PATTON FELSIC COMPLEX)

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1626	332454.65	6072258.25	76.34	10.30	3.36	0.98	1.32	1.27	4.34	0.23	0.04	0.08	539	25	117	22	13	2.51	100.77
D1627	332713.11	6072601.11	70.82	11.58	5.67	1.17	1.77	3.81	2.02	0.27	0.07	0.08	701	34	162	30	15	2.80	100.05
D1628	332607.85	6071931.90	71.48	12.01	5.57	0.86	1.65	2.03	4.06	0.32	0.06	0.08	1244	45	165	18	16	2.74	100.87
D1629	332608.79	6071882.62	69.77	11.86	6.22	0.61	2.93	0.08	4.10	0.31	0.06	0.08	525	9	155	22	17	3.21	99.22
D1630	332608.79	6071882.62	76.88	9.38	3.82	0.87	2.05	0.04	3.62	0.24	0.09	0.08	395	13	122	14	13	2.87	99.93
D1631	332501.92	6071735.60	71.13	11.58	6.37	0.14	2.94	0.04	4.80	0.30	0.03	0.10	798	9	174	22	15	2.73	100.14
D1632	332548.92	6071736.98	69.20	11.05	5.87	0.70	2.74	0.68	3.94	0.28	0.09	0.08	899	25	170	18	14	4.90	99.53
D1633	332372.51	6072912.84	72.13	11.99	5.95	0.95	1.44	4.37	0.72	0.37	0.09	0.10	135	52	187	24	17	2.67	100.78
D1634	332412.44	6072887.04	68.92	12.12	6.77	1.48	1.17	4.38	0.58	0.37	0.13	0.08	92	57	167	24	17	3.06	99.06
D1635	332325.64	6072872.57	70.82	11.25	8.52	0.13	2.25	0.22	1.66	0.32	0.06	0.06	472	17	197	30	13	3.04	98.34
D1637	332004.06	6072515.73	52.66	15.93	12.33	6.25	4.83	2.87	1.30	0.91	0.18	0.16	468	331	179	26	38	2.98	100.40
D1638	332010.32	6072344.00	49.34	16.08	11.03	10.62	4.52	2.75	0.18	0.56	0.18	0.08	92	146	120	10	46	5.57	100.92
D1639	331936.35	6072358.10	51.51	15.49	10.35	10.18	5.19	3.30	0.26	0.53	0.18	0.08	166	130	99	12	43	2.56	99.63
D1640	331760.37	6072507.44	55.39	14.42	10.79	6.79	4.31	3.31	0.68	0.35	0.16	0.08	338	245	129	10	39	2.30	98.57
D1641	331571.75	6072554.53	51.37	16.44	11.41	7.87	4.99	1.27	0.60	0.38	0.15	0.04	140	178	113	8	39	5.42	99.95
D1642	331550.54	6072599.53	51.67	16.28	10.25	7.21	4.79	2.58	0.30	0.41	0.14	0.04	62	138	115	6	40	4.49	98.16
D1643	331491.87	6072154.30	53.71	17.06	8.84	8.46	5.00	2.04	0.52	0.55	0.14	0.10	149	241	117	6	36	3.24	99.65
D1644	331662.09	6072214.98	55.58	14.43	11.59	6.71	4.61	3.08	0.36	0.35	0.17	0.06	209	267	144	12	38	2.88	99.83
D1645	331798.97	6072122.76	51.76	16.17	9.53	6.46	6.39	4.89	0.28	0.55	0.19	0.08	168	150	118	10	44	3.11	99.41
D1646	331916.47	6072122.83	50.25	17.40	10.40	6.15	5.94	4.81	0.32	0.60	0.17	0.08	173	222	123	14	47	3.71	99.85
D1647	331920.49	6072138.04	47.62	15.65	9.62	12.18	4.64	2.78	0.24	0.51	0.16	0.06	156	243	93	10	43	5.60	99.07
D1648	331834.16	6071978.85	49.05	15.97	12.29	10.40	6.25	1.23	0.32	0.59	0.23	0.08	163	300	137	10	48	3.19	99.61
D1651	331817.42	6071950.70	47.13	15.36	10.65	7.32	6.17	1.89	2.00	0.57	0.25	0.04	679	77	102	10	45	9.31	100.70
D1652	331803.98	6071942.93	49.46	16.52	10.16	9.69	5.85	1.51	0.56	0.61	0.30	0.08	197	360	118	10	49	3.86	98.59
D1653	331753.77	6071932.24	49.66	16.27	11.11	8.28	6.74	2.08	0.56	0.60	0.20	0.08	240	478	142	12	48	3.35	98.92
D1655	331549.98	6072067.60	56.68	14.05	7.39	9.95	2.55	2.28	0.14	0.29	0.12	0.06	101	295	114	6	35	4.65	98.16
D1656	331462.19	6072059.97	49.34	19.46	10.89	3.76	6.54	3.65	1.64	0.31	0.15	0.04	627	156	114	4	51	4.21	99.99
D1658	331254.11	6072361.87	55.25	15.17	7.75	9.20	4.84	1.79	0.18	0.29	0.13	0.04	46	51	113	6	35	5.74	100.38
D1659	331249.45	6072344.92	50.64	21.17	6.32	6.66	4.78	2.53	3.08	0.24	0.13	0.06	815	194	80	4	26	3.81	99.42
D1660	331707.51	6071760.01	47.99	17.19	12.23	8.25	5.82	3.28	0.36	0.59	0.19	0.08	194	356	116	8	47	3.60	99.57

D1661	331647.53	6071770.98	71.75	12.46	5.37	0.88	1.39	3.49	2.68	0.29	0.13	0.08	1098	70	158	20	17	2.33	100.85
D1662	331585.29	6071797.57	72.40	10.59	5.58	2.41	0.92	4.40	0.52	0.28	0.11	0.10	196	83	114	16	15	2.87	100.18
D1665	331477.65	6071959.79	48.78	18.04	11.42	5.91	6.04	3.54	0.22	0.31	0.14	0.06	99	143	110	4	49	3.88	98.35
D1666	331463.06	6071914.25	65.69	12.38	6.31	4.85	1.59	2.62	1.30	0.26	0.15	0.06	570	323	124	10	20	2.32	97.52
D1667	331231.84	6072072.99	52.07	17.49	9.34	6.01	6.39	3.46	0.18	0.36	0.14	0.04	37	101	77	2	43	5.36	100.86

TL-513	332968.86	6071993.94	73.30	10.80	5.03	0.48	3.87	0.14	1.77	0.09	0.12	0.07	511	10	98	30	-1	3.35	99.02
TL-514	332838.89	6071885.76	65.60	11.10	7.36	0.09	8.30	0.03	0.91	0.08	0.08	0.06	238	4	101	30	-1	4.53	98.14
TL-515	332797.46	6071772.31	55.70	14.00	12.37	0.19	9.39	0.04	0.08	0.09	0.20	0.12	241	6	52	17	-1	5.57	98.47
TL-516	332815.09	6071862.23	68.40	9.78	6.69	0.07	8.91	0.01	0.54	0.01	0.06	0.17	108	4	91	25	-1	4.47	99.10
TL-517	332752.98	6071692.63	71.60	10.30	9.56	0.07	3.92	0.14	0.72	0.30	0.09	0.08	416	3	98	27	-1	3.30	100.08
TL-518	332655.91	6071404.94	71.40	11.20	4.99	0.08	5.08	0.27	1.17	0.40	0.14	0.08	415	14	100	28	-1	3.70	98.51
TL-519	332573.98	6071247.07	63.00	13.00	11.86	0.42	3.21	0.18	1.59	0.50	0.05	0.25	1392	9	88	27	-1	3.60	97.66
TL-520	332509.49	6071072.19	70.70	11.00	8.60	0.08	3.58	0.11	1.29	0.04	0.12	0.07	979	5	96	25	-1	3.06	98.65
TL-521	332415.35	6071002.73	68.70	11.10	5.06	1.26	4.24	1.08	3.56	0.30	0.25	0.08	1408	49	106	21	-1	2.50	98.13
TL-522	332480.00	6070827.00	72.60	11.30	4.75	0.24	1.93	4.55	0.75	0.30	0.07	0.11	220	32	109	35	-1	1.70	98.30
TL-523	332656.48	6071045.29	72.40	10.60	6.25	0.06	3.90	0.20	1.58	0.30	0.07	0.11	496	8	79	28	-1	3.10	98.57
TL-524	332782.62	6071227.68	78.4	10.10	3.78	0.08	2.39	0.15	1.95	0.03	0.01	0.08	1545	8	86	27	-1	2.36	99.33
TL-525	332964.15	6071457.04	57.90	16.00	9.75	0.83	6.38	0.23	2.04	0.04	0.13	0.07	1318	16	56	13	-1	5.75	99.12
TL-526	332979.69	6071611.98	75.80	10.60	5.53	0.08	2.97	0.13	1.73	0.10	0.04	0.05	961	6	91	23	-1	2.49	99.52
TL-527	333385.24	6071859.75	75.10	9.19	7.67	0.11	1.88	0.12	1.28	0.04	0.03	0.14	745	9	74	16	-1	2.50	98.06
TL-528a	333258.92	6071641.17	80.70	8.90	1.67	0.47	1.70	0.24	2.49	0.30	0.04	0.07	675	14	79	21	-1	2.50	99.08
TL-528b	333248.65	6071657.17	72.30	11.00	6.33	0.12	2.72	0.29	1.85	0.30	0.12	0.11	782	17	86	26	-1	4.80	99.94
TL-529	333198.87	6071412.65	67.10	11.50	5.80	0.03	8.01	0.17	0.72	0.30	0.07	0.09	430	6	54	11	-1	3.00	96.79
TL-530	333229.79	6071268.10	81.50	10.80	0.88	-1.00	0.23	0.47	2.76	0.30	-1.00	0.02	2276	47	114	32	-1	2.10	99.06
TL-531	333142.36	6071062.60	74.50	11.10	5.04	-1.00	1.52	0.32	2.34	0.30	0.01	0.06	1288	11	109	26	-1	2.90	98.09
TL-532	332933.40	6070954.96	78.50	10.00	2.91	0.11	1.85	1.19	2.78	0.20	0.02	0.05	502	11	111	31	-1	2.10	99.71
TL-533	332972.36	6070951.02	76.80	9.80	5.04	-1.00	2.39	0.28	1.75	0.30	0.01	0.07	955	7	93	28	-1	2.80	99.24
TL-540	-1.00	-1.00	70.00	11.70	6.32	0.80	2.73	1.66	2.06	0.22	0.10	0.07	875	31	115	36	-1	3.22	98.88
TL-541	-1.00	-1.00	70.00	11.30	6.65	0.87	2.60	2.84	0.83	0.19	0.14	0.08	243	34	90	24	-1	3.07	98.57
TL-542	-1.00	-1.00	70.30	11.10	4.84	1.99	0.92	4.66	1.64	0.30	0.11	0.08	818	98	91	26	-1	4.20	100.14
TL-545	332044.76	6071352.03	72.90	11.00	4.87	2.42	1.57	2.76	1.04	0.30	0.09	0.11	462	114	80	20	-1	2.70	99.76
TL-546	332362.06	6071306.16	71.80	11.20	3.43	1.65	2.69	1.82	3.14	0.30	0.05	0.08	486	42	92	25	-1	4.10	100.26
TL-547	332397.77	6071307.66	71.80	11.20	3.97	1.55	2.54	3.11	1.88	0.30	0.04	0.07	406	68	93	29	-1	3.70	100.16
TL-548	332396.30	6071410.72	69.10	9.60	4.16	2.54	3.18	0.47	4.14	0.30	0.07	0.07	651	18	86	26	-1	5.50	99.13
TL-549	332464.31	6071532.82	71.10	9.90	9.64	0.07	2.58	0.18	1.36	0.40	0.05	0.11	1071	6	85	25	-1	2.90	98.29
TL-550	332482.21	6071635.32	73.50	9.90	4.26	0.85	2.78	1.19	3.11	0.30	0.03	0.07	679	26	92	24	-1	3.40	99.39
TL-551	332535.86	6071776.24	69.80	8.30	4.04	3.34	2.39	2.35	2.58	0.20	0.09	0.07	446	65	74	22	-1	5.80	98.96
TL-552	332763.26	6071898.88	63.00	12.60	8.49	0.81	5.58	0.16	2.71	0.15	0.08	0.09	639	20	109	35	-1	4.63	98.30
TL-553	331673.00	6070764.00	76.10	11.20	2.12	1.33	0.92	3.96	1.69	0.40	0.03	0.10	618	106	99	20	-1	2.20	100.05
TL-554	331649.00	6070849.00	70.40	11.10	3.85	2.09	1.97	2.46	2.13	0.19	0.02	0.07	422	91	96	27	-1	4.15	98.43

TL-355	331843.00	6070733.00	72.60	11.90	4.63	1.69	1.33	4.79	0.29	0.40	0.07	0.12	207	142	91	25	-1	1.20	99.02
TL-556	331801.00	6070798.00	68.10	12.60	5.95	2.41	1.33	2.96	1.71	0.31	0.05	0.10	555	153	105	28	-1	3.34	98.86
TL-557	331917.00	6070583.00	72.50	11.60	5.04	1.85	1.45	2.56	1.78	0.35	0.06	0.15	516	117	75	20	-1	3.08	100.42
TL-558	332066.00	6070546.00	62.00	13.30	7.91	2.35	4.68	3.21	2.43	0.44	0.07	0.08	519	178	75	18	-1	3.08	99.55
TL-609a	332065.00	6070537.00	63.80	14.20	7.80	0.16	5.28	0.60	4.03	0.31	0.03	0.08	893	20	125	29	-1	3.32	99.61
TL-609b	332065.00	6070537.00	79.60	9.17	1.81	2.20	0.87	2.71	1.41	0.21	0.04	0.07	567	109	78	27	-1	0.65	98.74
TL-610	332088.00	6070529.00	63.60	13.40	9.05	0.15	6.77	0.02	2.22	0.24	0.04	0.09	444	6	78	26	-1	4.22	99.80
TL-611	332118.00	6070491.08	66.10	13.00	8.13	2.21	2.93	0.33	2.26	0.31	0.10	0.21	738	75	85	26	-1	4.23	99.81
TL-612	332204.91	6070491.08	68.90	12.60	6.03	1.27	2.99	2.98	2.43	0.42	0.03	0.10	947	83	105	23	-1	1.50	99.25
TL-614	332443.19	6070515.07	73.60	11.20	4.68	0.30	2.21	2.69	1.27	0.21	0.07	0.05	505	26	112	33	-1	2.48	98.76
BP-15	-1.00	-1.00	73.60	10.50	6.07	-1.00	1.05	0.26	2.64	0.30	0.03	0.04	-1	-1	-1	-1	-1	3.50	97.99
BP-17	-1.00	-1.00	71.10	12.10	5.81	0.02	2.54	0.32	2.38	0.40	0.05	0.10	-1	-1	-1	-1	-1	3.40	98.22
BP-33	-1.00	-1.00	80.30	12.70	0.14	0.00	0.11	0.58	3.41	0.30	-1.00	0.05	-1	-1	-1	-1	-1	1.90	99.49
BP-37	-1.00	-1.00	71.50	11.10	7.34	0.02	2.66	0.20	1.60	0.30	0.04	0.06	-1	-1	-1	-1	-1	3.00	97.82
BP-38	-1.00	-1.00	70.80	10.70	9.50	-1.00	3.00	0.15	1.03	0.30	0.06	0.04	-1	-1	-1	-1	-1	3.20	98.78
88-52	332145.73	6071348.99	62.40	12.78	8.28	3.92	1.58	3.99	0.81	0.33	0.30	0.16	-1	-1	-1	-1	-1	4.50	99.05
88-53	332556.01	6071374.48	72.40	11.53	3.77	0.12	6.08	0.21	1.32	0.30	0.17	0.07	-1	-1	-1	-1	-1	3.80	99.77
88-54	332771.94	6071928.98	65.20	10.90	9.16	1.07	5.62	0.11	1.19	0.30	0.14	0.09	-1	-1	-1	-1	-1	5.00	98.78
88-60	332266.19	6070862.47	77.50	10.00	3.06	1.79	1.10	3.04	1.87	0.24	0.09	0.07	-1	-1	-1	-1	-1	1.00	99.76
88-63	332224.29	6071902.79	54.90	15.87	14.67	0.17	5.56	0.19	1.14	0.60	0.06	0.13	-1	-1	-1	-1	-1	5.10	98.39
88-70	332385.86	6070871.27	62.40	12.10	10.95	0.14	7.69	0.08	0.46	0.36	0.18	0.15	-1	-1	-1	-1	-1	4.80	99.31
88-71	332396.00	6070799.00	72.50	11.58	5.79	0.08	3.78	0.22	1.78	0.30	0.06	0.09	-1	-1	-1	-1	-1	3.20	99.38
88-72	332328.00	6070750.00	73.10	11.18	5.12	0.25	2.66	3.51	0.88	0.29	0.05	0.09	-1	-1	-1	-1	-1	2.20	99.33
88-73	332425.64	6071006.26	70.90	11.57	5.77	0.18	3.82	0.25	3.25	0.28	0.31	0.07	-1	-1	-1	-1	-1	3.10	99.50
88-74	332389.95	6071028.87	72.80	10.71	5.66	0.23	3.68	0.17	2.57	0.27	0.22	0.07	-1	-1	-1	-1	-1	3.20	99.58
88-75	332366.28	6070943.36	68.70	11.43	5.37	0.74	5.03	1.54	2.48	0.28	0.14	0.08	-1	-1	-1	-1	-1	3.30	99.09
88-76	332723.04	6071546.21	83.10	5.18	6.87	0.03	0.79	0.08	0.47	0.22	0.02	0.04	-1	-1	-1	-1	-1	2.10	98.90
88-77	332422.00	6071148.53	66.70	12.46	10.47	0.08	3.11	0.09	1.75	0.31	0.29	0.07	-1	-1	-1	-1	-1	3.50	98.83
88-78	333324.84	6072078.96	68.20	13.29	5.43	0.22	5.43	0.18	2.31	0.45	0.08	0.11	-1	-1	-1	-1	-1	4.00	99.70

APPENDIX J

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL SURFACE GRABSAMPLES, PINEBAY 1991 FIELD SEASON AND G. GALE DATA (BAKER PATTON FELSIC COMPLEX) - NORMALIZED ON A VOLATILE FREE BASIS

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+CaO+ Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1626	332454.70	6072258.00	77.64	10.48	3.42	1.00	1.34	1.29	4.41	.23	.04	.08	2.51	5.75	8.04	72.00	8.12
D1627	332713.10	6072601.00	72.77	11.90	5.83	1.20	1.82	3.91	2.08	.28	.07	.08	2.80	3.90	9.01	43.00	3.04
D1628	332607.80	6071932.00	72.79	12.23	5.67	.88	1.68	2.07	4.13	.33	.06	.08	2.74	5.81	8.76	66.00	5.91
D1629	332608.80	6071883.00	72.59	12.34	6.47	.63	3.05	.08	4.27	.32	.06	.08	3.21	7.32	8.03	91.00	154.25
D1630	332608.80	6071883.00	79.14	9.66	3.93	.90	2.11	.04	3.73	.25	.09	.08	2.87	5.84	6.78	86.00	241.50
D1631	332601.90	6071736.00	72.97	11.88	6.53	.14	3.02	.04	4.92	.31	.03	.10	2.73	7.94	8.12	98.00	297.00
D1632	332548.90	6071737.00	72.95	11.65	6.19	.74	2.89	.72	4.15	.30	.09	.08	4.90	7.04	8.50	83.00	16.18
D1633	332372.50	6072913.00	73.47	12.21	6.06	.97	1.47	4.45	.73	.38	.09	.10	2.67	2.20	7.62	29.00	2.74
D1634	332412.40	6072887.00	71.72	12.61	7.05	1.54	1.22	4.56	.60	.39	.14	.08	3.06	1.82	7.92	23.00	2.77
D1635	332325.60	6072873.00	74.24	11.79	8.93	.14	2.36	.23	1.74	.34	.06	.06	3.04	4.10	4.47	92.00	51.26
D1637	332004.10	6072516.00	54.01	16.34	12.65	6.41	4.95	2.94	1.33	.93	.18	.16	2.98	6.28	15.63	40.00	5.56
D1638	332010.30	6072344.00	51.59	16.81	11.53	11.10	4.73	2.88	.19	.59	.19	.08	5.57	4.92	18.90	26.00	5.84
D1639	331936.30	6072358.00	53.03	15.95	10.66	10.48	5.34	3.40	.27	.55	.19	.08	2.56	5.61	19.49	29.00	4.69
D1640	331760.40	6072508.00	57.50	14.97	11.20	7.05	4.47	3.44	.71	.36	.17	.08	2.30	5.18	15.67	33.00	4.35
D1641	331571.80	6072555.00	54.18	17.34	12.03	8.30	5.26	1.34	.63	.40	.16	.04	5.42	5.89	15.53	38.00	12.94
D1642	331550.50	6072600.00	55.05	17.34	10.92	7.68	5.10	2.75	.32	.44	.15	.04	4.49	5.42	15.85	34.00	6.31
D1643	331491.90	6072155.00	55.65	17.68	9.16	8.77	5.18	2.11	.54	.57	.15	.10	3.24	5.72	16.60	34.00	8.38
D1644	331662.10	6072215.00	57.28	14.87	11.94	6.92	4.75	3.17	.37	.36	.18	.06	2.88	5.12	15.21	34.00	4.69
D1645	331799.00	6072123.00	53.70	16.77	9.89	6.70	6.63	5.07	.29	.57	.20	.08	3.11	6.92	18.69	37.00	3.31
D1646	331916.50	6072123.00	52.20	18.07	10.80	6.39	6.17	5.00	.33	.62	.18	.08	3.71	6.50	17.89	36.00	3.61
D1647	331920.50	6072138.00	50.78	16.69	10.26	12.99	4.95	2.96	.26	.54	.17	.06	5.60	5.21	21.16	25.00	5.64
D1648	331834.20	6071979.00	50.82	16.55	12.73	10.78	6.48	1.27	.33	.61	.24	.08	3.19	6.81	18.86	36.00	13.03
D1651	331817.40	6071951.00	51.13	16.66	11.55	7.94	6.69	2.05	2.17	.62	.27	.04	9.31	8.86	18.85	47.00	8.13
D1652	331804.00	6071943.00	52.13	17.41	10.71	10.21	6.17	1.59	.59	.64	.32	.08	3.86	6.76	18.56	36.00	10.95
D1653	331753.80	6071932.00	51.90	17.00	11.61	8.65	7.04	2.17	.59	.63	.21	.08	3.35	7.63	18.45	41.00	7.83
D1655	331550.00	6072068.00	60.48	14.99	7.89	10.62	2.72	2.43	.15	.31	.13	.06	4.65	2.87	15.92	18.00	6.17
D1656	331462.20	6072060.00	51.42	20.28	11.35	3.92	6.82	3.80	1.71	.32	.16	.04	4.21	8.53	16.25	52.00	5.34
D1658	331254.10	6072362.00	58.19	15.98	8.16	9.69	5.10	1.89	.19	.31	.14	.04	5.74	5.29	16.87	31.00	8.46
D1659	331249.40	6072345.00	52.89	22.11	6.60	6.96	4.99	2.64	3.22	.25	.14	.06	3.81	8.21	17.81	46.00	8.38
D1660	331707.50	6071760.00	49.94	17.89	12.73	8.59	6.06	3.41	.37	.61	.20	.08	3.60	6.43	18.43	35.00	5.25

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL SURFACE GRABSAMPLES, PINEBAY 1991 FIELD SEASON AND G. GALE DATA (BAKER PATTON FELSIC COMPLEX) - NORMALIZED ON A VOLATILE FREE BASIS

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+CaO+ Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
D1661	331647.50	6071771.00	72.79	12.64	5.45	.89	1.41	3.54	2.72	.29	.13	.08	2.33	4.13	8.56	48.00	3.57
D1662	331585.30	6071798.00	74.34	10.87	5.73	2.47	.94	4.52	.53	.29	.11	.10	2.87	1.47	8.46	17.00	2.40
D1665	331477.70	6071960.00	51.56	19.07	12.07	6.25	6.38	3.74	.23	.33	.15	.06	3.88	6.61	16.60	40.00	5.10
D1666	331463.10	6071914.00	68.96	13.00	6.62	5.09	1.67	2.75	1.36	.27	.16	.06	2.32	3.03	10.87	28.00	4.73
D1667	331231.80	6072073.00	54.37	18.26	9.75	6.28	6.67	3.61	.19	.38	.15	.04	5.36	6.86	16.75	41.00	5.06
D1668	331191.90	6072072.00	55.94	21.10	5.08	7.76	3.49	5.69	.33	.32	.09	.10	3.31	3.82	17.27	22.00	3.71
D1669	331186.40	6072081.00	55.41	19.88	8.22	9.03	3.83	2.64	.38	.30	.13	.08	3.08	4.21	15.88	27.00	7.53
D1671	331290.70	6071474.00	71.56	13.31	5.30	3.45	2.17	2.37	1.35	.31	.06	.10	2.08	3.52	9.34	38.00	5.62
D1674	331187.20	6071625.00	66.28	13.39	6.13	3.24	4.74	4.48	1.02	.28	.06	.09	5.26	5.76	13.48	43.00	2.99
D1675	331174.70	6071681.00	50.35	19.99	11.64	7.47	6.47	1.97	1.20	.52	.15	.06	4.18	7.67	17.11	45.00	10.15
D1676	331100.60	6071803.00	53.56	18.74	9.59	9.50	5.37	1.94	.44	.35	.15	.04	5.75	5.81	17.25	34.00	9.66
D1677	331682.50	6071505.00	74.80	11.44	5.55	.84	1.55	2.53	2.88	.23	.07	.06	2.38	4.43	7.80	57.00	4.52
D1678	330899.10	6071344.00	60.06	15.36	8.86	9.83	3.05	1.94	.18	.44	.11	.12	2.04	3.23	15.00	22.00	7.92
D1679	330852.80	6071372.00	61.11	15.68	9.09	5.13	6.25	1.25	.66	.44	.10	.12	4.09	6.91	13.29	52.00	12.54
D1680	330805.10	6071207.00	58.81	14.61	10.51	7.56	5.83	1.53	.15	.45	.15	.11	5.63	5.98	15.07	40.00	9.55
D1681	330858.90	6071216.00	57.82	16.17	9.62	8.91	4.13	2.17	.25	.58	.15	.12	2.67	4.38	15.46	28.00	7.45
TL-1	-1.00	-1.00	71.27	11.77	5.93	2.05	2.18	3.15	2.63	.43	.12	.11	6.00	4.81	10.01	48.00	3.74
TL-3	-1.00	-1.00	74.48	10.91	5.23	2.09	2.31	1.47	2.84	.32	.06	.08	4.40	5.15	8.71	59.00	7.42
TL-5	-1.00	-1.00	75.05	11.32	5.42	.22	3.25	3.02	1.17	.31	.10	.07	2.50	4.42	7.66	58.00	3.75
TL-10	-1.00	-1.00	74.77	11.19	6.27	.13	5.47	.18	1.42	.32	.05	.06	3.70	6.89	7.20	96.00	62.17
TL-12	-1.00	-1.00	72.97	11.18	4.95	3.32	1.24	4.01	1.53	.32	.09	.12	5.30	2.77	10.10	27.00	2.79
TL-13	-1.00	-1.00	69.32	15.52	4.73	1.61	.84	4.13	3.04	.52	.07	.12	3.10	3.88	9.62	40.00	3.76
TL-38	-1.00	-1.00	52.52	14.17	14.22	5.39	7.25	3.40	.62	1.43	.14	.20	8.00	7.87	16.66	47.00	4.17
TL-501	-1.00	-1.00	74.50	11.26	5.66	.74	2.74	2.96	1.54	.32	.09	.13	2.70	4.28	7.98	54.00	3.80
TL-502	-1.00	-1.00	76.78	10.53	5.70	.68	2.41	2.69	.65	.31	.08	.08	2.80	3.06	6.43	48.00	3.91
TL-503	-1.00	-1.00	68.25	13.42	10.12	.18	3.95	2.39	1.05	.32	.11	.11	3.30	5.00	7.57	66.00	5.62
TL-504	-1.00	-1.00	75.58	11.72	4.07	.93	1.61	3.48	2.05	.31	.08	.08	2.70	3.66	8.07	45.00	3.37
TL-505	-1.00	-1.00	74.98	12.03	5.65	.76	1.28	4.16	.63	.31	.08	.09	2.00	1.91	6.83	28.00	2.89
TL-506	-1.00	-1.00	75.60	10.44	4.59	2.70	1.59	3.51	.86	.31	.18	.07	3.80	2.45	8.66	28.00	2.97
TL-507	-1.00	-1.00	53.19	13.55	13.34	6.82	7.00	1.69	1.77	1.44	.21	.17	9.00	8.77	17.28	51.00	8.02

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL SURFACE GRABSAMPLES, PINEBAY 1991 FIELD SEASON AND G. GALE DATA (BAKER PATTON FELSIC COMPLEX) - NORMALIZED ON A VOLATILE FREE BASIS

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+CaO+ Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
TL-508	332652.10	6071579.00	73.65	10.54	10.32	.18	3.86	.14	.76	.31	.05	.07	3.50	4.62	4.94	94.00	75.29
TL-509	332556.70	6071334.00	73.94	10.22	7.66	.05	6.74	.13	.32	.32	.19	.07	4.00	7.06	7.24	98.00	78.62
TL-510	-1.00	-1.00	74.98	11.27	4.55	1.04	2.21	2.64	2.75	.31	.05	.10	2.80	4.96	8.64	57.00	4.27
TL-511	332967.80	6072160.00	74.44	11.56	4.66	.90	2.80	2.31	2.92	.17	.07	.09	2.80	5.72	8.93	64.00	5.00
TL-512	332988.40	6072026.00	75.46	11.27	5.59	.08	5.32	.06	1.82	.06	.08	.14	3.25	7.14	7.28	98.00	187.83
TL-513	332968.90	6071994.00	76.53	11.28	5.25	.50	4.04	.15	1.85	.09	.13	.07	3.35	5.89	6.54	90.00	75.20
TL-514	332838.90	6071886.00	69.93	11.83	7.85	.10	8.85	.03	.97	.09	.09	.06	4.53	9.82	9.95	99.00	394.33
TL-515	332797.50	6071773.00	59.77	15.02	13.27	.20	10.08	.04	.09	.10	.21	.13	5.57	10.17	10.41	98.00	375.50
TL-516	332815.10	6071862.00	72.13	10.31	7.06	.07	9.40	.01	.57	.01	.06	.18	4.47	9.97	10.05	99.00	1031.00
TL-517	332753.00	6071693.00	73.90	10.63	9.87	.07	4.05	.14	.74	.31	.09	.08	3.30	4.79	5.00	96.00	75.93
TL-518	332655.90	6071405.00	75.20	11.80	5.26	.08	5.35	.28	1.23	.42	.15	.08	3.70	6.58	6.94	95.00	42.14
TL-519	332574.00	6071247.00	66.89	13.80	12.59	.45	3.41	.19	1.69	.53	.05	.27	3.60	5.10	5.74	89.00	72.63
TL-520	332509.50	6071072.00	73.89	11.50	8.99	.08	3.74	.11	1.35	.04	.13	.07	3.06	5.09	5.28	96.00	104.55
TL-521	332415.30	6071003.00	71.79	11.60	5.29	1.32	4.43	1.13	3.72	.31	.26	.08	2.50	8.15	10.60	77.00	10.27
TL-522	332480.00	6070827.00	75.13	11.69	4.92	.25	2.00	4.71	.78	.31	.07	.11	1.70	2.78	7.74	36.00	2.48
TL-523	332656.50	6071046.00	75.76	11.09	6.54	.06	4.08	.21	1.65	.31	.07	.12	3.10	5.73	6.00	95.00	52.81
TL-524	332782.60	6071228.00	80.80	10.41	3.90	.08	2.46	.15	2.01	.03	.01	.08	2.36	4.47	4.70	95.00	69.40
TL-525	332964.20	6071457.00	61.80	17.08	10.41	.89	6.81	.25	2.18	.04	.14	.07	5.75	8.99	10.13	89.00	68.32
TL-526	332979.70	6071612.00	78.07	10.92	5.70	.08	3.06	.13	1.78	.10	.04	.05	2.49	4.84	5.05	96.00	84.00
TL-527	333385.30	6071860.00	78.54	9.61	8.02	.12	1.97	.13	1.34	.04	.03	.15	2.50	3.31	3.56	93.00	73.92
TL-528a	333258.90	6071641.00	83.50	9.21	1.73	.49	1.76	.25	2.58	.31	.04	.07	2.50	4.34	5.08	85.00	36.84
TL-528b	333248.70	6071657.00	75.82	11.54	6.64	.13	2.85	.30	1.94	.31	.13	.12	4.80	4.79	5.22	92.00	38.47
TL-529	333198.90	6071413.00	71.47	12.25	6.18	.03	8.53	.18	.77	.32	.07	.10	3.00	9.30	9.51	98.00	68.06
TL-530	333229.80	6071268.00	84.00	11.13	.91	.01	.24	.48	2.84	.31	.01	.02	2.10	3.08	3.57	86.00	23.19
TL-531	333142.40	6071063.00	78.19	11.65	5.29	.01	1.60	.34	2.46	.31	.01	.06	2.90	4.06	4.41	92.00	34.26
TL-532	332933.40	6070955.00	80.39	10.24	2.98	.11	1.89	1.22	2.85	.20	.02	.05	2.10	4.74	6.07	78.00	8.39
TL-533	332972.40	6070951.00	79.56	10.15	5.22	.01	2.48	.29	1.81	.31	.01	.07	2.80	4.29	4.59	93.00	35.00
TL-540	-1.00	-1.00	73.10	12.22	6.60	.84	2.85	1.73	2.15	.23	.10	.07	3.22	5.00	7.57	66.00	7.06
TL-541	-1.00	-1.00	73.23	11.82	6.96	.91	2.72	2.97	.87	.20	.15	.08	3.07	3.59	7.47	48.00	3.98
TL-542	-1.00	-1.00	73.15	11.55	5.04	2.07	.96	4.85	1.71	.31	.11	.08	4.20	2.67	9.59	28.00	2.38

PINKBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL SURFACE GRABSAMPLES, PINKBAY 1991 FIELD SEASON AND G. GALE DATA (BAKER PATTON FELSIC COMPLEX) - NORMALIZED ON A VOLATILE FREE BASIS

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	LOI %	%gO+K20	MgO+CaO+ Na20+K20	Ishikawa A.I.	Spitz-Darling A.I.
TL-545	332044.80	6071352.00	75.05	11.32	5.01	2.49	1.62	2.84	1.07	.31	.09	.11	2.70	2.69	8.02	34.00	3.99
TL-546	332362.10	6071306.00	74.54	11.63	3.56	1.71	2.79	1.89	3.26	.31	.05	.08	4.10	6.05	9.65	63.00	6.15
TL-547	332397.80	6071308.00	74.33	11.60	4.11	1.60	2.63	3.22	1.95	.31	.04	.07	3.70	4.58	9.40	49.00	3.60
TL-548	332396.30	6071411.00	73.57	10.22	4.43	2.70	3.39	.50	4.41	.32	.07	.07	5.50	7.80	11.00	71.00	20.44
TL-549	332464.30	6071533.00	74.47	10.37	10.10	.07	2.70	.19	1.42	.42	.05	.12	2.90	4.12	4.38	94.00	54.58
TL-550	332482.20	6071656.00	76.48	10.30	4.43	.88	2.89	1.24	3.24	.31	.03	.07	3.40	6.13	8.25	74.00	8.31
TL-551	332535.90	6071776.00	74.67	8.88	4.32	3.57	2.56	2.51	2.76	.21	.10	.07	5.80	5.32	11.40	47.00	3.54
TL-552	332763.30	6071899.00	67.11	13.42	9.04	.86	5.94	.17	2.89	.16	.09	.10	4.63	8.83	9.86	90.00	78.94
TL-553	331673.00	6070764.00	77.73	11.44	2.17	1.36	.94	4.05	1.73	.41	.03	.10	2.20	2.67	8.08	33.00	2.82
TL-554	331649.00	6070849.00	74.54	11.75	4.08	2.21	2.09	2.60	2.26	.20	.02	.07	4.15	4.35	9.16	47.00	4.52
TL-555	331843.00	6070753.00	74.21	12.16	4.73	1.73	1.36	4.90	.30	.41	.07	.12	1.20	1.66	8.29	20.00	2.48
TL-556	331801.00	6070798.00	71.21	13.18	6.22	2.52	1.39	3.10	1.79	.32	.05	.10	3.34	3.18	8.80	36.00	4.25
TL-557	331917.00	6070583.00	74.41	11.91	5.17	1.90	1.49	2.63	1.83	.36	.06	.15	3.08	3.32	7.85	42.00	4.53
TL-558	332066.00	6070546.00	64.21	13.77	8.19	2.43	4.85	3.32	2.52	.46	.07	.08	3.08	7.37	13.12	56.00	4.15
TL-609a	332065.00	6070537.00	66.18	14.73	8.09	.17	5.48	.62	4.18	.32	.03	.08	3.32	9.66	10.45	92.00	23.76
TL-609b	332065.00	6070537.00	81.15	9.35	1.85	2.24	.85	2.76	1.64	.21	.04	.07	.65	2.33	7.33	32.00	3.39
TL-610	332088.00	6070529.00	66.42	13.99	9.45	.16	7.62	.02	2.32	.25	.04	.09	4.22	9.39	9.57	98.00	699.50
TL-611	332118.00	6070491.00	69.03	13.58	8.49	2.31	3.06	.34	2.36	.32	.10	.22	4.23	5.42	8.07	67.00	39.94
TL-612	332204.90	6070491.00	70.47	12.89	6.17	1.30	3.06	3.05	2.49	.43	.03	.10	1.50	5.55	9.90	56.00	4.23
TL-614	332443.20	6070315.00	76.40	11.63	4.86	.31	2.29	2.79	1.32	.22	.07	.05	2.48	3.61	6.71	54.00	4.17
BP-15	-1.00	-1.00	77.78	11.10	6.42	.01	1.11	.27	2.79	.32	.03	.04	3.50	3.90	4.18	93.00	41.11
BP-17	-1.00	-1.00	74.89	12.75	6.12	.02	2.68	.34	2.51	.42	.05	.11	3.40	5.19	5.55	94.00	37.50
BP-33	-1.00	-1.00	82.24	13.01	.14	.00	.11	.59	3.49	.31	.01	.05	1.90	3.60	4.19	86.00	22.05
BP-37	-1.00	-1.00	75.34	11.70	7.73	.02	2.80	.21	1.69	.32	.04	.06	3.00	4.49	4.72	95.00	55.71
BP-38	-1.00	-1.00	73.99	11.18	9.93	.01	3.14	.16	1.08	.31	.06	.04	3.20	4.22	4.39	96.00	69.88
88-52	332145.70	6071349.00	65.86	13.49	8.74	4.14	1.67	4.21	.85	.35	.32	.17	4.50	2.52	10.87	23.00	3.20
88-53	332556.00	6071375.00	75.33	12.00	3.92	.12	6.33	.22	1.37	.31	.18	.07	3.80	7.70	8.04	96.00	54.55
88-54	332771.90	6071929.00	69.35	11.59	9.74	1.14	5.98	.12	1.27	.32	.15	.10	5.00	7.25	8.51	85.00	96.58
88-60	332266.20	6070863.00	78.47	10.12	3.10	1.81	1.11	3.08	1.89	.24	.09	.07	1.00	3.00	7.89	38.00	3.29
88-63	332224.30	6071903.00	58.69	16.97	15.68	.18	5.94	.20	1.22	.64	.06	.14	5.10	7.16	7.54	95.00	84.85

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

COMPILATION OF ALL SURFACE GRABSAMPLES, PINEBAY 1991 FIELD SEASON AND G. GALE DATA (BAKER PATTON FELSIC COMPLEX) - NORMALIZED ON A VOLATILE FREE BASIS

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	LOI %	MgO+K2O %	MgO+CaO+ Na2O+K2O	Ishikawa A.I.	Spitz-Darling A.I.
88-70	332385.90	6070872.00	65.87	12.77	11.56	.15	8.12	.08	.49	.38	.19	.16	4.80	8.61	8.84	97.00	159.63
88-71	332396.00	6070799.00	75.30	12.03	6.01	.08	3.93	.23	1.85	.31	.06	.09	3.20	5.78	6.09	95.00	52.30
88-72	332328.00	6070750.00	75.22	11.50	5.27	.26	2.74	3.61	.91	.30	.05	.09	2.20	3.65	7.52	49.00	3.19
88-73	332425.60	6071007.00	73.48	11.99	5.98	.19	3.96	.26	3.37	.29	.32	.07	3.10	7.33	7.78	94.00	46.12
88-74	332389.90	6071029.00	75.46	11.10	5.87	.24	3.81	.18	2.66	.28	.23	.07	3.20	6.47	6.89	94.00	61.67
88-75	332366.30	6070944.00	71.64	11.92	5.60	.77	5.25	1.61	2.59	.29	.15	.08	3.30	7.84	10.22	77.00	7.40
88-76	332723.00	6071546.00	85.81	5.35	7.09	.03	.82	.08	.49	.23	.02	.04	2.10	1.31	1.42	92.00	66.88
88-77	332422.00	6071149.00	69.88	13.05	10.97	.08	3.26	.09	1.83	.32	.30	.07	3.50	5.09	5.26	97.00	145.00

APPENDIX K

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 1

SAMPLE NO.	EASTING m	NORTHING m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1626	332454.65	6072258.25	76.34	10.30	3.36	0.98	1.32	1.27	4.34	0.23	0.04	0.08	539	25	117	22	13	2.51	100.77
D1627	332713.11	6072601.11	70.82	11.58	5.67	1.17	1.77	3.81	2.02	0.27	0.07	0.08	701	34	162	30	15	2.80	100.05
D1628	332607.85	6071931.90	71.48	12.01	5.57	0.86	1.65	2.03	4.06	0.32	0.06	0.08	1244	45	165	18	16	2.74	100.87
D1629	332608.79	6071882.62	69.77	11.86	6.22	0.61	2.93	0.08	4.10	0.31	0.06	0.08	525	9	155	22	17	3.21	99.22
D1630	332608.79	6071882.62	76.88	9.38	3.82	0.87	2.05	0.04	3.62	0.24	0.09	0.08	395	13	122	14	13	2.87	99.93
D1631	332601.92	6071735.60	71.13	11.58	6.37	0.14	2.94	0.04	4.80	0.30	0.03	0.10	798	9	174	22	15	2.73	100.14
D1632	332548.92	6071736.98	69.20	11.05	5.87	0.70	2.74	0.68	3.94	0.28	0.09	0.08	899	25	170	18	14	4.90	99.53
D1633	332372.51	6072912.84	72.13	11.99	5.95	0.95	1.44	4.37	0.72	0.37	0.09	0.10	135	52	187	24	17	2.67	100.78
D1634	332412.44	6072887.04	68.92	12.12	6.77	1.48	1.17	4.38	0.58	0.37	0.13	0.08	92	57	167	24	17	3.06	99.06
D1635	332325.64	6072872.57	70.82	11.25	8.52	0.13	2.25	0.22	1.66	0.32	0.06	0.06	472	17	197	30	13	3.04	98.34
D1637	332004.06	6072515.73	52.66	15.93	12.33	6.25	4.83	2.87	1.30	0.91	0.18	0.16	468	331	179	26	38	2.98	100.40
D1638	332010.32	6072344.00	49.34	16.08	11.03	10.62	4.52	2.75	0.18	0.56	0.18	0.08	92	146	120	10	46	5.57	100.92
D1639	331936.35	6072358.10	51.51	15.49	10.35	10.18	5.19	3.30	0.26	0.53	0.18	0.08	166	130	99	12	43	2.56	99.63
D1640	331760.37	6072507.44	55.39	14.42	10.79	6.79	4.31	3.31	0.68	0.35	0.16	0.08	338	245	129	10	39	2.30	98.57
D1641	331571.75	6072554.53	51.37	16.44	11.41	7.87	4.99	1.27	0.60	0.38	0.15	0.04	140	178	113	8	39	5.42	99.95
D1642	331550.54	6072599.53	51.67	16.28	10.25	7.21	4.79	2.58	0.30	0.41	0.14	0.04	62	138	115	6	40	4.49	98.16
D1643	331491.87	6072154.30	53.71	17.06	8.84	8.46	5.00	2.04	0.52	0.55	0.14	0.10	149	241	117	6	36	3.24	99.65
D1644	331662.09	6072214.98	55.58	14.43	11.59	6.71	4.61	3.08	0.36	0.35	0.17	0.06	209	267	144	12	38	2.88	99.83
D1645	331798.97	6072122.76	51.76	16.17	9.53	6.46	6.39	4.89	0.28	0.55	0.19	0.08	168	150	118	10	44	3.11	99.41
D1646	331916.47	6072122.83	50.25	17.40	10.40	6.15	5.94	4.81	0.32	0.60	0.17	0.08	173	222	123	14	47	3.71	99.85
D1647	331920.49	6072138.04	47.62	15.65	9.62	12.18	4.64	2.78	0.24	0.51	0.16	0.06	156	243	93	10	43	5.60	99.07
D1648	331834.16	6071978.85	49.05	15.97	12.29	10.40	6.25	1.23	0.32	0.59	0.23	0.08	163	300	137	10	48	3.19	99.61
D1651	331817.42	6071950.70	47.13	15.36	10.65	7.32	6.17	1.89	2.00	0.57	0.25	0.04	679	77	102	10	45	9.31	100.70
D1652	331803.98	6071942.93	49.46	16.52	10.16	9.69	5.85	1.51	0.56	0.61	0.30	0.08	197	360	118	10	49	3.86	98.59
D1653	331753.77	6071932.24	49.66	16.27	11.11	8.28	6.74	2.08	0.56	0.60	0.20	0.08	240	478	142	12	48	3.35	98.92
D1655	331549.98	6072067.60	56.68	14.05	7.39	9.95	2.55	2.28	0.14	0.29	0.12	0.06	101	295	114	6	35	4.65	98.16
D1656	331462.19	6072059.97	49.34	19.46	10.89	3.76	6.54	3.65	1.64	0.31	0.15	0.04	627	156	114	4	51	4.21	99.99
D1658	331254.11	6072361.87	55.25	15.17	7.75	9.20	4.84	1.79	0.18	0.29	0.13	0.04	46	51	113	6	35	5.74	100.38
D1659	331249.45	6072344.92	50.64	21.17	6.32	6.66	4.78	2.53	3.08	0.24	0.13	0.06	815	194	80	4	26	3.81	99.42
D1660	331707.51	6071760.01	47.99	17.19	12.23	8.25	5.82	3.28	0.36	0.59	0.19	0.08	194	356	116	8	47	3.60	99.57

D1661	331647.53	6071770.98	71.75	12.46	5.37	0.88	1.39	3.49	2.68	0.29	0.13	0.08	1098	70	158	20	17	2.33	100.85
D1662	331585.29	6071797.57	72.40	10.59	5.58	2.41	0.92	4.40	0.52	0.28	0.11	0.10	196	83	114	16	15	2.87	100.18
D1665	331477.65	6071959.79	48.78	18.04	11.42	5.91	6.04	3.54	0.22	0.31	0.14	0.06	99	143	110	4	49	3.88	98.35
D1666	331463.06	6071914.25	65.69	12.38	6.31	4.85	1.59	2.62	1.30	0.26	0.15	0.06	570	323	124	10	20	2.32	97.52
D1667	331231.84	6072072.99	52.07	17.49	9.34	6.01	6.39	3.46	0.18	0.36	0.14	0.04	37	101	77	2	43	5.36	100.86
D1668	331191.88	6072071.46	54.06	20.39	4.91	7.50	3.37	5.50	0.32	0.31	0.09	0.10	53	116	92	6	29	3.31	99.85
D1669	331186.41	6072081.18	53.15	19.07	7.88	8.66	3.67	2.53	0.36	0.29	0.12	0.08	70	218	109	4	33	3.08	98.90
D1671	331290.72	6071473.97	70.11	13.04	5.19	3.38	2.13	2.32	1.32	0.30	0.06	0.10	223	150	140	16	18	2.08	100.01
D1674	331187.20	6071625.00	61.38	12.40	5.68	3.00	4.39	4.15	0.94	0.26	0.06	0.08	285	104	117	12	25	5.26	97.60
D1675	331174.72	6071680.90	48.57	19.28	11.23	7.21	6.24	1.90	1.16	0.50	0.14	0.06	236	346	147	12	43	4.18	100.48
D1676	331100.59	6071803.20	51.03	17.85	9.14	9.05	5.12	1.85	0.42	0.33	0.14	0.04	85	82	120	12	38	5.75	100.71
D1677	331682.46	6071504.99	73.71	11.27	5.47	0.85	1.53	2.49	2.84	0.23	0.07	0.06	704	59	179	28	13	2.38	100.87
D1678	330899.08	6071343.42	58.60	14.99	8.64	9.59	2.98	1.89	0.18	0.43	0.11	0.12	91	241	130	8	29	2.04	99.57
D1679	330852.76	6071371.99	58.85	15.10	8.75	4.94	6.02	1.20	0.64	0.42	0.10	0.12	151	143	145	6	29	4.09	100.23
D1680	330805.07	6071206.75	55.87	13.88	9.98	7.18	5.54	1.45	0.14	0.43	0.14	0.10	30	206	150	6	32	5.63	100.33
D1681	330858.92	6071215.56	56.44	15.78	9.39	8.70	4.03	2.12	0.24	0.57	0.15	0.12	100	136	165	10	31	2.67	100.21

APPENDIX L

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 2

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1683	7.21	7.62	50.09	16.36	11.02	9.53	6.73	1.76	0.44	0.62	0.16	0.08	133	273	136	14	47	3.94	100.71
D1684	40.48	40.74	47.68	15.63	12.62	10.25	6.53	0.65	0.20	0.60	0.20	0.04	84	258	103	12	45	4.51	98.93
D1685	87.83	88.47	49.17	15.32	10.57	6.21	7.64	3.20	1.00	0.75	0.19	0.12	306	218	142	20	40	4.98	99.13
D1686	136.75	137.26	67.74	12.38	5.61	0.46	3.61	1.60	2.74	0.35	0.08	0.10	666	26	175	26	15	3.22	97.88
D1687	5.18	5.65	47.79	15.52	11.31	7.98	6.38	2.93	0.26	0.56	0.18	0.06	71	107	114	16	42	6.02	98.96
D1688	149.15	149.55	65.82	12.69	5.39	1.75	4.01	0.70	3.42	0.33	0.13	0.08	794	19	142	28	15	4.93	99.25
D1689	159.19	159.64	60.97	12.35	9.59	3.02	1.53	4.48	0.90	0.57	0.15	0.14	372	132	164	28	24	5.50	99.21
D1690	169.87	170.66	62.08	12.21	8.10	3.00	1.96	4.00	1.72	0.51	0.14	0.12	393	119	145	26	21	6.52	100.37
D1691	183.27	183.79	63.07	12.36	9.65	1.97	2.50	3.80	0.68	0.57	0.15	0.16	254	65	178	24	24	3.79	98.70
D1692	182.88	183.21	67.65	12.60	4.72	1.23	2.46	4.16	1.52	0.26	0.06	0.06	559	94	147	20	15	3.33	98.04
D1693	214.27	214.57	61.90	13.04	9.11	0.42	6.15	1.11	1.22	0.51	0.18	0.16	244	22	189	30	23	3.96	97.76
D1695	239.01	239.40	53.24	13.64	12.62	4.31	4.02	3.10	0.50	0.62	0.15	0.10	314	133	157	20	35	5.32	97.63
D1696	265.43	265.81	59.99	13.15	12.89	0.31	5.09	0.38	1.06	0.59	0.12	0.10	261	14	156	28	26	4.16	97.83
D1697	300.18	300.61	61.65	8.59	6.03	6.47	2.74	0.94	2.60	0.20	0.18	0.02	355	131	128	22	12	10.74	100.18
D1698	320.95	321.41	65.51	9.80	4.13	4.20	2.66	0.09	4.10	0.24	0.10	0.06	363	56	120	24	13	7.60	98.47
D1699	339.48	339.98	69.65	10.94	2.06	2.69	1.84	0.15	5.06	0.28	0.05	0.08	825	49	133	24	14	5.45	98.26
D1700	13.36	13.72	71.97	10.80	2.11	2.12	1.23	4.96	0.68	0.28	0.06	0.10	137	95	109	22	11	3.31	97.62
D1701	25.40	25.78	62.90	12.78	5.54	2.83	3.22	0.65	2.64	0.36	0.08	0.12	885	103	155	24	14	6.49	97.60
D1702	27.36	27.79	61.41	15.15	8.05	1.45	1.57	5.41	0.76	0.43	0.06	0.20	162	137	194	22	16	3.18	97.68
D1703	53.49	54.20	76.46	9.15	1.66	1.73	1.25	1.14	2.16	0.24	0.04	0.08	314	42	104	20	11	3.67	97.57
D1704	81.38	81.92	67.03	13.27	2.31	4.13	0.50	3.13	2.68	0.41	0.06	0.12	630	90	128	20	20	4.66	98.31
D1706	105.05	105.56	66.14	13.46	4.49	2.62	1.85	2.27	2.56	0.39	0.05	0.12	485	112	143	22	16	3.88	97.85
D1707	118.87	119.28	66.22	13.21	6.41	1.80	3.29	0.20	3.18	0.35	0.06	0.10	603	50	165	28	14	5.37	100.19
D1708	132.59	132.99	67.50	10.84	3.19	5.30	0.51	3.17	1.40	0.28	0.07	0.10	371	112	120	16	11	5.26	97.61
D1709	156.92	157.84	66.75	11.58	5.32	3.87	1.71	2.30	2.02	0.31	0.08	0.08	713	111	118	24	11	6.56	100.57
D1710	186.66	187.20	63.58	13.06	5.72	2.96	1.73	0.94	2.92	0.33	0.07	0.08	1076	104	158	24	14	6.20	97.60
D1711	195.00	195.43	67.21	11.29	4.15	3.41	0.82	3.25	1.64	0.36	0.09	0.08	539	98	126	20	14	5.39	97.70
D1712	203.61	204.19	70.45	10.34	3.34	4.14	0.26	3.99	1.10	0.28	0.08	0.08	363	124	147	20	10	5.21	99.27
D1713	212.12	212.60	61.81	10.31	5.42	4.66	1.95	2.64	1.70	0.29	0.14	0.14	429	132	109	18	15	8.57	97.62
D1714	227.10	227.53	57.80	10.00	7.00	6.59	2.93	1.13	2.20	0.28	0.17	0.12	309	138	112	18	15	12.00	100.23
D1715	235.84	236.45	58.45	11.81	6.46	4.79	2.58	2.43	2.10	0.34	0.13	0.16	396	107	148	24	18	9.52	98.77
D1716	242.98	243.54	53.45	13.16	12.06	3.28	5.74	3.26	0.36	0.61	0.15	0.06	226	59	144	22	33	7.13	99.26
D1717	260.58	261.01	54.26	13.53	12.46	2.30	5.47	3.78	0.68	0.64	0.16	0.08	364	85	144	20	34	4.33	97.67
D1718	272.47	272.90	66.38	13.47	5.82	0.22	5.66	2.52	1.90	0.44	0.06	0.10	584	32	123	22	17	3.27	99.85

D1826	25.30	26.06	66.19	13.21	7.95	0.37	3.28	2.29	2.24	0.50	0.04	0.14	476	43	153	30	22	2.86	99.07
D1827	47.65	48.92	66.09	12.10	8.51	0.96	2.77	3.61	0.84	0.47	0.10	0.14	234	72	169	30	20	3.04	98.62
D1828	72.47	73.48	65.09	12.24	8.92	0.98	2.15	3.99	0.72	0.47	0.07	0.14	308	68	158	26	21	2.73	97.51
D1829	93.12	94.18	61.11	12.69	9.56	3.50	1.69	3.87	0.68	0.57	0.16	0.12	383	137	183	26	25	4.32	98.26
D1830	123.37	124.36	66.39	12.30	4.74	4.33	0.93	1.89	2.48	0.33	0.12	0.10	428	92	126	22	13	7.35	100.95
D1831	117.81	118.36	64.90	13.00	8.69	1.47	1.73	0.27	2.90	0.51	0.07	0.16	572	47	180	30	22	4.01	97.69
D1832	150.93	151.51	70.32	10.68	3.03	5.22	0.29	2.61	2.02	0.30	0.05	0.10	359	99	157	38	14	6.02	100.64
D1833	155.24	156.06	67.11	12.51	5.45	2.56	0.95	4.72	0.82	0.34	0.10	0.08	300	124	164	30	15	4.08	98.71
D1834	170.54	171.14	72.98	11.35	2.86	3.04	0.52	3.26	1.50	0.25	0.05	0.06	350	96	132	22	12	4.14	100.01
D1835	186.92	187.63	65.05	10.81	3.99	5.53	0.87	2.55	1.60	0.33	0.09	0.12	502	127	114	20	17	7.05	97.99
D1836	191.24	191.90	64.69	13.39	5.70	3.80	1.16	1.60	2.04	0.37	0.08	0.12	962	163	165	18	20	6.57	99.51
D1837	205.89	206.45	64.93	12.97	6.75	3.97	1.40	2.19	1.74	0.38	0.10	0.12	569	143	137	32	20	5.92	100.46
D1838	238.12	238.96	63.33	13.01	6.65	3.48	2.78	0.70	2.72	0.35	0.08	0.10	668	93	191	16	19	6.83	100.01

APPENDIX M

PINEBAY WHOLE ROCK GEOCHEMICAL DATA
SUBMITTAL NUMBER 3

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1719	23.62	24.08	63.10	12.68	9.41	1.68	2.52	4.11	1.06	0.54	0.13	0.18	393.00	73.00	157.00	28.00	23.00	2.38	97.79
D1720	45.80	46.33	67.58	11.65	8.50	1.71	1.07	4.18	0.88	0.54	0.12	0.18	682.00	115.00	137.00	26.00	21.00	1.38	97.78
D1721	59.56	59.97	66.32	12.91	5.57	3.87	1.80	1.46	2.76	0.40	0.10	0.10	554.00	72.00	139.00	26.00	16.00	4.79	100.07
D1725	73.56	74.02	71.43	12.04	5.31	1.76	1.90	2.38	1.94	0.26	0.06	0.06	414.00	53.00	182.00	32.00	13.00	2.52	99.67
D1726	115.95	116.41	70.94	11.08	5.06	0.81	2.14	1.27	3.14	0.23	0.09	0.04	707.00	31.00	185.00	32.00	12.00	2.78	97.60
D1727	145.75	146.25	67.99	11.92	5.45	1.60	2.49	4.11	1.10	0.31	0.04	0.06	499.00	99.00	151.00	22.00	14.00	2.59	97.67
D1728	34.52	34.95	63.11	15.28	6.86	1.38	3.05	0.14	5.54	0.40	0.06	0.10	693.00	20.00	167.00	26.00	16.00	4.36	100.27
D1729	47.14	47.52	66.58	13.51	3.03	2.41	1.68	3.96	2.58	0.38	0.06	0.12	1099.00	85.00	200.00	26.00	15.00	3.61	97.92
D1730	72.34	72.85	72.51	10.88	2.57	2.72	1.19	2.62	2.20	0.28	0.09	0.08	533.00	79.00	109.00	22.00	10.00	4.10	99.24
D1731	86.46	86.97	71.94	11.09	3.98	1.78	1.45	2.67	1.80	0.29	0.05	0.10	298.00	47.00	168.00	22.00	12.00	2.90	98.03
D1732	104.90	105.41	66.25	12.07	7.17	2.75	2.21	1.89	2.00	0.29	0.10	0.08	523.00	94.00	165.00	26.00	15.00	4.39	99.20
D1733	115.42	116.05	68.30	10.69	4.90	3.91	1.89	1.81	2.28	0.25	0.12	0.08	456.00	88.00	112.00	22.00	14.00	6.43	100.65
D1734	121.51	122.25	70.36	11.77	6.21	1.45	1.89	3.85	0.98	0.32	0.08	0.08	584.00	99.00	188.00	22.00	13.00	3.18	100.16
D1735	147.22	147.83	74.74	11.08	2.80	1.71	1.51	3.13	1.88	0.30	0.05	0.06	688.00	77.00	157.00	20.00	12.00	3.14	100.42
D1736	159.56	160.12	71.89	10.68	3.32	2.44	0.95	3.57	1.32	0.24	0.06	0.10	421.00	56.00	128.00	18.00	13.00	2.93	97.50
D1737	178.77	179.30	64.87	11.33	6.29	4.23	1.67	2.26	2.28	0.26	0.15	0.04	443.00	96.00	161.00	20.00	14.00	6.69	100.07
D1738	195.07	195.66	71.06	10.73	3.80	2.42	0.93	2.85	1.74	0.25	0.08	0.08	329.00	71.00	112.00	20.00	14.00	3.67	97.61
D1739	208.58	209.22	65.63	11.89	6.43	3.39	1.91	3.69	0.92	0.32	0.11	0.08	379.00	154.00	172.00	26.00	13.00	3.91	98.28
D1740	215.80	216.36	67.88	11.21	5.52	4.03	0.95	1.79	1.78	0.26	0.09	0.08	432.00	116.00	136.00	24.00	14.00	4.14	97.71
D1839	12.50	12.95	67.89	12.33	7.04	0.37	2.33	3.54	1.84	0.30	0.07	0.12	468.00	47.00	149.00	18.00	15.00	1.98	97.80
D1840	36.20	36.68	47.39	15.16	10.34	4.98	8.04	3.94	0.24	0.35	0.15	0.04	50.00	110.00	124.00	6.00	38.00	7.37	97.99
D1841	45.19	46.13	69.45	11.12	5.83	2.16	2.01	1.15	2.40	0.25	0.07	0.06	300.00	39.00	144.00	26.00	13.00	3.29	97.81
D1842	67.36	67.82	69.59	11.43	5.55	2.18	1.06	2.72	1.74	0.24	0.11	0.08	381.00	77.00	166.00	34.00	12.00	3.23	97.94
D1843	95.40	95.86	66.99	10.92	5.18	3.83	0.94	2.48	2.00	0.23	0.14	0.06	448.00	78.00	159.00	30.00	11.00	4.77	97.55
D1844	124.41	124.87	71.77	11.19	4.75	2.23	0.93	1.59	2.56	0.24	0.09	0.06	409.00	41.00	158.00	28.00	11.00	3.32	98.73
D1845	146.61	147.07	70.11	10.88	5.35	1.90	1.70	0.66	3.10	0.23	0.12	0.06	636.00	41.00	183.00	28.00	12.00	4.12	98.24
D1846	158.50	158.98	68.88	12.59	6.36	2.13	1.48	3.89	1.38	0.37	0.07	0.06	439.00	62.00	164.00	28.00	13.00	2.93	100.15
D1847	181.84	182.27	69.42	12.05	5.23	1.73	1.43	3.78	1.08	0.33	0.07	0.10	196.00	70.00	154.00	28.00	12.00	2.37	97.58
D1848	219.00	219.46	71.33	10.74	5.22	3.54	1.63	1.45	2.24	0.30	0.14	0.08	497.00	56.00	144.00	28.00	12.00	3.89	100.54
D1849	237.13	237.49	70.24	11.94	4.88	1.58	1.65	2.46	2.82	0.33	0.14	0.10	1620.00	43.00	158.00	30.00	12.00	2.47	98.60

APPENDIX N

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 4

SAMPLE NO.	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1742	10.63	11.07	71.72	12.62	5.33	1.66	1.23	4.21	0.86	0.35	0.08	0.12	356	188	139	20	15	1.81	100.00
D1743	42.98	43.43	70.58	11.50	3.66	2.57	0.83	3.28	2.36	0.31	0.08	0.08	520	91	134	18	11	3.06	98.32
D1744	63.96	64.51	69.82	12.72	4.79	1.50	1.59	3.50	2.06	0.40	0.05	0.10	511	56	175	24	14	3.02	99.56
D1745	82.91	83.39	64.32	11.98	5.36	6.37	0.69	2.33	2.06	0.40	0.14	0.08	515	125	164	18	14	6.40	100.35
D1746	108.13	108.71	65.83	13.85	6.56	1.89	2.67	0.81	2.72	0.35	0.07	0.10	994	99	170	20	16	3.98	98.83
D1747	142.72	143.26	59.63	12.99	7.62	7.33	1.32	1.79	1.64	0.62	0.12	0.08	342	125	149	18	17	7.59	100.53
D1748	173.56	174.09	62.06	14.92	6.79	2.29	3.11	1.46	2.62	0.49	0.09	0.10	770	71	194	22	19	5.25	99.20
D1749	176.56	177.11	72.89	11.91	2.02	4.37	0.33	1.70	2.62	0.39	0.09	0.12	900	121	111	16	13	4.45	100.86
D1750	201.09	201.65	77.21	8.99	2.16	2.39	0.98	2.33	1.36	0.28	0.07	0.08	260	98	121	14	9	3.77	99.63
D1751	234.75	235.31	67.61	13.94	4.69	2.30	2.37	2.53	2.40	0.45	0.04	0.10	733	146	160	20	15	3.61	100.06
D1752	261.52	262.00	68.80	12.33	4.08	3.59	0.53	2.42	1.96	0.39	0.07	0.10	531	105	157	16	14	4.08	98.37
D1753	285.60	286.10	61.32	14.00	7.56	3.12	1.42	2.54	2.02	0.42	0.09	0.18	528	83	145	18	22	4.92	97.58
D1754	306.32	306.93	68.24	10.46	4.96	3.32	1.32	1.79	2.14	0.29	0.10	0.06	424	68	102	16	13	6.29	98.97
D1755	333.71	334.21	64.25	10.82	5.49	4.02	1.67	1.17	2.48	0.31	0.12	0.14	383	83	107	18	17	7.80	98.26
D1756	346.35	346.86	64.49	8.21	5.28	5.04	2.37	1.48	1.60	0.24	0.10	0.08	235	89	89	14	12	9.15	98.04
D1757	360.05	360.63	62.37	13.92	11.18	0.60	4.33	1.09	2.90	0.33	0.13	0.02	466	50	183	26	18	3.29	100.15
D1758	2.94	3.35	66.27	11.88	7.41	1.45	2.27	3.64	1.04	0.47	0.11	0.10	531	53	149	18	20	3.45	98.09
D1759	60.88	61.34	57.96	18.00	8.33	0.95	3.04	2.73	3.48	0.44	0.11	0.08	1345	133	236	34	24	3.09	98.23
D1760	224.33	224.76	65.73	12.69	4.88	3.94	1.52	2.26	2.66	0.42	0.08	0.08	503	124	133	16	16	5.07	99.34
D1761	279.96	280.42	68.31	10.41	4.91	3.88	1.59	1.93	1.80	0.25	0.11	0.04	527	122	143	18	14	4.70	97.93
D1762	421.69	422.15	68.00	12.41	6.08	1.86	2.34	4.23	0.96	0.33	0.07	0.08	176	101	134	22	16	3.44	99.82
D1763	479.78	480.21	60.84	13.64	8.33	2.06	3.83	3.17	1.58	0.45	0.06	0.04	433	95	151	16	25	4.39	98.29
D1764	501.70	502.28	67.52	13.07	5.00	1.84	2.42	2.63	2.52	0.34	0.08	0.06	721	94	149	28	18	3.90	99.36
D1765	576.99	577.52	68.61	12.99	4.95	1.26	1.28	2.29	3.08	0.33	0.05	0.08	745	58	163	26	18	3.05	97.96
D1766	632.76	633.37	65.40	12.52	5.30	3.79	1.50	2.22	2.64	0.42	0.07	0.10	596	117	169	16	16	5.06	99.04
D1767	686.41	686.89	61.47	11.54	8.46	4.26	2.33	2.48	0.98	0.34	0.11	0.12	255	92	149	20	20	5.66	97.77
D1768	725.68	726.19	63.35	12.79	6.56	0.35	8.63	0.14	1.34	0.42	0.03	0.06	449	12	154	14	20	4.99	98.67
D1769	772.79	773.35	30.50	24.67	13.80	0.08	18.63	0.14	1.72	0.77	0.05	0.02	1068	10	331	60	26	9.47	99.82
D1770	794.36	794.84	26.21	21.61	18.15	0.17	21.67	0.01	0.14	0.48	0.06	0.04	26	5	296	266	20	10.77	99.21
D1771	831.16	831.75	73.63	11.98	3.15	0.10	3.70	0.22	2.34	0.35	0.01	0.06	765	17	141	30	13	2.92	98.45
D1773	884.22	884.71	66.57	11.69	6.25	1.32	4.03	0.19	2.70	0.33	0.26	0.06	453	35	141	24	14	5.92	99.31
D1774	177.72	178.18	68.67	10.11	4.73	3.93	1.73	2.01	1.64	0.25	0.11	0.04	394	102	131	24	13	4.93	98.35

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 4_1

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1850	31.75	32.36	63.88	13.07	5.83	3.46	3.10	0.26	3.22	0.60	0.07	0.14	598	88	201	20	15	5.21	98.85
D1851	42.49	43.10	50.89	16.51	10.35	9.49	5.49	1.51	0.16	0.43	0.16	0.02	45	258	98	12	39	4.83	99.84
D1852	157.73	158.80	47.48	13.73	13.02	10.36	7.17	1.36	0.08	1.18	0.21	0.08	59	190	122	32	42	2.88	97.55
D1853	26.14	26.75	55.08	13.81	9.79	4.80	5.99	3.18	1.38	0.43	0.19	0.10	740	406	148	14	31	3.80	98.53
D1854	39.93	40.54	54.55	14.81	10.98	4.14	5.63	3.15	2.32	0.61	0.15	0.12	651	404	157	12	35	3.81	100.26
D1855	61.42	62.03	53.34	15.76	9.02	5.89	6.02	2.21	1.84	0.59	0.10	0.12	579	227	126	8	31	4.06	98.92
D1856	81.76	82.45	59.60	14.41	9.36	5.70	4.52	1.96	0.98	0.57	0.12	0.12	416	246	129	12	28	2.93	100.27
D1857	111.33	112.01	56.16	14.04	8.81	6.11	5.31	1.91	1.48	0.43	0.12	0.08	347	211	163	18	26	3.16	97.60
D1858	124.69	125.27	59.17	14.58	8.09	5.51	3.70	2.89	0.56	0.54	0.10	0.14	141	198	154	18	18	3.37	98.65
D1859	154.13	154.84	65.34	14.04	6.39	4.01	3.67	3.07	0.70	0.46	0.08	0.12	341	279	142	24	17	2.60	100.49
D1860	183.92	184.58	57.08	12.67	8.15	7.82	5.90	2.09	0.26	0.44	0.15	0.06	113	186	107	10	26	6.08	100.70
D1861	56.50	56.99	70.18	12.18	6.68	1.27	1.58	2.95	1.88	0.39	0.08	0.08	323	48	193	34	15	3.23	100.50
D1862	82.68	83.51	71.72	11.35	7.06	0.42	1.65	3.19	0.88	0.38	0.05	0.08	301	35	136	22	14	2.16	98.94
D1863	107.67	108.66	67.34	12.18	11.27	0.84	1.84	2.87	0.66	0.39	0.10	0.06	231	31	185	30	14	2.86	100.40
D1864	127.86	128.62	66.87	12.77	9.46	0.86	3.13	0.48	1.80	0.38	0.14	0.08	744	27	144	20	12	3.83	99.78
D1865	155.42	156.05	73.53	10.89	7.50	0.14	2.67	0.16	1.96	0.35	0.25	0.08	457	13	141	24	13	3.36	100.87
D1866	181.97	182.50	73.84	11.48	5.22	0.68	2.11	3.11	1.50	0.26	0.07	0.04	522	38	164	34	11	2.63	100.93

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 6

SAMPLE NO.	FROM m	TO m	SIO2 %	AL2O3 %	FE2O3 %	CAO %	MGO %	NA2O %	K2O %	TIO2 %	MNO %	P2O5 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1551	419.23	419.97	74.74	12.78	4.41	0.11	2.61	0.19	2.58	0.41	0.02	0.12	782	15	145	20	17	2.92	100.88
D1552	434.22	435.00	31.29	24.25	13.03	0.11	18.56	0.11	1.22	0.74	0.08	0.16	1112	9	234	72	24	9.63	99.18
D1553	463.36	464.00	65.55	11.31	5.72	0.12	8.95	0.04	0.60	0.35	0.04	0.10	239	4	119	18	16	4.98	97.76
D1554	464.00	464.39	43.62	18.76	10.70	0.13	16.62	0.03	0.38	0.55	0.08	0.16	177	5	173	42	23	8.10	99.31
D1555	515.60	516.35	69.16	12.55	6.53	0.11	3.90	0.13	1.90	0.33	0.03	0.12	728	14	140	24	16	3.17	97.92
D1556	539.20	539.93	76.47	13.59	0.80	0.11	0.82	0.27	3.78	0.39	0.01	0.10	1119	21	150	26	17	2.08	98.41
D1557	616.40	617.10	68.32	11.99	5.58	1.73	2.69	0.76	2.86	0.34	0.06	0.10	628	46	160	26	16	4.33	98.76
D1558	621.60	622.30	62.61	12.94	5.45	2.91	2.69	0.51	4.18	0.37	0.05	0.12	764	67	161	28	17	6.63	98.46
D1559	643.70	644.40	46.50	8.98	14.99	5.95	8.22	0.03	0.60	0.28	0.09	0.20	166	167	92	8	32	12.25	98.11
D1560	655.30	656.00	46.01	7.80	7.34	11.03	4.84	1.76	1.72	0.21	0.20	0.10	441	220	73	10	14	16.78	97.78
D1561	679.70	680.40	54.61	14.49	12.41	2.04	5.03	1.19	2.08	0.40	0.25	0.14	496	77	112	24	24	6.61	99.25
D1562	704.87	705.82	61.51	10.61	5.61	4.66	3.24	2.31	2.56	0.28	0.09	0.14	697	140	118	22	18	9.53	100.53
D1563	732.10	733.10	71.74	11.81	5.90	0.13	2.55	0.52	2.50	0.32	0.17	0.08	523	15	115	22	16	4.00	99.75
D1564	782.86	783.60	67.09	9.70	8.73	0.24	2.10	0.27	2.62	0.27	0.05	0.08	364	26	103	22	13	7.79	98.93
D1565	799.00	799.80	64.03	12.21	8.54	1.57	2.30	3.54	0.96	0.48	0.12	0.16	336	56	115	22	23	4.51	98.41
D1566	-1.00	-1.00	50.83	16.04	11.06	8.48	7.61	3.58	0.62	1.41	0.16	0.28	204	456	125	16	24	0.05	100.13
D1797	10.82	11.58	64.90	12.61	8.30	1.76	2.09	4.49	0.56	0.47	0.13	0.18	238	60	139	30	23	3.63	99.12
D1798	20.83	21.41	62.19	11.94	5.38	5.11	1.84	1.97	2.78	0.35	0.14	0.18	372	90	84	20	21	8.40	100.27
D1800	30.18	30.73	65.46	15.46	2.93	2.83	1.08	5.65	2.22	0.33	0.07	0.20	648	488	158	10	4	3.89	100.11
D1801	56.48	57.10	68.46	11.28	6.49	0.89	6.26	0.06	1.96	0.31	0.10	0.10	311	17	123	24	14	4.85	100.77
D1802	78.00	78.79	69.95	10.45	8.28	0.18	4.90	0.05	1.42	0.31	0.06	0.14	469	7	116	20	19	3.57	99.31
D1803	106.73	107.42	62.77	10.53	8.33	0.18	10.91	0.01	0.04	0.30	0.03	0.14	37	4	81	16	17	5.08	98.28
D1804	135.84	136.60	70.57	11.29	7.22	0.82	2.37	0.11	2.58	0.29	0.07	0.10	730	23	95	22	13	4.29	99.70
D1805	146.30	146.91	64.48	13.12	4.96	3.77	1.25	3.18	2.34	0.43	0.09	0.14	822	173	139	20	18	6.14	99.88
D1806	3.35	4.04	69.49	12.93	4.37	2.23	0.88	5.21	0.36	0.32	0.08	0.14	229	222	109	22	15	1.53	97.53
D1807	28.96	29.77	70.77	13.48	4.06	2.25	0.78	3.14	3.02	0.36	0.06	0.12	660	73	144	24	15	2.81	100.86
D1808	40.03	40.73	71.49	12.21	4.23	2.66	0.56	2.34	3.34	0.32	0.07	0.12	727	63	162	24	14	3.16	100.49
D1809	70.71	71.63	72.01	10.82	4.12	3.43	0.96	2.49	1.98	0.28	0.07	0.10	343	82	127	22	12	3.76	100.02
D1810	79.45	80.06	69.63	12.00	4.54	3.76	0.99	3.06	2.14	0.38	0.08	0.12	468	121	141	18	17	3.94	100.64

D1876	81.59	82.05	64.45	16.05	5.57	1.02	2.48	2.01	3.56	0.39	0.06	0.10	1060	87	196	36	22	3.81	99.49
D1877	102.72	103.33	66.09	13.86	8.70	1.24	3.93	0.64	2.58	0.34	0.06	0.08	655	54	197	32	17	4.73	100.30
D1878	129.69	130.30	65.89	13.92	6.16	2.95	1.77	2.77	2.24	0.34	0.08	0.08	630	100	150	32	17	4.31	100.49
D1879	158.13	158.74	67.22	13.68	6.23	3.09	1.74	2.67	2.24	0.33	0.09	0.08	636	100	155	28	16	3.09	100.45
D1880	203.98	204.54	75.10	10.04	3.57	3.03	0.87	3.53	0.92	0.25	0.09	0.08	275	200	116	22	13	3.47	100.93
D1881	222.05	222.73	70.68	11.61	6.01	2.08	1.86	3.16	1.04	0.28	0.09	0.08	405	146	147	28	15	3.46	100.36
D1882	236.93	237.54	66.01	13.33	6.52	3.36	1.15	3.50	1.66	0.31	0.15	0.08	610	161	197	34	17	4.20	100.26
D1883	258.93	259.54	68.28	16.75	6.44	0.87	1.38	3.52	2.30	0.35	0.07	0.08	1042	88	187	32	18	2.59	100.63
D1884	276.01	276.62	66.42	13.83	9.84	1.50	3.15	1.97	1.80	0.40	0.10	0.18	964	105	162	24	19	3.58	100.77
D1885	293.37	293.98	65.04	12.00	7.63	4.52	1.29	2.82	1.22	0.34	0.14	0.14	316	128	136	20	17	5.00	100.14
D1886	303.89	304.50	67.12	12.90	5.36	3.89	1.15	2.74	2.08	0.40	0.07	0.10	566	162	151	22	14	4.72	100.55
D1887	225.11	225.72	27.38	14.54	9.03	13.33	7.09	1.54	3.50	0.70	0.18	0.04	341	550	97	16	42	20.23	97.56
D1888	1.78	2.36	65.55	12.15	7.47	0.79	4.31	0.07	2.52	0.35	0.05	0.08	665	23	180	28	14	4.26	97.59
D1889	29.26	29.87	72.78	10.22	5.69	0.42	5.72	0.03	1.36	0.26	0.03	0.06	443	9	148	24	11	4.02	100.60
D1890	47.55	48.07	58.86	17.81	6.23	0.28	7.56	0.06	3.24	0.55	0.02	0.14	803	13	193	34	19	5.32	100.06
D1891	65.53	66.16	67.03	10.66	8.76	0.28	7.76	0.02	0.50	0.31	0.05	0.18	163	7	147	24	13	4.95	100.49
D1892	12.19	12.80	65.00	13.36	9.04	1.34	1.98	4 60	0.74	0.51	0.11	0.16	360	55	211	32	20	3.28	100.11
D1893	21.34	21.95	62.60	11.56	4.82	4.87	2.12	0.40	3.70	0.33	0.12	0.16	342	74	130	18	16	7.95	98.62
D1894	27.43	28.04	65.76	15.56	2.94	2.49	1.01	4.95	2.68	0.35	0.06	0.18	720	389	237	14	4	3.90	99.88
D1895	45.72	46.33	68.02	11.55	6.11	1.13	4.65	0.05	2.42	0.31	0.05	0.08	559	40	137	22	12	4.69	99.03
D1896	56.39	56.98	61.70	13.16	8.43	0.66	7.73	0.05	1.48	0.35	0.11	0.12	287	14	133	24	14	5.71	99.52
D1897	77.72	78.33	63.65	12.83	9.71	0.20	7.27	0.02	1.24	0.38	0.03	0.14	474	6	161	20	19	4.73	100.39
D1898	100.58	101.19	70.60	8.11	7.28	0.59	7.62	0.01	0.04	0.23	0.04	0.06	26	7	101	12	10	4.55	99.13
D1899	149.35	149.96	67.83	12.76	7.06	1.67	2.97	0.16	2.62	0.31	0.07	0.08	635	51	168	28	13	4.51	100.03
D1900	153.92	154.55	67.61	13.77	6.34	1.27	2.12	1.00	4.22	0.44	0.04	0.12	416	69	161	26	15	3.70	100.62
D1901	3.05	3.66	74.11	11.90	3.81	2.01	0.92	3.75	1.32	0.35	0.08	0.14	715	141	135	24	14	2.22	100.62
D1902	18.29	18.90	69.88	13.37	4.37	2.61	0.86	3.01	2.94	0.37	0.07	0.12	776	84	169	26	13	3.26	100.84
D1903	39.62	40.23	68.01	10.66	4.88	5.11	1.03	1.84	2.42	0.29	0.13	0.08	466	82	142	24	11	5.29	99.74
D1904	56.39	57.00	72.56	11.81	4.18	1.67	0.91	2.05	2.78	0.31	0.05	0.10	453	41	183	24	11	2.76	99.19
D1905	79.25	79.86	68.92	10.47	4.32	5.22	0.78	2.93	2.02	0.28	0.13	0.08	428	101	130	28	13	5.26	100.43
D1906	102.11	102.72	74.08	12.08	4.22	1.36	0.72	3.28	2.80	0.35	0.04	0.12	835	64	137	24	11	1.95	101.00
D1907	123.44	124.05	67.37	10.06	10.36	0.24	1.61	0.09	2.70	0.32	0.09	0.08	642	15	147	18	14	5.81	98.74
D1908	172.21	172.82	66.22	11.70	8.85	0.16	3.9%	0.06	2.24	0.37	0.04	0.10	620	10	160	26	14	4.89	100.56
D1909	6.10	6.71	72.33	13.11	5.09	1.66	1.07	4.93	0.60	0.37	0.08	0.12	306	194	131	28	14	1.54	100.89
D1910	28.96	29.57	74.38	11.57	3.36	2.06	0.33	2.70	3.60	0.31	0.05	0.10	1096	82	157	26	10	2.26	100.72

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 5

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1775	6.50	7.19	65.91	10.47	5.68	5.17	2.11	1.65	1.70	0.28	0.13	0.08	413	110	131	26	11	6.12	99.28
D1776	14.45	15.01	53.00	8.10	7.16	9.12	5.35	1.29	1.62	0.22	0.27	0.06	78	266	111	18	8	13.85	100.02
D1777	39.62	40.23	71.77	12.59	2.39	2.66	0.74	3.08	2.50	0.33	0.04	0.12	478	132	115	18	15	3.29	99.52
D1778	3.15	3.71	69.33	11.43	4.65	1.71	2.28	0.16	3.92	0.31	0.07	0.08	1164	58	130	26	12	5.91	99.84
D1779	9.40	10.31	69.20	12.73	5.75	0.26	4.36	0.06	2.90	0.35	0.06	0.10	541	9	170	30	14	4.35	100.15
D1780	20.70	21.34	63.44	10.59	4.96	3.53	3.58	0.06	3.54	0.29	0.09	0.06	927	176	144	24	11	7.47	97.61
D1781	26.57	27.38	66.59	11.66	6.58	1.32	1.77	0.09	3.86	0.32	0.15	0.08	1175	49	146	28	12	6.58	99.02
D1782	46.20	46.94	73.27	9.80	7.88	0.07	4.87	0.03	1.12	0.27	0.03	0.04	378	5	141	24	11	3.53	100.92
D1783	70.36	71.07	72.54	9.96	5.33	0.69	5.13	0.04	1.70	0.26	0.03	0.08	689	12	140	18	10	4.19	99.95
D1784	5.00	5.64	71.03	12.24	4.02	2.18	0.58	3.32	2.40	0.32	0.06	0.12	700	72	152	22	10	2.85	99.09
D1785	36.20	36.86	69.77	13.03	4.76	1.83	1.53	2.67	2.30	0.34	0.05	0.10	619	95	161	28	12	3.98	100.33
D1786	44.50	45.19	68.60	11.79	7.61	0.46	2.51	0.16	2.54	0.31	0.08	0.08	649	20	184	28	11	3.90	98.05
D1787	64.24	64.85	56.25	14.32	8.65	0.11	11.32	0.03	1.06	0.40	0.08	0.10	210	5	197	34	16	6.88	99.19
D1789	84.58	85.24	49.67	14.90	10.60	1.33	13.02	0.02	0.60	0.40	0.08	0.48	158	15	217	28	16	7.75	98.85
D1790	99.54	100.25	66.38	10.89	8.00	0.33	6.26	0.04	1.20	0.29	0.03	0.06	353	7	155	30	11	4.26	97.74
D1791	114.93	115.57	66.24	11.44	6.10	1.62	3.87	0.05	2.74	0.32	0.06	0.08	940	41	150	22	13	5.25	97.77
D1792	122.40	123.14	65.07	12.45	10.98	0.24	6.26	0.04	0.94	0.35	0.04	0.06	291	14	190	34	15	4.31	100.74
D1793	134.49	135.13	67.58	11.75	9.13	0.08	2.29	0.10	2.62	0.32	0.02	0.06	659	11	161	30	12	5.64	99.59
D1794	151.41	152.22	69.81	12.25	4.78	0.22	4.38	0.07	2.56	0.32	0.05	0.08	486	8	175	32	13	4.47	98.99
D1795	168.42	169.76	56.06	9.81	5.63	3.30	7.13	0.11	3.52	0.27	0.08	0.06	582	121	139	22	11	11.76	97.74
D1796	174.04	174.73	68.80	11.80	5.45	0.60	2.58	0.70	3.88	0.32	0.05	0.08	998	21	144	28	12	5.95	100.21
D1867	206.40	207.06	73.94	11.86	5.24	0.55	1.39	3.80	1.58	0.25	0.04	0.06	568	56	207	40	11	2.03	100.75
D1868	236.61	237.22	46.67	15.65	12.05	5.19	7.40	3.65	0.36	0.56	0.23	0.04	266	106	122	12	39	7.07	98.86
D1869	251.16	251.76	49.43	14.91	11.38	4.90	5.18	3.54	0.92	0.81	0.49	0.16	602	140	163	24	32	6.35	98.06
D1870	261.58	262.19	49.28	15.77	10.97	6.70	6.82	2.43	1.04	0.58	0.25	0.08	478	175	132	10	40	4.05	98.59
D1871	308.46	309.07	50.14	15.18	11.42	10.12	4.42	1.77	1.14	0.75	0.19	0.14	432	370	145	18	31	4.30	99.57
D1872	330.40	331.01	48.64	15.03	9.99	11.41	4.76	1.41	0.54	0.70	0.18	0.12	168	255	125	16	35	7.14	99.95
D1873	6.62	7.23	70.17	12.96	5.33	1.24	2.90	0.08	3.40	0.29	0.04	0.08	894	28	141	28	15	3.93	99.53
D1874	36.12	36.73	72.09	11.98	4.39	1.32	2.45	2.00	2.54	0.29	0.05	0.08	602	42	144	22	15	3.59	100.78
D1875	59.31	59.92	62.49	15.69	8.87	0.30	4.16	1.10	3.24	0.40	0.04	0.10	909	36	229	36	21	3.84	100.22

D1911	62.48	63.09	65.39	10.87	4.97	6.42	1.27	2.05	2.22	0.29	0.14	0.06	386	99	120	28	12	6.53	100.21
D1912	88.39	89.05	69.41	10.98	3.15	5.22	0.73	2.14	2.68	0.30	0.11	0.10	551	111	130	20	9	5.31	100.13
D1913	118.87	119.48	69.48	11.72	5.20	3.01	1.50	3.35	1.50	0.33	0.10	0.12	473	138	139	24	13	3.80	100.10
D1914	140.21	140.82	68.23	13.83	5.76	1.19	1.81	2.13	3.02	0.42	0.10	0.18	1140	83	134	26	20	3.40	100.07
D1915	220.98	221.59	27.43	21.92	14.57	0.01	22.71	0.01	0.02	0.35	0.05	0.12	65	5	227	38	11	10.68	97.89

D1811	103.63	104.34	73.18	12.23	3.69	2.16	0.71	3.45	2.26	0.33	0.06	0.12	512	72	137	22	15	2.68	100.88
D1812	143.03	143.76	66.39	10.23	8.83	0.46	9.02	0.05	0.10	0.30	0.09	0.12	43	9	77	20	16	4.96	100.55
D1813	172.96	175.18	53.23	17.08	9.70	0.11	12.06	0.06	1.36	0.49	0.03	0.12	527	7	173	44	24	6.38	100.63
D1814	213.26	214.40	68.27	12.13	6.30	0.15	4.28	0.07	2.26	0.39	0.04	0.14	673	8	141	22	18	3.46	97.50
D1815	5.24	5.90	65.91	13.67	8.69	6.42	1.52	0.31	1.34	0.39	0.15	0.18	395	161	89	22	23	2.30	100.89
D1816	61.38	62.65	69.71	11.19	2.58	3.56	0.37	3.41	2.88	0.31	0.12	0.20	995	118	85	18	20	3.55	97.89
D1818	126.42	127.16	69.26	10.71	4.32	3.00	0.38	1.11	5.78	0.31	0.10	0.10	1005	76	106	22	15	2.62	97.70
D1819	182.37	183.00	72.27	12.59	5.43	1.56	1.23	4.24	0.84	0.35	0.08	0.14	371	129	123	24	16	1.87	100.59
D1820	240.54	241.25	71.02	12.28	4.29	1.71	0.62	3.20	2.70	0.30	0.05	0.12	817	84	142	22	14	2.13	98.42
D1821	264.26	264.95	57.52	16.61	9.34	2.62	3.37	2.64	2.84	0.52	0.10	0.18	577	166	150	28	22	4.30	100.04
D1822	297.14	297.91	73.49	12.27	4.69	1.75	0.76	2.86	2.56	0.33	0.05	0.12	518	52	123	20	16	2.05	100.93
D1823	326.17	327.00	75.76	11.40	2.74	2.03	0.52	2.93	1.96	0.29	0.04	0.10	454	76	121	18	12	2.53	100.31
D1824	351.87	352.67	67.42	12.25	6.09	0.11	8.09	0.08	1.26	0.35	0.04	0.10	204	9	121	24	15	4.59	100.35
D1825	425.85	426.62	84.06	9.99	1.10	0.10	0.44	0.20	2.64	0.28	0.01	0.10	755	15	88	22	12	1.69	100.60

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

SUBMITTAL NUMBER 7

SAMPLE NO.	FROM m	TO m	SIO2 %	AL203 %	FE203 %	CAO %	MGO %	NA20 %	K20 %	TIO2 %	MNO %	P205 %	BA ppm	SR ppm	ZR ppm	Y ppm	SC ppm	LOI %	TOTAL %
D1567	8.27	9.06	74.19	11.62	6.09	0.09	2.89	0.15	2.14	0.31	0.03	0.08	642	12	176	38	17	3.12	100.71
D1568	39.47	40.11	71.28	11.56	6.27	0.35	3.96	1.05	2.06	0.29	0.13	0.08	251	14	116	24	15	3.72	100.75
D1569	41.50	42.17	72.42	11.57	5.23	0.29	4.12	0.97	2.08	0.29	0.10	0.08	275	14	141	30	16	3.31	100.47
D1570	72.75	73.50	67.95	12.47	6.91	0.44	3.13	3.20	0.86	0.33	0.11	0.08	187	23	158	32	19	2.81	98.29
D1571	87.48	88.45	70.70	12.41	4.47	0.20	3.62	2.13	1.94	0.31	0.04	0.10	360	22	143	30	17	3.05	98.97
D1572	5.39	5.94	69.36	12.70	5.84	0.70	3.44	0.61	3.48	0.37	0.02	0.12	623	17	103	24	20	3.68	100.29
D1573	34.29	35.05	71.49	11.28	5.98	0.64	4.11	1.45	2.06	0.28	0.05	0.06	405	41	121	32	15	3.40	100.79
D1574	47.28	48.08	69.84	12.89	6.42	0.55	2.96	3.39	1.84	0.33	0.05	0.06	583	71	154	34	19	2.27	100.61
D1575	84.43	85.20	69.07	11.67	6.39	1.20	3.98	1.83	2.54	0.30	0.06	0.04	648	45	130	30	19	3.23	100.31
D1576	93.05	93.70	66.53	11.23	6.21	3.05	2.36	1.59	3.28	0.29	0.11	0.06	683	61	135	26	17	5.62	100.35
D1577	8.77	9.47	68.57	12.98	7.29	0.24	3.86	1.62	2.46	0.44	0.07	0.10	550	58	198	20	21	3.28	100.91
D1578	21.88	22.81	64.46	12.75	6.64	2.15	4.11	3.69	1.26	0.41	0.23	0.08	439	76	137	18	23	4.91	100.69
D1579	-1.00	-1.00	51.78	16.02	11.13	8.50	7.55	3.66	0.62	1.45	0.16	0.22	213	471	140	20	25	0.01	100.73
D1580	57.00	57.80	68.53	12.35	7.11	0.45	4.16	0.86	2.44	0.44	0.05	0.08	685	22	126	20	20	3.66	100.12
D1581	15.08	16.08	69.46	11.22	5.66	2.43	1.25	1.84	4.82	0.28	0.14	0.08	1371	83	114	26	18	2.94	100.11
D1582	26.52	27.41	67.42	13.01	5.60	2.00	2.49	2.85	3.14	0.42	0.15	0.10	870	103	149	24	20	3.37	100.55
D1583	54.40	55.30	70.54	12.03	6.25	1.17	1.49	2.32	2.92	0.30	0.36	0.06	1064	51	122	24	18	3.08	100.50
D1584	70.44	71.32	68.38	11.98	6.11	1.44	1.38	2.37	2.86	0.29	0.18	0.12	1127	43	177	30	20	3.46	98.56
D1585	25.10	26.00	69.81	12.44	6.13	1.16	1.52	4.57	0.98	0.31	0.06	0.08	260	105	146	34	19	2.73	99.80
D1586	39.81	40.71	71.98	10.54	4.77	1.82	2.03	1.77	2.70	0.25	0.05	0.06	413	27	122	24	16	4.05	100.05
D1587	67.17	68.00	68.39	12.87	6.29	0.21	4.97	0.25	2.84	0.38	0.07	0.08	403	13	142	24	21	3.56	99.92
D1588	5.38	6.19	74.74	10.33	3.97	1.28	2.19	0.90	3.08	0.25	0.05	0.06	732	19	120	24	16	3.44	100.31
D1589	45.33	46.30	70.94	11.69	6.91	0.97	2.93	3.10	1.16	0.28	0.07	0.06	287	107	119	30	19	2.87	100.97
D1590	49.69	50.53	73.62	9.01	1.33	3.20	2.46	2.23	1.94	0.21	0.09	0.06	505	43	112	24	13	5.22	99.39
D1591	55.40	56.20	71.49	10.54	4.93	3.17	2.13	4.24	0.20	0.24	0.06	0.06	65	177	118	24	15	3.41	100.49
D1597	106.26	106.90	62.87	13.72	7.85	1.91	3.37	3.20	1.20	0.34	0.12	0.06	359	123	176	36	24	3.64	98.28
D1940	148.80	149.53	65.56	12.66	5.51	4.07	1.82	2.34	2.80	0.42	0.09	0.10	787	182	106	22	19	4.87	100.24
D1941	11.28	12.06	66.40	12.62	7.79	0.66	4.14	2.13	2.16	0.30	0.05	0.04	280	63	145	26	19	3.31	99.62
D1944	51.55	52.33	67.45	10.14	3.94	5.15	3.02	2.12	1.66	0.24	0.12	0.06	407	128	136	20	16	6.19	100.10
D1945	-1.00	-1.00	51.49	15.88	11.50	8.68	7.40	3.66	0.62	1.46	0.16	0.20	218	478	122	20	23	0.01	100.64

D1948	83.35	83.94	67.98	12.70	5.25	2.00	3.28	1.88	2.46	0.32	0.09	0.09	757	42	165	28	20	4.50	100.54
D1952	95.32	95.88	71.74	8.63	2.99	3.74	2.95	1.78	1.68	0.21	0.10	0.06	374	78	144	20	14	6.24	100.15
D1953	102.84	103.76	69.43	11.10	5.89	2.59	2.36	3.52	0.60	0.26	0.09	0.06	259	148	130	24	17	3.32	99.21
D1955	118.30	119.03	67.11	12.62	4.90	4.24	1.63	2.14	2.84	0.43	0.09	0.12	665	133	146	18	20	4.21	100.34
D1958	139.57	144.03	67.08	11.23	5.65	2.57	2.69	1.53	4.06	0.28	0.11	0.08	785	43	139	28	18	4.48	99.74
D1961	6.93	7.70	66.97	11.89	8.71	0.12	0.75	0.11	3.38	0.32	0.01	0.08	1619	5	136	30	17	6.02	98.38
D1964	33.12	34.00	73.19	10.22	9.06	0.35	2.29	0.06	1.70	0.27	0.04	0.08	903	3	120	24	14	2.89	100.13
D1965	69.95	70.70	58.73	12.22	16.20	0.21	5.36	0.03	0.60	0.30	0.09	0.02	316	2	122	28	18	4.18	97.93
D1966	83.23	84.02	75.76	10.45	6.60	0.11	0.97	0.08	2.52	0.28	0.02	0.06	1100	5	144	24	16	2.94	99.79
D1968	111.00	111.90	68.75	9.84	10.07	0.15	1.41	0.07	2.24	0.27	0.03	0.06	740	5	125	24	15	5.29	98.17
D1969	130.94	132.00	66.27	11.23	12.90	0.20	3.45	0.07	1.38	0.29	0.08	0.02	532	2	172	32	17	4.40	100.31

PINEBAY WHOLE ROCK GEOCHEMICAL DATA
SUBMITTAL NUMBER 8

SAMPLE NO.	FROM	TO	SIO2	AL203	FE203	CAO	MGO	NA20	K20	TIO2	MNO	P205	BA	SR	ZR	Y	SC	LOI	TOTAL
	m	m	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	%	%
D1971	165.19	165.95	71.22	11.21	8.71	0.30	2.69	0.10	2.20	0.30	0.07	0.06	722	17	159	28	15	3.33	100.18
D1972	181.21	182.07	68.29	12.40	7.18	1.07	3.83	0.07	3.14	0.33	0.05	0.04	928	20	153	32	16	4.19	100.59
D1973	216.31	217.10	72.00	12.11	5.83	0.13	3.24	1.53	2.60	0.34	0.04	0.06	717	20	136	30	16	3.02	100.89
D1974	224.94	225.69	71.18	10.45	5.65	1.39	2.86	2.27	1.96	0.28	0.07	0.06	528	68	115	24	12	4.19	100.36
D1975	228.00	228.23	70.10	11.20	8.98	0.06	3.23	0.06	1.50	0.30	0.10	0.06	-1	-1	-1	-1	-1	3.20	98.79
D1976	231.02	231.26	68.70	12.20	6.66	0.46	3.77	1.15	2.27	0.33	0.06	0.05	-1	-1	-1	-1	-1	3.60	99.25
D1977	300.77	301.71	68.86	12.17	10.27	0.19	2.07	0.15	2.88	0.32	0.10	0.06	541	10	151	28	16	3.54	100.61
D1978	309.35	310.21	66.15	12.12	5.22	2.81	2.08	0.91	4.08	0.41	0.07	0.08	883	71	131	16	17	5.53	99.46
D1979	314.36	315.00	67.12	11.16	6.65	2.30	1.92	1.13	3.56	0.27	0.17	0.06	1030	90	135	24	15	4.65	98.97
D1980	322.79	323.60	71.11	9.64	4.17	3.33	1.67	1.38	2.86	0.23	0.10	0.04	455	76	96	20	13	5.58	100.11
D1981	328.65	328.75	60.40	17.00	7.07	1.03	3.74	0.07	4.91	0.44	0.07	0.05	-1	-1	-1	-1	-1	5.00	99.78
D1982	-1.00	-1.00	51.87	15.72	11.26	8.42	7.32	3.46	0.68	1.42	0.16	0.20	208	458	158	20	20	-1.00	100.32
D1983	10.25	10.96	74.79	9.80	3.69	1.72	2.62	0.92	2.88	0.25	0.05	0.06	439	30	109	22	13	3.85	100.64
D1984	58.51	59.13	78.01	10.17	2.84	1.08	1.51	2.44	1.78	0.25	0.06	0.06	401	48	85	20	13	2.61	100.81
D1985	65.36	65.93	59.91	14.46	9.46	1.05	5.05	0.17	2.90	0.35	0.05	0.04	728	39	176	26	21	5.18	98.62
D1986	45.20	46.00	70.80	10.05	4.43	3.55	1.87	1.32	1.94	0.24	0.10	0.06	518	133	122	20	14	4.68	99.02
D1987	138.07	138.84	65.92	11.41	6.93	2.45	2.97	2.21	1.36	0.25	0.11	0.04	480	97	141	28	15	4.85	98.51
D1988	146.04	146.75	65.66	12.85	5.60	4.27	1.93	1.67	2.86	0.43	0.09	0.08	768	99	115	20	18	5.13	100.57
D1989	12.62	13.40	54.49	12.21	11.48	5.95	4.46	3.11	0.60	1.12	0.15	0.24	205	125	149	36	29	6.34	100.13
D1990	68.50	69.35	57.25	14.37	9.77	3.00	5.69	4.21	0.58	0.45	0.14	0.08	386	106	103	12	32	4.99	100.54
D1991	73.24	73.92	49.35	7.55	11.25	5.79	13.47	0.18	0.06	0.25	0.10	<0.02	32	24	78	4	45	12.70	100.65
D1992	82.19	83.05	48.81	12.37	10.39	6.18	6.50	0.97	2.50	0.51	0.15	0.06	494	154	101	12	34	11.49	99.93
D1993	101.15	101.98	51.20	14.64	12.28	6.57	5.53	2.45	0.70	0.94	0.16	0.14	276	333	130	20	35	5.39	100.00
D1994	157.76	158.51	42.61	7.39	9.15	9.64	11.55	0.08	0.66	0.18	0.17	<0.02	194	186	88	4	32	17.17	98.61
D1995	192.27	193.16	55.73	11.49	8.40	7.10	6.14	2.43	0.56	0.22	0.14	<0.02	299	163	70	6	35	8.75	100.96
D1996	200.97	201.81	31.83	5.39	8.30	18.97	8.05	0.09	1.04	0.12	0.17	<0.02	269	258	59	2	28	25.04	99.01
D1997	215.93	216.53	53.68	12.63	11.04	5.47	6.90	3.83	1.38	0.44	0.19	0.10	633	170	136	8	39	3.98	99.63
D1998	221.70	222.40	43.93	4.62	9.28	7.76	22.26	0.20	0.08	0.13	0.13	<0.02	54	131	82	2	21	10.75	99.06
D1999	-1.00	-1.00	51.12	15.55	11.41	8.55	7.64	3.62	0.62	1.45	0.17	0.20	209	484	160	18	21	0.01	100.08
D2001	-1.00	-1.00	56.54	11.38	17.33	1.49	6.03	0.51	0.80	1.60	0.08	0.66	176	26	312	62	46	4.07	100.49

D2002	-1.00	-1.00	80.91	6.90	3.82	0.35	4.24	0.07	1.20	0.13	0.11	<0.02	215	11	173	68	1	2.87	100.60
D2004	-1.00	-1.00	80.12	7.94	2.98	0.95	1.88	0.07	2.22	0.22	0.12	0.06	477	10	188	44	5	2.85	99.41
D2006	-1.00	-1.00	31.17	18.83	16.65	0.08	21.97	0.04	1.60	0.22	0.10	<0.02	64	3	518	80	2	9.24	99.86

PINEBAY WHOLE ROCK GEOCHEMICAL DATA

BAKER PATTON DRILL CORE SAMPLES, G. GALE, MANITOBA ENERGY AND MINES (1988)

SAMPLE NO.	SAMPLE NO. (G. GALE)	FROM m	TO m	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	LOI %	TOTAL %
D1592	PB21-265	81.03	81.23	67.3	12.7	5.70	2.02	2.80	2.33	1.62	0.28	0.07	0.07	4.2	99.09
D1593	PB21-307	93.81	94.17	76.5	10.4	2.56	2.36	1.01	2.17	1.81	0.23	0.08	0.07	3.3	100.49
D1594	PB21-322	98.12	98.52	69.7	10.9	4.42	4.43	1.49	2.79	1.11	0.25	0.18	0.07	5.2	100.54
D1595	PB21-343	104.73	104.96	68.7	12.5	5.11	1.74	3.04	3.83	0.68	0.28	0.12	0.06	4.0	100.06
D1596	PB21-349	106.00	106.26	71.2	11.4	6.91	2.05	2.91	3.26	0.30	0.27	0.13	0.08	3.6	102.11
D1598	PB21-356	108.91	109.14	72.9	11.1	5.42	1.36	2.74	3.80	0.13	0.24	0.09	0.05	3.2	101.03
D1599	PB21-405	123.68	123.92	65.5	14.6	6.98	0.56	4.71	0.46	2.67	0.34	0.04	0.06	4.3	100.22
D1600	PB21-410	124.87	125.00	69.4	12.7	6.64	0.44	4.00	0.82	2.15	0.29	0.05	0.06	3.6	100.15
D1926	PB21-416	126.36	126.66	74.1	9.3	2.93	3.67	1.88	2.38	1.13	0.22	0.08	0.06	4.4	100.15
D1927	PB21-418	127.82	127.99	71.2	9.8	4.54	3.71	2.74	1.83	1.08	0.23	0.11	0.07	5.1	100.41
D1928	PB21-423	129.27	129.54	72.4	11.0	5.79	0.66	3.18	2.11	1.00	0.26	0.05	0.06	2.9	99.41
D1929	PB21-425	130.57	130.78	67.8	12.3	5.82	2.00	3.17	2.50	1.47	0.29	0.07	0.05	4.1	99.77
D1930	PB21-434	132.27	132.45	69.7	11.3	4.55	3.53	3.03	2.87	0.84	0.27	0.08	0.07	4.9	101.14
D1932	PB21-439	134.73	134.90	60.2	15.1	8.03	1.14	5.46	1.11	2.42	0.37	0.08	0.05	5.3	99.26
D1933	PB21-444	136.25	136.48	67.3	12.6	5.90	2.19	2.41	3.80	0.75	0.29	0.07	0.06	3.8	99.17
D1934	PB21-447	137.65	137.90	73.5	10.2	2.73	3.16	1.31	2.95	1.39	0.25	0.09	0.06	4.0	99.64
D1935	PB21-457	138.75	138.90	65.9	9.6	4.35	5.96	2.18	2.52	1.02	0.23	0.20	0.07	7.0	99.03
D1936	PB21-460	140.11	140.42	71.5	11.0	4.73	2.73	1.77	3.87	0.52	0.26	0.09	0.06	3.8	100.33
D1937	PB21-472	143.86	144.06	59.6	11.3	5.10	7.86	2.26	2.53	1.76	0.38	0.20	0.07	8.9	99.96
D1938	PB21-475	144.76	144.91	67.4	13.7	4.91	2.39	1.95	2.47	2.61	0.45	0.06	0.10	4.1	100.14
D1939	PB21-480	146.19	146.29	65.8	14.3	5.01	2.69	1.81	2.65	2.89	0.46	0.06	0.10	4.4	100.17
D1942	PB-24-43	13.13	13.35	60.4	16.6	8.69	0.21	5.17	0.10	3.49	0.39	0.05	0.07	4.6	99.77
D1943	PB24-128	38.85	39.14	74.7	10.4	5.10	0.82	2.68	2.72	0.92	0.25	0.04	0.06	3.0	100.69
D1946	PB24-213	64.96	65.14	68.3	13.6	5.61	1.33	2.65	2.78	1.85	0.33	0.10	0.07	3.9	100.52
D1947	PB24-252	76.59	76.74	56.2	15.2	8.92	2.20	5.52	0.73	2.61	0.39	0.08	0.06	7.0	98.91
D1949	PB24-280	85.30	85.44	61.8	15.7	8.26	0.48	5.34	0.16	2.81	0.37	0.04	0.06	4.8	99.62
D1950	PB24-295	89.89	90.03	67.8	10.6	4.73	3.35	4.15	2.63	1.02	0.23	0.11	0.06	6.9	101.58
D1951	PB24-335	101.97	102.15	73.6	10.9	4.27	2.97	1.71	3.40	0.75	0.26	0.08	0.07	4.0	102.01
D1954	PB24-387	117.96	118.21	67.8	13.0	3.96	4.36	1.41	2.16	2.92	0.43	0.08	0.10	5.2	101.42
D1956	PB24-415	126.43	126.71	70.0	11.5	4.34	2.96	2.55	1.58	2.65	0.28	0.08	0.06	5.4	101.40

D1957	PB24-421	128.05	128.26	70.2	11.3	5.19	1.84	2.57	1.86	2.23	0.27	0.07	0.06	4.4	99.99
D1959	PB24-472	144.03	144.25	68.7	12.1	4.44	1.94	2.20	1.65	4.30	0.29	0.08	0.06	4.1	99.86
D1960	PB24-492	150.02	150.12	69.7	10.2	4.51	3.22	2.07	1.29	2.87	0.25	0.13	0.06	5.7	100.00
D1962	PB-30-26	7.70	8.00	64.1	11.4	11.47	0.10	1.07	0.10	2.85	0.32	0.01	0.07	6.9	98.39
D1963	PB-30-31	8.87	9.12	60.6	11.9	13.16	0.11	2.19	0.10	2.21	0.34	0.04	0.10	7.1	97.85
D1967	PB30-306	94.02	94.19	77.7	11.0	3.71	0.07	0.87	0.08	2.76	0.32	0.02	0.06	2.1	98.69
D1970	PB30-517	157.33	157.69	62.6	11.0	13.88	0.05	3.32	0.07	1.28	0.31	0.03	0.06	5.4	98.05
D1975	PB30-735	228.00	228.23	70.1	11.2	8.98	0.06	3.23	0.06	1.50	0.30	0.10	0.06	3.2	98.79
D1976	PB30-749	231.02	231.26	68.7	12.2	6.66	0.46	3.77	1.15	2.27	0.33	0.05	0.06	3.6	99.25
D1981	PB301079	328.65	328.75	60.4	17.0	7.07	1.03	3.74	0.07	4.91	0.44	0.07	0.05	5.0	99.78

PINE[illegible]T - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1551	Altered	68.6	95
D1552	Altered	223.5	99
D1553	Altered	304.0	98
D1554	Altered	681.0	99
D1555	Altered	94.5	96
D1556	Altered	50.4	92
D1557	Altered	15.8	69
D1558	Altered	25.5	67
D1559	Altered	343.3	60
D1560	Altered	4.4	34
D1561	Altered	12.2	69
D1562	Unaltered	4.6	45
D1563	Altered	22.8	89
D1564	Altered	36.5	90
D1565	Unaltered	3.5	39
D1566	Unaltered	4.5	41
D1567	Altered	79.3	96
D1568	Altered	11.0	81
D1569	Altered	11.9	83
D1570	Unaltered	3.9	52
D1571	Unaltered	5.8	70
D1572	Altered	20.8	84
D1573	Altered	7.8	75
D1574	Unaltered	3.8	55
D1575	Altered	6.4	68
D1576	Altered	7.1	55
D1577	Altered	8.0	77
D1578	Unaltered	3.5	48
D1579	Unaltered	4.4	40
D1580	Altered	14.4	83
D1581	Altered	6.1	59
D1582	Unaltered	4.6	54
D1583	Altered	5.2	56
D1584	Altered	5.1	53
D1585	Altered	2.7	30
D1586	Altered	6.0	57
D1587	Altered	51.3	94
D1588	Altered	11.5	71
D1589	Unaltered	3.8	50
D1590	Unaltered	4.0	45
D1591	Altered	2.5	24
D1592	Unaltered	5.5	50
D1593	Unaltered	4.8	38
D1594	Unaltered	3.9	26
D1595	Altered	3.3	40
D1596	Unaltered	3.5	38
D1597	Unaltered	4.3	47
D1598	Altered	2.9	36

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1599	Altered	31.7	88
D1600	Altered	15.5	83
D1626	Altered	8.1	72
D1627	Unaltered	3.0	43
D1628	Altered	5.9	66
D1629	Altered	154.3	91
D1630	Altered	241.5	86
D1631	Altered	297.0	98
D1632	Altered	16.2	83
D1633	Altered	2.7	29
D1634	Altered	2.8	23
D1635	Altered	51.3	92
D1636	Unaltered	n/a	n/a
D1637	Unaltered	5.6	40
D1638	Unaltered	5.8	26
D1639	Unaltered	4.7	29
D1640	Unaltered	4.4	33
D1641	Altered	12.9	38
D1642	Unaltered	6.3	34
D1643	Unaltered	8.4	34
D1644	Unaltered	4.7	34
D1645	Altered	3.3	37
D1646	Altered	3.6	36
D1647	Unaltered	5.6	25
D1648	Unaltered	13.0	36
D1650	Unaltered	n/a	n/a
D1651	Unaltered	8.1	47
D1652	Unaltered	11.0	36
D1653	Unaltered	7.8	41
D1654	Unaltered	n/a	n/a
D1655	Unaltered	6.2	18
D1656	Unaltered	5.3	52
D1657	Unaltered	n/a	n/a
D1658	Unaltered	8.5	31
D1659	Altered	8.4	46
D1660	Unaltered	5.3	35
D1661	Unaltered	3.6	48
D1662	Altered	2.4	17
D1664	Unaltered	n/a	n/a
D1665	Unaltered	5.1	40
D1666	Unaltered	4.7	28
D1667	Unaltered	5.1	41
D1668	Altered	3.7	22
D1669	Unaltered	7.5	27
D1670	Unaltered	n/a	n/a
D1671	Unaltered	5.6	38
D1672	Unaltered	n/a	n/a
D1673	Unaltered	n/a	n/a

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1674	Altered	3.0	43
D1675	Unaltered	10.2	45
D1676	Unaltered	9.7	34
D1677	Altered	4.5	57
D1678	Unaltered	7.9	22
D1679	Altered	12.5	52
D1680	Unaltered	9.6	40
D1681	Unaltered	7.5	28
D1682	Unaltered	n/a	n/a
D1683	Unaltered	9.3	39
D1684	Altered	23.9	38
D1685	Unaltered	4.8	48
D1686	Altered	7.7	75
D1687	Unaltered	5.3	38
D1688	Altered	18.1	75
D1689	Altered	2.8	25
D1690	Unaltered	3.1	34
D1691	Altered	3.3	36
D1692	Unaltered	3.0	42
D1693	Altered	11.8	83
D1695	Unaltered	4.4	38
D1696	Altered	35.0	90
D1697	Altered	9.1	42
D1698	Altered	107.2	61
D1699	Altered	73.4	71
D1700	Altered	2.2	21
D1701	Altered	19.7	63
D1702	Altered	2.8	25
D1703	Altered	8.0	54
D1704	Unaltered	4.3	30
D1706	Altered	5.9	47
D1707	Altered	66.1	76
D1708	Unaltered	3.4	18
D1709	Unaltered	5.0	38
D1710	Altered	14.0	54
D1711	Unaltered	3.5	27
D1712	Unaltered	2.6	14
D1713	Unaltered	3.9	33
D1714	Altered	8.9	40
D1715	Unaltered	4.9	39
D1716	Unaltered	4.0	48
D1717	Altered	3.6	50
D1718	Unaltered	5.3	73
D1719	Altered	3.1	38
D1720	Altered	2.8	25
D1721	Altered	8.8	46
D1725	Unaltered	5.1	48
D1726	Altered	8.7	72

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1727	Unaltered	2.9	39
D1728	Altered	106.0	85
D1729	Unaltered	3.4	40
D1730	Unaltered	4.2	39
D1731	Unaltered	4.2	42
D1732	Altered	6.4	48
D1733	Altered	5.9	42
D1734	Unaltered	3.1	35
D1735	Unaltered	3.6	41
D1736	Unaltered	3.0	27
D1737	Unaltered	5.0	38
D1738	Unaltered	3.8	34
D1739	Unaltered	3.2	29
D1740	Altered	6.3	32
D1742	Altered	3.0	26
D1743	Unaltered	3.5	35
D1744	Unaltered	3.6	42
D1745	Unaltered	5.1	25
D1746	Altered	17.2	67
D1747	Unaltered	7.3	24
D1748	Altered	10.2	60
D1749	Altered	7.0	33
D1750	Unaltered	3.9	33
D1751	Unaltered	5.5	50
D1752	Unaltered	5.1	29
D1753	Unaltered	5.5	38
D1754	Altered	5.9	40
D1755	Altered	9.2	44
D1756	Altered	5.6	38
D1757	Altered	12.8	81
D1758	Altered	3.3	39
D1759	Unaltered	6.6	64
D1760	Unaltered	5.6	40
D1761	Unaltered	5.4	37
D1762	Altered	2.9	35
D1763	Unaltered	4.3	51
D1764	Unaltered	5.0	53
D1765	Unaltered	5.7	55
D1766	Unaltered	5.6	41
D1767	Unaltered	4.7	33
D1768	Altered	90.8	95
D1769	Altered	180.4	99
D1770	Altered	2415.0	99
D1771	Altered	54.5	95
D1773	Altered	62.4	82
D1774	Unaltered	5.0	36
D1775	Altered	6.4	36
D1776	Altered	6.3	40

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1777	Unaltered	4.1	36
D1778	Altered	71.4	77
D1779	Altered	221.0	96
D1780	Altered	166.9	66
D1781	Altered	125.6	80
D1782	Altered	335.0	98
D1783	Altered	259.5	90
D1784	Unaltered	3.7	35
D1785	Unaltered	4.9	46
D1786	Altered	73.5	89
D1787	Altered	514.7	99
D1789	Altered	813.0	91
D1790	Altered	290.8	95
D1791	Altered	246.6	80
D1792	Altered	322.3	96
D1793	Altered	113.4	96
D1794	Altered	184.7	96
D1795	Altered	86.5	76
D1796	Altered	16.9	83
D1797	Altered	2.8	30
D1798	Altered	6.1	39
D1800	Unaltered	2.7	28
D1801	Altered	195.5	90
D1802	Altered	218.0	96
D1803	Altered	1127.0	98
D1804	Altered	98.4	84
D1805	Unaltered	4.1	34
D1806	Altered	2.5	14
D1807	Unaltered	4.3	41
D1808	Altered	5.2	44
D1809	Unaltered	4.4	33
D1810	Unaltered	3.9	31
D1811	Unaltered	3.6	35
D1812	Altered	213.6	95
D1813	Altered	300.8	99
D1814	Altered	184.0	97
D1815	Altered	44.7	30
D1816	Unaltered	3.3	32
D1818	Altered	9.6	60
D1819	Altered	3.0	26
D1820	Unaltered	3.8	40
D1821	Unaltered	6.3	54
D1822	Unaltered	4.3	42
D1823	Unaltered	3.9	33
D1824	Altered	159.6	98
D1825	Altered	50.5	91
D1826	Altered	5.8	6[illegible]
D1827	Unaltered	3.4	44

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1828	Altered	3.1	37
D1829	Altered	3.3	24
D1830	Altered	6.5	35
D1831	Altered	47.8	73
D1832	Unaltered	4.1	23
D1833	Altered	2.7	20
D1834	Unaltered	3.5	24
D1835	Unaltered	4.2	23
D1836	Altered	8.4	37
D1837	Unaltered	5.9	34
D1838	Altered	18.5	57
D1839	Unaltered	3.5	52
D1840	Altered	3.9	48
D1841	Altered	9.6	57
D1842	Unaltered	4.2	36
D1843	Unaltered	4.4	32
D1844	Altered	7.1	48
D1845	Altered	16.5	65
D1846	Unaltered	3.2	32
D1847	Unaltered	3.2	31
D1848	Altered	7.4	44
D1849	Unaltered	4.9	53
D1850	Altered	49.7	63
D1851	Unaltered	10.9	34
D1852	Unaltered	10.1	38
D1853	Altered	4.4	48
D1854	Unaltered	4.7	52
D1855	Unaltered	7.1	49
D1856	Unaltered	7.4	42
D1857	Altered	7.4	46
D1858	Unaltered	5.0	34
D1859	Unaltered	4.6	38
D1860	Unaltered	6.1	38
D1861	Unaltered	4.1	45
D1862	Unaltered	3.6	41
D1863	Unaltered	4.2	40
D1864	Altered	26.6	79
D1865	Altered	69.8	94
D1866	Unaltered	3.7	49
D1867	Unaltered	3.1	41
D1868	Altered	4.3	47
D1869	Unaltered	4.2	42
D1870	Unaltered	6.5	46
D1871	Unaltered	8.6	32
D1872	Unaltered	10.7	29
D1873	Altered	157.5	83
D1874	Altered	6.0	60
D1875	Altered	14.3	84

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1876	Altered	8.0	67
D1877	Altered	21.6	78
D1878	Unaltered	5.0	41
D1879	Unaltered	5.1	41
D1880	Unaltered	2.8	21
D1881	Unaltered	3.7	36
D1882	Unaltered	3.8	29
D1883	Unaltered	4.2	46
D1884	Altered	7.0	59
D1885	Unaltered	4.3	25
D1886	Unaltered	4.7	33
D1887	Altered	9.4	42
D1888	Altered	185.6	89
D1889	Altered	352.3	94
D1890	Altered	312.5	97
D1891	Altered	556.5	97
D1892	Altered	2.9	31
D1893	Altered	28.8	52
D1894	Unaltered	3.1	33
D1895	Altered	244.4	86
D1896	Altered	279.6	93
D1897	Altered	669.0	97
D1898	Altered	856.0	93
D1899	Altered	78.4	75
D1900	Altered	13.8	74
D1901	Unaltered	3.2	28
D1902	Unaltered	4.4	40
D1903	Altered	5.8	33
D1904	Altered	5.8	50
D1905	Unaltered	3.6	26
D1906	Unaltered	3.7	43
D1907	Altered	107.9	93
D1908	Altered	203.3	97
D1909	Altered	2.7	20
D1910	Unaltered	4.3	45
D1911	Altered	5.3	29
D1912	Altered	5.1	32
D1913	Unaltered	3.5	32
D1914	Altered	6.5	59
D1915	Altered	2484.0	100
D1926	Unaltered	3.9	33
D1927	Unaltered	5.3	41
D1928	Unaltered	5.2	60
D1929	Unaltered	5.0	51
D1930	Unaltered	3.9	38
D1932	Altered	13.6	78
D1933	Altered	3.3	35
D1934	Unaltered	3.5	31

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1935	Unaltered	3.8	27
D1936	Altered	2.9	26
D1937	Unaltered	4.5	28
D1938	Unaltered	5.5	48
D1939	Unaltered	5.4	47
D1940	Altered	5.4	42
D1941	Altered	5.9	69
D1942	Altered	174.1	97
D1943	Unaltered	3.8	50
D1944	Unaltered	4.8	39
D1945	Unaltered	4.3	39
D1946	Unaltered	4.9	52
D1947	Altered	20.8	74
D1948	Altered	6.8	60
D1949	Altered	96.9	93
D1950	Unaltered	4.6	46
D1951	Unaltered	3 2	28
D1952	Altered	4.8	46
D1953	Unaltered	3.2	33
D1954	Altered	6.0	40
D1955	Altered	5.9	41
D1956	Altered	7.3	53
D1957	Altered	6.1	56
D1958	Altered	7.4	62
D1959	Altered	7.3	64
D1960	Altered	7.9	52
D1961	Altered	106.9	95
D1962	Altered	112.7	95
D1963	Altered	118.6	95
D1964	Altered	175.0	91
D1965	Altered	433.7	96
D1966	Altered	134.8	95
D1967	Altered	142.3	96
D1968	Altered	132.0	94
D1969	Altered	167.0	95
D1970	Altered	148.0	97
D1971	n/a	115.6	92
D1972	n/a	183.4	86
D1973	n/a	7.9	78
D1974	n/a	4.6	57
D1975	Altered	195.0	98
D1976	Altered	10.6	79
D1977	n/a	83.5	94
D1978	n/a	13.3	62
D1979	n/a	9.8	62
D1980	n/a	7.0	49
D1981	Altered	255.6	89
D1982	n/a	4.6	40

PINEBAY PROJECT - PROJECT 284

COMPILATION OF ALTERATION FILTERS

Sample Number	Hughes Igneous Spectrum	Spitz-Darling Index	Ishikawa Index
D1983	n/a	10.6	68
D1984	n/a	4.2	48
D1985	n/a	85.7	87
D1986	n/a	7.6	44
D1987	n/a	5.2	48
D1988	n/a	7.7	45
D1989	n/a	3.9	36
D1990	n/a	3.4	47
D1991	n/a	42.3	69
D1992	n/a	12.8	56
D1993	n/a	6.0	41
D1994	n/a	88.0	56
D1995	n/a	4.7	41
D1996	n/a	62.0	32
D1997	n/a	3.3	47
D1998	n/a	23.5	74
D1999	n/a	4.3	40
D2001	n/a	22.2	77
D2002	n/a	100.7	93
D2004	n/a	117.4	80
D2006	n/a	515.0	99

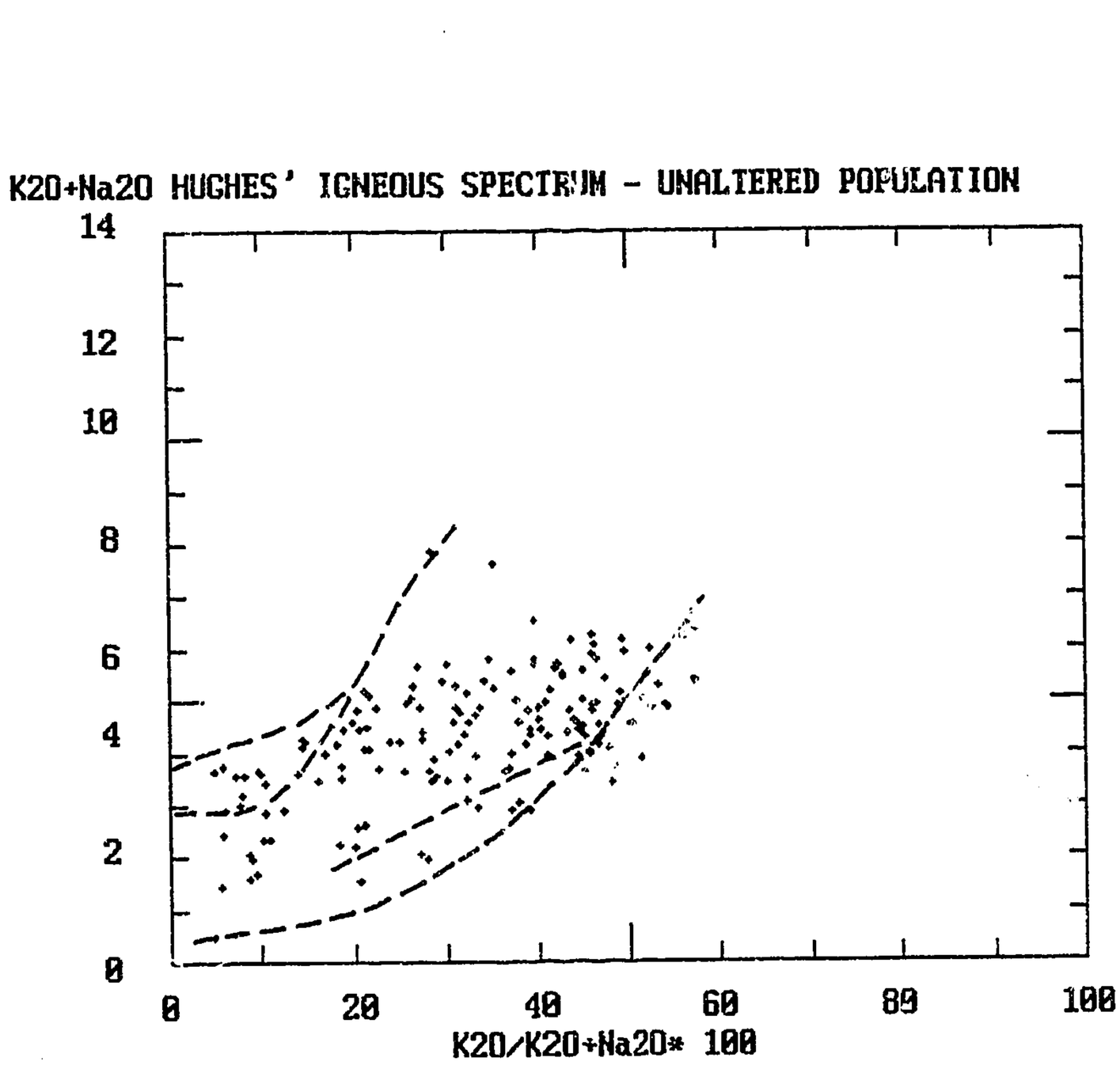

K2O+Na2O HUGHES' IGNEOUS SPECTRUM - UNALTERED POPULATION
14
12
10
8
6
4
2
0
0
20
40
60
80
100
K2O/K2O+Na2O* 100

Figure U-1

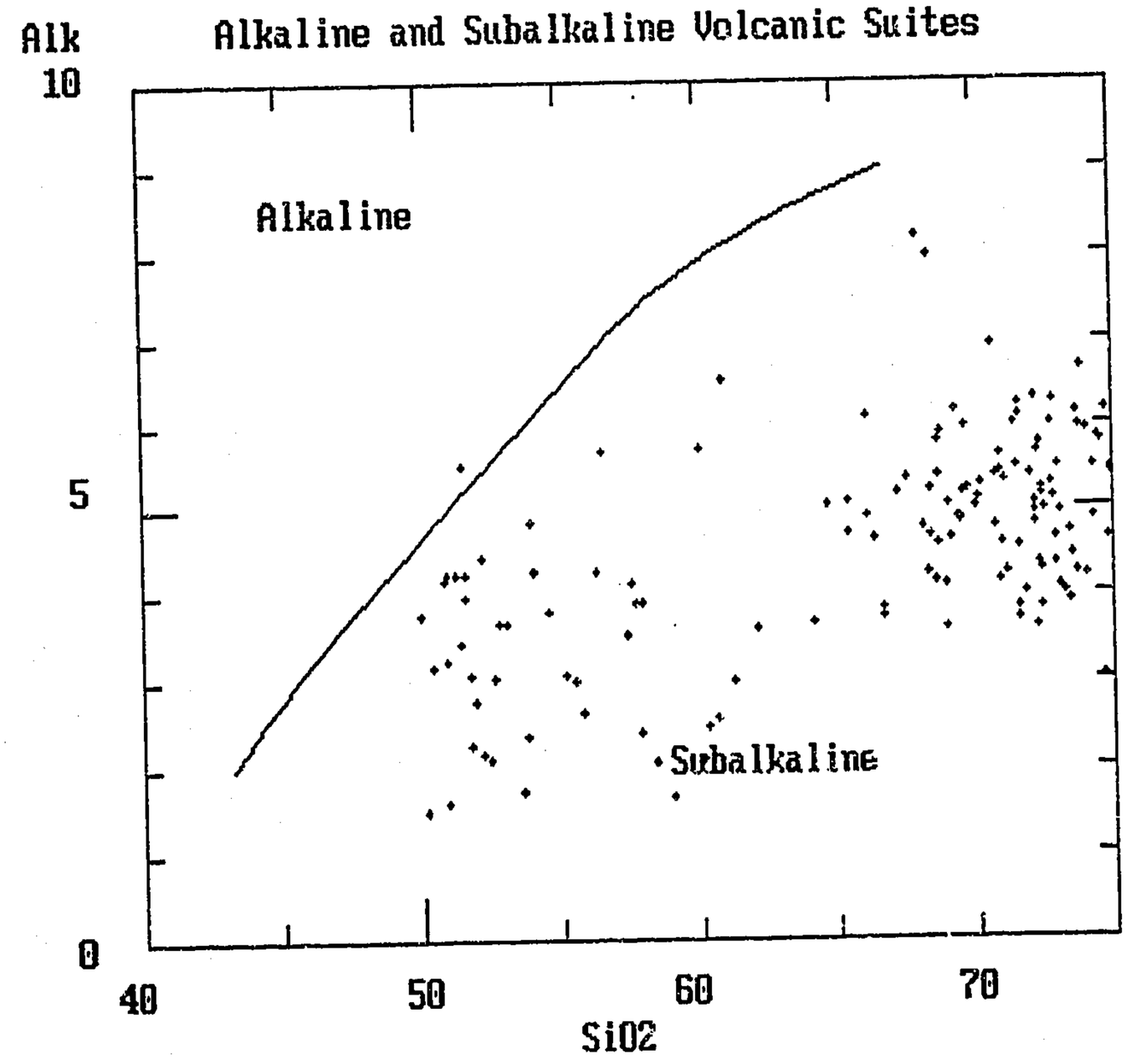
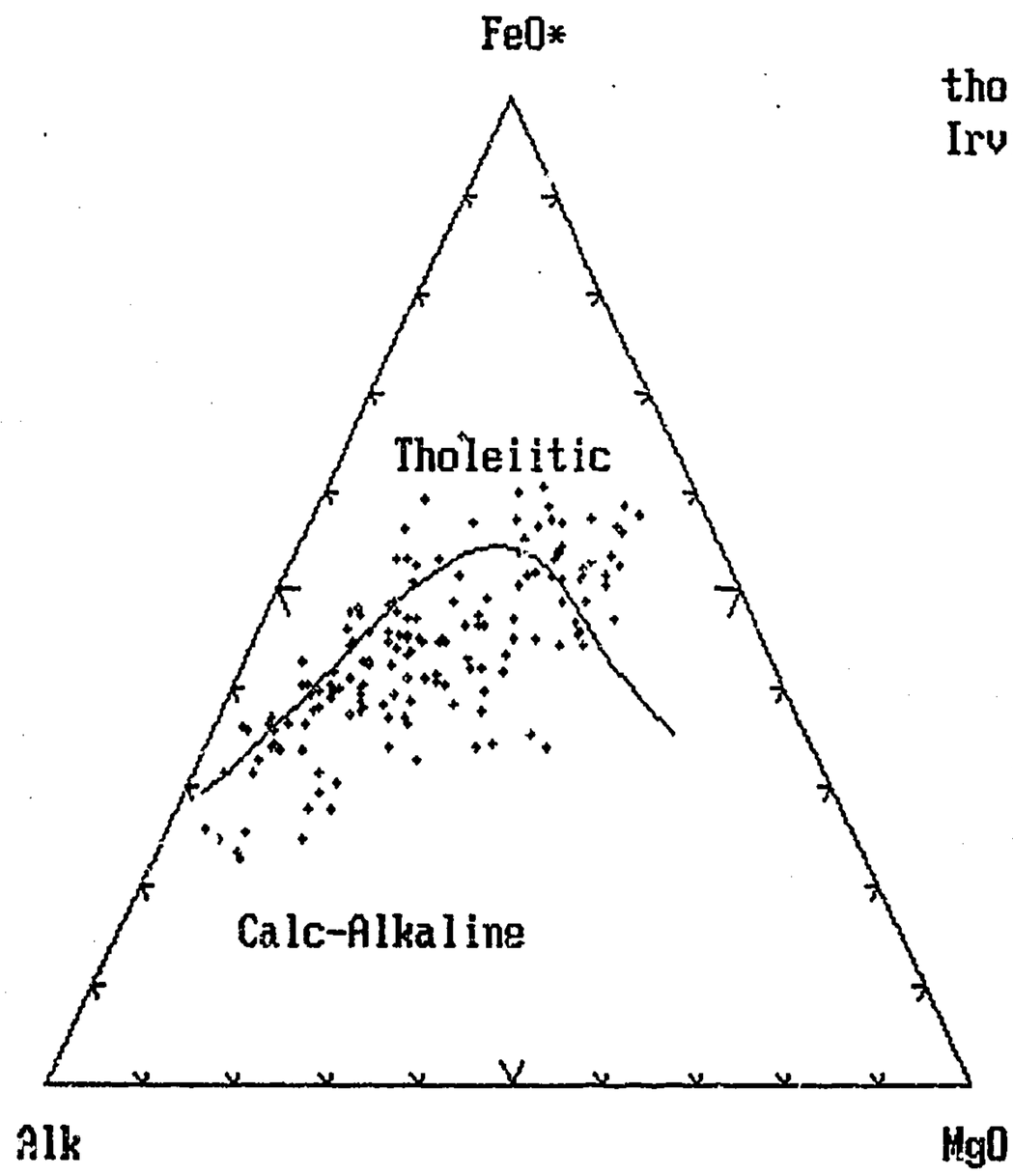
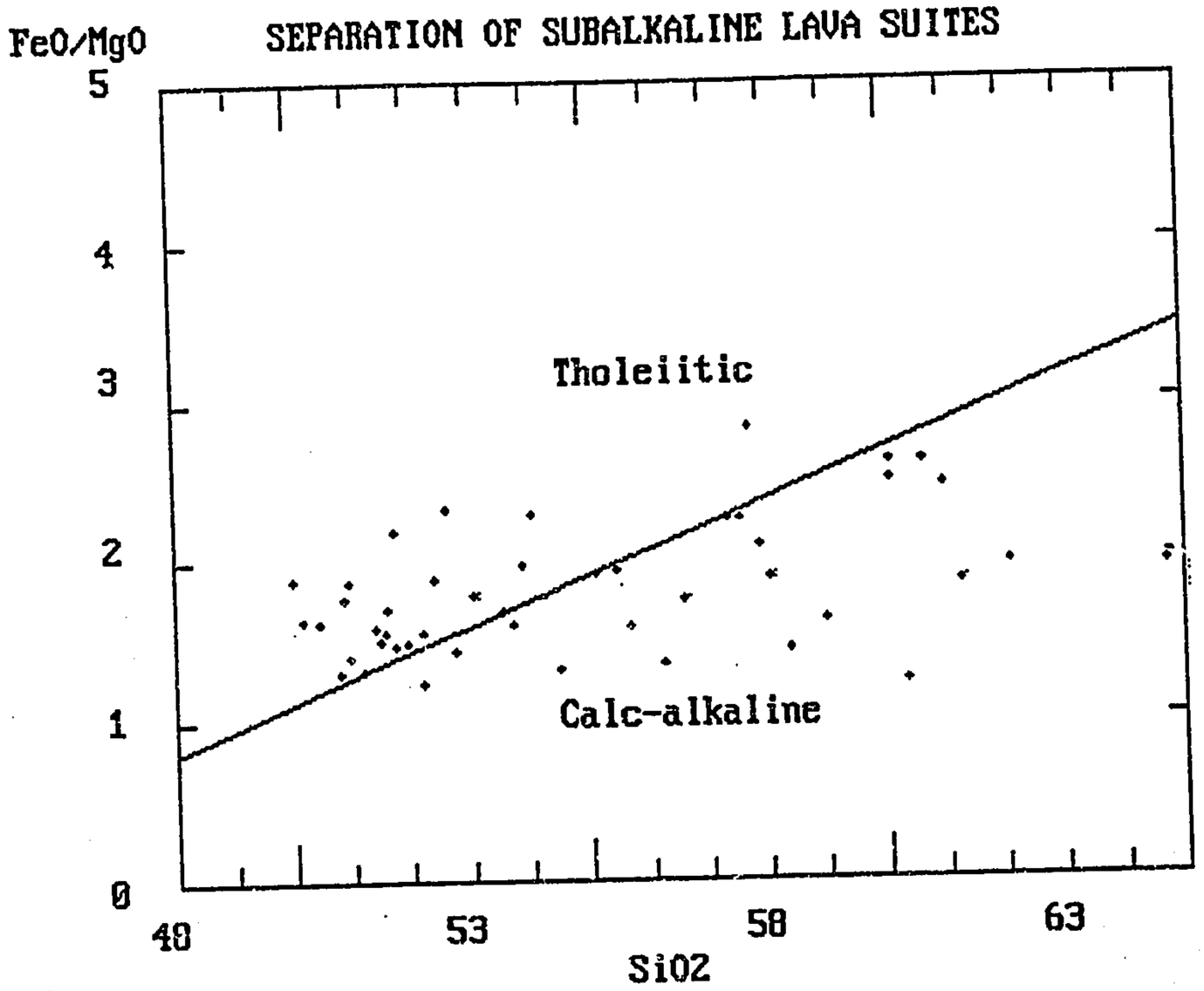

Alkaline and Subalkaline Volcanic Suites
Alk
10
5
0
Alkaline
Subalkaline
40
50
60
70
SiO2

Figure U-2



thol vs calc-alk
Irvine+Baragar 71

Figure U-3



72637

Figure U-4

72637

GEOLOG LOGGING CODE EXPLANATION

Column 1 is a key which indicates the type of data or information on each line.

I - Identity information/data
S or T - Survey data
/ or P - Upper tier geologic data
L - Lower tier geologic data
R - Free form remarks
A - Assay and analysis data

I DATA

Each Drill Hole has two "I" lines at the start.

The first line indicates:

Col. 11 to 16 - ID of Project
Col. 17 to 24 - Drill Hole Name
Col. 29 to 35 - Day/Month/Year Logged
Col. 36 to 38 - Logger's Initials
Col. 39 to 41 - Helper's Initials (if any)
Col. 60 to 62 - Coordinate system
Col. 63 to 68 - Grid Azimuth (0.0 if True North)

The second line indicates:

Col. 5 to 45 - Company Name
Col. 46 to 69 - Property or Project or Sub Project Name

'93 JUL 12 AM 10 11
RECORDING OFFICE
MINES
WINNIPEG, MAN.
216074

S DATA

The S000 or T000 line is the collar survey data. Subsequent S or T Lines (S001, S002, etc.) are down-the-hole surveys.

Col. 5 to 10 - From (a decimal point is inferred between column 8 and 9)
Col. 11 to 16 - To (a decimal point is inferred between column 14 and 15)
Col. 17 to 18 - Units; MT (metres), FT (feet)
Col. 20 to 26 - Total Length
Col. 27 to 32 - Azimuth
Col. 33 to 38 - Dip
Col. 51 to 60 - Northing
Col. 61 to 70 - Easting
Col. 71 to 80 - Elevation

Logging Code Explanation, continued

R DATA

These are free form remarks written by the logger to further describe the geologic interval. Note that Rock Type Codes (see Rock Type Charts are often used.

A DATA

This last type of data lists the assay information for the trench.

Note that remarks are also used.

The first line, A001, defines original samples. A002 defines RQD and Recovery. A003 defines a standard composite set of assays. The following lines describe and list the assay data.

ALAB Col. 17 to 80 - Define Laboratory
ATYP Col. 17 to 30 - Define Type of Determination
AUMM Col. 17 to 80 - Define Assay Fields
A00? Col. 1 to 4 - Defines Sample Type
A001 Col. 5 to 10 - From (decimal inferred between 8 and 9)
Col. 11 to 16 - To (decimal inferred between 14 and 15)
Col. 21 to 26 - Sample Number
Col. 27 to 32 - Silver ppm
Col. 33 to 38 - Gold ppb
Col. 39 to 44 - Copper ppm
Col. 45 to 50 - Molybdenum ppm

CHARTS

1. Rock Type Chart

A four letter code is used to describe rock types. The first four letters of a rock type name is its preferred code. If the fourth letter is a vowel, the vowel is replaced by the next consonant.

Letter Code	Lithology	
OVBD	OVERBURDEN	
BRXX	BRECCIA	
FAUL	FAULT BRECCIA	NOT CURRENT
VEIN	VEIN	
DIOR	DIORITE	

1: Rock

Rock Type

????\PLACE HOLDER ROCK TYPE\
ALTN\ALTERATION\
ANDS\ANDESITE\
ANDY\ANDESITE DYKE\
AN/F\ANDESITE FLOW\
AN/L\ANDESITE SILL\
ANVC\ANDESITIC VOLCANICLASTIC ROCK\
APDY\APLITE DYKE\
AREN\ARENITE\
BAST\BASALT\
BRAF\BRECCIATED, FLOW\
BRPC\BRECCIATED PYROCLASTIC\
BRQZ\BRECCIA, QUARTZ\
BRTF\BRECCIATED, TUFF\
CAVN\CALCITE VEIN\
CASE\CASING\
CHER\CHERT\
CHEM\CHEMICAL SEDIMENT\
CHSH\CHLORITE SCHIST\
CHTF\CHERTY TUFF\
CNTZ\CONTACT ZONE\
CONG\CONGLOMERATE\
CSSH\CHLORITE SERICITE SCHIST\
CSSZ\CHLORITE SULPHIDE STRINGER ZONE\
DCDY\DACITE DYKE\
DC/F\DACITE FLOW\
DCVC\DACITIC VOLCANICLASTIC ROCK\
DIOR\DIORITE\
DYKE\DYKE\
EPIC\EPICLASTIC\
FALT\FAULT\
FFXF\FELDSPAR PORPHYRY\
FLDY\FELSIC DYKE\
FSVC\FELSIC VOLCANICLASTIC ROCK\
FSVL\FELSIC VOLCANIC ROCK\
FTBR\FAULT BRECCIA\
GABR\GABBRO\
GCOR\GROUND CORE\
GOUG\GOUGE\
GRAN\GRANITE\
GRDR\GRANODIORITE\
GRDY\GRANITE DYKE\
GDDY\GRANODIORITE DYKE\
GWAC\GRAYWACKE\
GWTF\GREYWACKE TUFF\
HYAL\HYALOCLASTITE\
IMDY\INTERMEDIATE DYKE\
INTR\INTRUSIVE ROCK\
INVC\INTERMEDIATE VOLCANICLASTIC ROCK\
LAKE\LAKE\
LOST\LOST CORE\
LAMP\LAMPROPHYRE\
MCOR\MISSING CORE\
MFDY\MAFIC DYKE\
MFFL\MAFIC FLOW\
MFVL\MAFIC VOLCANIC ROCK\
MFVC\MAFIC VOLCANICLASTIC ROCK\
MFTF\MAFIC TUFF\
MGSD\MAGNETITE METASEDIMENT\
MSCL\MASSIVE CHLORITE\
MSPR\MASSIVE PYRRHOTITE\
MSPY\MASSIVE PYRITE\
MSSX\MASSIVE SULPHIDE\
MUDS\MUDSTONE\
MYLN\MYLONITE\
OVBD\OVERBURDEN\
PGDY\PEGMATITE DYKE\
PHYL\PHYLLITE\
PPDY\PORPHYRITIC DYKE\
PPFD\PORPHYRY, FELDSPAR\
PPFQ\PORPHYRY, FELDSPAR-QUARTZ\
PPQF\PORPHYRY, QUARTZ-FELDSPAR\
PPQZ\PORPHYRY, QUARTZ\
QFVC\QUARTZ-FELDSPAR CRYSTAL TUFF\
QZDI\QUARTZ DIORITE\
QZIT\QUARTZITE\
QZ/V\QUARTZ VEIN\
QZVN\QUARTZ VEIN\
RD/F\RHYODACITE FLOW\
RDVC\RHYODACITIC VOLCANICLASTIC ROCK\
RHYL\RHYOLITE\
RY/F\RHYOLITE FLOW\
RYVC\RHYOLITIC VOLCANICLASTIC ROCK\
SCHS\SCHIST\
SCR$\SERICITE CARBONATE SCHIST\
SCSH\SERICITE CHLORITE SCHIST\
SEDM\METASEDIMENTARY ROCK\
SHER\SHEARED ROCK\
SRSH\SERICITE SCHIST\
SSSH\SILICIC SERICITE SCHIST\
TUFF\TUFF\
TFBR\TUFF BRECCIA\
TFLP\TUFF, LAPILLI\
TFXT\TUFF, CRYSTAL\
TONL\TONALITE\
TUFT\TUFFITE\
VEIN\VEIN\
VN>>\MACROVEIN\
VOLC\VOLCANIC, UNDIFFERENTIATED\
XTDY\CLASTIC DYKE\

2: mineral

Mineral

AC\ACTINOLITE\
AK\ANKERITE\
AX\AMPHIBOLE\
AA\ANDALUSITE\
BA\BARITE\
BI\BIOTITE\
CA\CALCITE\
CB\CARBONATE\
D:\DOLOMITE\
CL\CHLORITE\
CO\CORDIERITE\
CY\CLAY\
CZ\CLINOZOISITE\
DI\DIOPSIDE\
EP\EPIDOTE\
FX\FELDSPAR\
GA\GARNET\
HB\HORNBLENDE\
KF\K-SPAR\
MF\MAFICS\
MU\MUSCOVITE\
PF\PLAGIOCLASE\
QC\QUARTZ-CARBONATE\
QH\CHERT\
QZ\QUARTZ\
QV\QUARTZ VEIN\
QT\QUARTZ-TOURMALINE VEIN\
MS\SERICITE\
SE\SERPENTINE\
SI\SILICIFICATION\
SL\SILLIMANITE\
ST\STAUROLITE\
TA\TALC\
TO\TOURMALINE\
TR\TREMOLITE\
CP\CHALCOPYRITE\
CU\COPPER\
GL\GALENA\
AU\GOLD\
GR\GRAPHITE\
HE\HEMATITE\
LI\LIMONITE\
MG\MAGNETITE\
MO\MOLYBDENITE\
PY\PYRITE\
PR\PYRRHOTITE\
HS\SPECULARITE\
VG\VISIBLE GOLD\
AC\ACTINOLITE\
AK\ANKERITE\
AX\AMPHIBOLE\
AA\ANDALUSITE\
BA\BARITE\
BI\BIOTITE\
CA\CALCITE\
CB\CARBONATE\
D:\DOLOMITE\
CL\CHLORITE\
CO\CORDIERITE\
CY\CLAY\

3: texture

TEXTURE

AM\AMYGDALOIDAL\
A*\AMYGDALOIDAL\
AP\APHANITIC\
BN\BANDED\
BD\BEDDED\
BX\BRECCIATED\
CG\COARSE GRAINED\
CH\CHERTY\
CR\CRENULATED\
CT\CLASTIC\
KR\CRACKLED\
EP\EPICLASTIC\
EQ\EQUIGRANULAR\
EF\EQUIGRANULAR FINE\
EM\EQUIGRANULAR MEDIUM\
EC\EQUIGRANULAR COARSE\
VF\VERY FINE\
VN\VEINED\
FB\FLOW BANDED\
FO\FOLIATED\
F2\SLIGHTLY FOLIATED\
FG\FINE GRAINED\
FR\FRACTURED\
FX\
FZ\FELDSPAR ZONED\
G;\GRADED-BEDDED\
GL\GRANULOSE\
GN\GNEISSIC\
GT\GRANITIC\
GR\GRAPHIC\
GY\GREASY\
HO\HOMOGENEOUS\
HT\HETEROGENEOUS\
IB\INTERBEDDED
LP\LAPILLITIC\
LL\LOCALLY LAMINATED\
LM\LAMINATED\
IM\IMBRICATED\
MG\MEDIUM GRAINED\
MX\MASSIVE\
PN\PANIDIOMORPHIC\
PA\PATCHY\
PG\PEGMATITIC\
PH\PHYLLITIC\
PP\PORPHYRITIC\
PB\PORPHYROBLASTIC\
PC\PORPHYROCLASTIC\
SC\SCHISTOSE\
SH\SHEARED\
SI\SILICIFIED\
SK\STOCKWORKED\
SV\SUB-OPHITIC\
SY\BEDDED, SYMMETRICAL\
VV\VEINED\
VS\VESICULAR\
VG\VUGGY\
WB\WAVEY BANDED\
XN\XENOLITH\
XT\CRYSTAL-RICH\
>>\MACROVEINED\

Structure

4. STRUCTURE

BN\BANDING\
B/\BANDING (STRAIGHT)\
BI\BANDING (IRREGULAR)\
BD\BEDDING\
LA\LAMINATED\
C/\CONTACT (STRAIGHT)\
CI\CONTACT (IRREGULAR)\
CL\LOWER CONTACT\
CT\CONTACT\
CU\UPPER CONTACT\
DY\DYKE\
FL\FAULT\
AX\FOLD AXIS\'
FB\FLOW BANDING\
FO\FOLIATION\
FS\FRACTURE SET\
GN\GNEISSOSITY\
CG\GRADED CONTACT\
JS\JOINT SET\
LM\LAMINATION\
MX\MASSIVE\
S#\SCHISTOSITY\
SH\SHEAR\
SS\SLICKENSIDES\
$/\STRINGER\
V/\VEIN\
VS\VEIN, SULPHIDE\
>>\MACROVEIN\
<<\MICROVEINS\
VC\CALCITE VEIN\
VQ\QUARTZ VEIN\
WB\WAVEY BANDED\
BX\BRECCIA\
XN\XENOLITH\

+Mod

modifiers

AL\ALTERED\
A3\SLIGHTLY ALTERED\
A5\MODERATELY ALTERET\
A7\INTENSELY ALTERED\
BD\BEDDED\
BN\BANDED\
BX\BRECCIATED\
FO\FOLIATED\
F3\WEAKLY FOLIATED\
F5\MODERATELY FOLIATED\
F7\INTENSELY FOLIATED\
FR\FRACTURED\
VF\VERY FINE-GRAINED\
FG\FINE GRAINED\
GR\GRAPHITIC\
LC\LEUCOCRATIC\
LL\LOCALLY LAMINATED\
LM\LAMINATED\
MF\MAFIC\
MG\MEDIUM GRAINED\
CG\COARSE GRAINED\
CH\CHERTY\
KR\KRACKLED\
MX\MASSIVE\
PC\PYROCLASTIC\
PG\PEGMATITIC\
PP\PORPHYRITIC\
SC\SCHISTOSE\
SH\SHEARED\
S3\WEAKLY SHEARED\
S5\MODERATELY SHEARED\
S7\INTENSELY SHEARED\
BI\BIOTITIC\
CA\CALCITIC\
CL\CHLORITIC\
EP\EPIDOTE BEARING\
FX\FELDSPATHIC\
GA\GARNETIFEROUS\
HB\HORNBLENDIC\
KF\K-FELDSPATHIC\
MB\MAGNETITE BEARING\
PF\PLAGIOCLASE BEARING\
PY\PYRITIC\
PR\PYRRHOTITIC\
QZ\QUARTZ BEARING\
MS\SERICITIC\
SI\SILICIFIED\
TO\TOURMALINIZED\
TF\TUFFACEOUS\
7A\LIGHT GREY COLOR\
CS\CALC-SILICATE BEARING\
MU\MUSCOVITE BEARING\
FL\FELSIC\
MO\MOTTLED\
ML\MELANOCRATIC\
VN\VEINED\
XT\CRYSTAL-RICH\

Logging Code Explanation, continued

5. How Chart or H Scale

Symbol	Most Dominant Mode of Occurrence
A	Amygdaloids, cavity fillings
B	Blebs
#	Breccia Fillings
C	Coatings & Encrustations
*	Clasts
D	Disseminations & Scat.x'ls
E	Envelopes
F	Framework Crystals
G	Gouge
H	Halos
I	Eyes, Augen
J	Interstitial
K	Stockwork
L	Laminated/bedded
M	Massive
N	Nodules
O	Spots
Q	Patches, as in quilts'
R	Rosettes & x'tls clusters
S	Selvages
$	Sheeting
T	Stainings, as in tarnish
U	Euhedral
V	Veins
>	Macroveins
<	Microveins
W	Boxwork
X	Massive and/or laminated/bedding
Y	Dalmationite
Z	Fresh, primary rock
+	Flooding

Logging Code Explanation, continued

6. G Scale or Amount Chart

Code	Assigned Value	Range
X	100	100 %
9	90	85 to 99
8	80	75 to <85
7	70	65 to <75
6	60	55 to <65
5	50	45 to <55
4	40	35 to <45
3	30	25 to <35
2	20	15 to <25
1	10	7 to <15
=	5	4 to < 7
+	3	2 to < 4
)	1	.5 to < 2
*	.3	.2 to <.5
(	.1	.05 to <.2
-	.03	.02 to <.05
.	.01	Trace = <.02
0	0	Nil, Absent
/	.07	Present: Estimate impossible
?	0	Possibly Present

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```
IDEN6B0201    284BP 1-92    NQ01AUG92DGM    AMIS AUG92        GRD000.00          0101
IPRJPLACER DOME INC.
                                                BAKER PATTON GRAVITY ANOMALY DRILL TEST
                                                      6071445.00 332835.00     320.04
S000      0    549MT   514.50300.00-66.00
S001    549   3596     514.50300.00-65.00
S002   3596   6096     514.50307.16-63.80
S003   6096   9143     514.50312.63-65.00
S004   9143  12192     514.50313.00-62.00
S005  12192  15240     514.50313.06-61.00
S006  15240  16093     514.50313.06-58.50
S007  16093  18287     514.50313.06-58.50
S008  18287  21336     514.50313.00-57.00
S009  21336  24384     514.50312.66-56.50
S010  24384  27431     514.50312.66-54.00
S011  27431  30480     514.50311.16-54.80
S012  30480  36515     514.50311.66-52.80
S013  36515  48769     514.50313.16-50.50
S014  48769  51450     514.50314.16-48.00
/NAM
LNAM
/SCL          MT.2PC.0
LSCL                PC.0          LCTM
A001
AUMM                              SAMP
A002
AUMM                              SAMP          AU      AG      CU      ZN      MO
A003
AUMM                              SAMP
A004
AUMM                              SAMP
P             0   107             XCASE
PMSV        107  2082             A3XXTDYQZPF   FGXT2528
L                                               5G              77 C      FO     15                D+
R                                               UNIT IS LIGHT TO MEDIUM GREEN, FINE GRAINED,
R                                               DISTINCTIVE FEATURE IS PRESENCE OF EQUANT VITREOUS
R                                               GREY QTZ AND ACTINOLITE GRAINS (3MM, 3%) AND
R                                               (5-10MM, 50%). THIS UNIT IS A RHYODACITIC COMPOSITION
R                                               CLASTIC DYKE. PERVASIVE DISS PY, 1-1.5MM IN DIAMETER.
R           160   167                           BROKEN CORE AT THIS LOCATION, MAY HAVE BEEN SOME
R                                               REGRINDING, PIECES ARE LIMONITIC, WEATHERED. WELL,
R                                               DEFINED FOLIATION.
R          1578  1614                           PYRITE STREAK, 80% PERVASIVE PY
N          1767  2082             FGXRYVCQZMS   SI  28)8       FO     45P4                P3
L                                               YW              79
R                                               QTZ CRYSTAL RHYOLITE TUFF, YELLOWISH-WHITE
R                                               FINE GRAINED. DISTINCTIVE FEATURE IS PRESENSE OF 3%
R                                               1 AND 4-5MM DIAMETER QUARTZ GRAINS, THIS
R                                               UNIT IS THE "TWO QUARTZ RHYOLITE" THIS UNIT HAS LESS
R                                               FELDSPAR GRAINS THAN THE PRINCIPAL INTERVAL.
P          2082  4371             XTXRYVCQZMS   FGXT08=8       FO     30
L                                               YW      FO                                        D1
R                                               UNIT IS EXTREMELY DISTINCTIVE QUARTZ CRYSTAL TUFF,
R                                               TWO QUARTZ RHYOLITE. QUARTZ GRAINS 1-2MM, 3% AND
R                                               3-6MM, 3-4%. RANDOM DISTRIBUTION, GRAINS ARE ALWAYS
R                                               EQUANT IN SHAPE.  MATRIX IS FINE GRAINED,
R                                               VERY SLIGHTLY YELLOWISH WHITE IN COLOUR, ACCOUNTS FOR
R                                               75% OF MODE, 2% PYRITE DISS THROUGHOUT THE MATRIX,
R                                               LOCALLY 20% PY AS BANDS PARALLEL TO THE FOLIATION OR
R                                               AS RANDOMLY ORIENTED NETWORKS OF VEINLETS.
D          2082  3085             XTXRYVCQZMS   XTFG1616       FO     45
L                                               YWPY    BNFO                                      D=
```

project #

Hole #

core size

date

geologist

Drill company

month

grid orientation 72637

UTM Coordinates of drill collar

elevation

SURVEY INFO.

azimuth/dip info from down hole acid tests.

hole length

azimuth

dip

alteration suite

QZPFKFEPACHBCZMSCAD:XXYY
AKTACLLIHEMGPYPRCPSL

scale

meters

2 decimal points.

A001 - whole rock analyses

A002 - assay field.

RQD = Rock Quality Descripter = $\frac{\text{Length of intact core}}{\text{interval}} \times 100\%$

Alteration

Rock type

Remark

20.82m to 43.71m

R
R
R
R
R
R
R
R
R
R

PHENOCRYSTS, PERVASIVE CHLORITIZATION INCREASING
TOWARDS END OF HOLE 5-20% CHLORITE, DEFORMATION WEAK
1-5% PY DISS AND IN STREAKS
SERICITIZATION AND PRESSURE SHADOWS OF QZ AROUND PY
CRYSTALS COMMON IN PY STREAKS.
D4742 10% PY IN STREAKS ASSOCIATED WITH QZ
D4743 10% PY IN STREAKS AND DISSEMINATED

Sample interval in meters

496.69 497.69
506.30 507.30

E.O.H - end of hole

→ sample # + comments.

R
R

- Whole rock samples -

A001	486	547	D4601
A001	1579	1615	D4602
A001	1615	1675	D4603

→ whole rock analyses, not assayed.

program coding — sample interval — sample #

A001	2037	2083	D4604
A001	2083	2140	D4605
A001	2420	2491	D4606
A001	3597	3666	D4607
A001	4371	4430	D4608
A001	5139	5173	D4609
A001	5467	5507	D4610
A001	5907	5937	D4611
A001	6057	6096	D4612
A001	9125	9183	D4613
A001	9448	9500	D4614
A001	9500	9550	D4615
A001	9650	9685	D4616
A001	17340	17400	D4620
A001	19868	19920	D4623
A001	22470	22504	D4625
A001	23185	23246	D4627
A001	25556	25604	D4629
A001	28027	28075	D4633
A001	28800	28850	D4641
A001	32766	32840	D4654

whole rock analyses not assayed for base or precious metals.

R				Au	Ag	Cu	Zn	Mo
A002	10552	10634	D4617	.015	.85	.32	.005	0.0
A002	12050	12100	D4618	.015	.85	.02	.005	0.0
A002	14950	15020	D4619	.015	.85	.01	.005	0.0
A002	17400	17463	D4621	.015	.85	.01	.005	0.0
A002	19375	19400	D4622	.015	2.75	3.23	.005	0.0
A002	20150	20200	D4624	.015	.85	.29	.005	0.0
A002	22625	22789	D4626	.015	2.41	.89	.005	0.0
A002	25169	25215	D4628	.015	.85	.05	.005	0.0
A002	25604	25675	D4630	.015	.85	.02	.005	0.0
A002	25675	25750	D4631	.015	.85	.01	.005	0.0
A002	25750	25825	D4632	.015	.85	.01	.005	0.0
A002	28075	28150	D4634	.015	.85	.01	.005	0.0
A002	28150	28225	D4635	.015	.85	.005	.005	0.0
A002	28225	28300	D4636	.015	.85	.005	.005	0.0
A002	28300	28375	D4637	.015	2.41	.005	.01	.005
A002	28375	28450	D4638	.015	2.06	.005	.01	.03
A002	28450	28525	D4639	.015	.85	.005	.005	.005
A002	28525	28590	D4640	.015	.85	.005	.01	0.0
A002	29061	29112	D4642	.015	3.1	.01	.03	0.0
A002	29112	29162	D4643	.015	3.79	.01	.03	0.0
A002	29228	29256	D4644	.015	3.1	.01	.03	0.0
A002	29653	29723	D4645	.015	.85	.005	.01	0.0
A002	30870	30944	D4656	.015	1.72	.05	.005	0.0
A002	31763	31837	D4647	.015	.85	.1	.005	0.0
A002	31837	31914	D4648	.015	.85	.19	.03	0.0
A002	31914	31992	D4649	.015	2.07	.43	.03	0.0
A002	31992	32069	D4650	.015	4.14	.64	.04	0.0
A002	32069	32143	D4651	.015	.85	.07	.01	0.0
A002	32143	32214	D4652	.015	2.75	.44	.01	0.0
A002	32214	32284	D4653	.015	.85	.1	.005	0.0
A002	33525	33600	D4655	.015	.85	.01	.005	0.0
A002	33600	33675	D4656	.015	1.72	.05	.005	0.0
A002	33675	33750	D4657	.015	1.72	.02	.01	0.0
A002	33750	33825	D4658	.015	.85	.02	.01	0.0
A002	33825	33900	D4659	.015	.85	.07	.005	0.0
A002	33900	33975	D4660	.015	2.75	.27	.05	0.0
A002	33975	34050	D4661	.015	.85	.3	.005	0.0
A002	34050	34125	D4662	.015	4.83	.69	.04	0.0

A002 = geochem assay field. (program coding)

72637

PLACER DOME INC.

Project 284 (Pine Bay option)

Report on the 1992 Geological Mapping and Drilling Program

LAKE ATHAPAPUSKOW, MANITOBA

NTS 063 K/12,13

'93 MAY 25 PM 2 35
RECORDING OFFICE
MINES
WINNIPEG, MAN.
21 4277

LOUIS GAUTHIER
GARY LUSTIG

DECEMBER 1992

SUMMARY

The Pine Bay property (#284), is a block of claims approximately 5 km by 3 km in size situated 16 km east of Flin Flon Manitoba in the early Proterozoic Flin Flon greenstone belt. Placer Dome Inc. has entered an agreement whereby it has the option to acquire 100% of the property for option payments and work commitments. The Pine Bay property hosts three volcanogenic base metal deposits, the Pine Bay deposit is the largest, at 1.2 million tonnes grading 1.5% Cu.

In 1992, the exploration work carried out on the Pine Bay consisted of: a ground gravimetry survey at 100 m spacing, a detailed geological mapping program with systematic sampling for lithogeochemistry (scale of 1 : 5 000), and of four diamond drill holes (total length of 2200 m).

The major findings of this years field work are the following:

1. The gravimetry survey outlined a large anomaly over the small Baker Patton massive sulphide deposit, this anomaly was the focus of the 1992 diamond drilling program.

2. In the southern part of the Pine Bay property, a cherty tuff horizon was found on strike with the Sourdough Bay deposit and the Centennial Mine. An isolated channel 12 airborne EM anomaly, never before drilled, lies in this favorable horizon.

3. Lithogeochemistry has been proven effective in outlining the Pine Bay deposit. A similar lithogeochemical anomaly was defined in the northeast part of the Pine Bay property in the same stratigraphy that hosts the North Star Mine.

4. Drilling in 1992 has successfully tested the down dip extension of the Cabin Zone deposit. A 20 m wide chloritic sulphide stringer zone grading 0.86% Zn over 18 m was intersected. This zone is open at depth and given the width of the sulphide stringer zone, has a good potential to host a large massive sulphide deposit (over 20 million tonnes).

5. Drilling has successfully intersected the down dip extension of the Baker Patton deposit, consisting of two 3 m wide massive sulphide horizons (include 2.4 m grading 0.82% Cu, 0.52 g/t Au, 10 g/t Ag and 1.6 m grading 0.14% Cu, 0.29 g/t Au, 6.13 g/t Ag) within a strongly pyritized sericite schist (25% Py, 50% Ser.).

6. Down hole Transient EM has proven to be very effective in extending the area of influence of each diamond drill hole. The Baker Patton massive sulphide horizon shows a good response suggesting that it is a continuous "sheet" of massive sulphide extending down dip and up dip from its intersection. A good off hole anomaly was obtained in the Cabin Zone horizon. This anomaly is

interpreted to result from a small (10 000 - 50 000 tonnes), previously undiscovered, massive sulphide lens up dip and south of the intersecting hole.

RECOMMENDATIONS

In 1992, three very well constrained targets for volcanogenic base metal deposits were outlined in three different stratigraphic horizons, each of which is known to host volcanogenic base metal deposits. The priority for 1993 is to test these three targets by dia mond drilling.

A total of 3 000 m of diamond drilling is recommended in order to test the priority targets of the Pine Bay property. A budget of $450 000 is recommended to cover the cost of the diamond drilling campaign on the Pine Bay claims and option payments.

1. On the Sourdough Bay anomaly, a local Max-Min survey (appr. 2 km) should locate precisely the Airborne EM anomaly and give an idea of its depth and orientation. Two diamond drill holes are recommended to test this anomaly (total of 500 m).

2. The Thompson Lake anomaly should be tested by two relatively deep holes (300 m vertical, total of 800 m).

3. On the Cabin Zone hole BP_1-92 should be extended to reach the Cabin Zone at a vertical depth of 550 m (total of 200 m). Two holes should test the down dip extension of the large chlorite-sulphide stringer zone outlined in 1992 (total of 1500 m).

Down hole Transient EM should be conducted after completion of each hole. Systematic sampling (every 20 m) for whole rock lithogeochemistry should be done in every hole.

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Section Hole BP_3-92
Section Hole BP_4-92

Sample Location

1.0 INTRODUCTION

This report presents the results of the mapping program and of the diamond drilling program carried out on the Pine Bay property in the summer of 1992. The Pine Bay property consists of contiguous sets of claims that extend 5 km north-south and 2 km east-west, located 16 km east of Flin Flon in northern Manitoba. This report is intended to be a logical follow up of the "1991 comprehensive final report" that summarized the compilation and mapping program undertaken on the Pine Bay group of properties in 1991 (this report will be referred to as "the 1991 report").

The 1992 summer mapping program was carried out by geologists Dave Mallalieu, Greg Evancio and Louis Gauthier from June 2nd to August 10th; the drilling phase, supervised by Louis Gauthier with assistance of Greg Evancio and Ed Mackenzie (core splitter), started on August 1st and ended on September 13th. Gary Lustig, Senior geologist for PDI, coordinated the mapping and drilling campaigns. Dave Mallalieu was project geologist in charge of the Pine Bay project until August 28, 1992 when he resigned. The author of this report took over as project geologist in charge of the Pine Bay project at that time.

The Pine Bay property is situated about 16 km due east of Flin Flon, Manitoba on the northern arm of lake Athapapuskow (Fig. 1,2). The Pine Bay property is reached via the North Star mine road branching of Highway number 10 that links Flin Flon to Winnipeg.

The property is under option by PDI from A.L. Parres Ltd. of Flin Flon. Placer Dome has the option to acquire 100% of the Pine Bay claims for option payments and a work commitment. The claim numbers and names, for the property are enumerated in Table 1. Figure 2 outlines gross property borders and Figure 3 delineates the claim outline.

The Pine Bay claims have been the object of exploration work since 1919. Extensive exploration effort, consisting mainly of geophysical surveys, drilling and geology, was concentrated mainly around the three deposits discovered on the Pine Bay claims: the Baker Patton deposit (three separate lenses, the larger is 45 000 tonnes at 0.31 g/t Au, 11.5 g/t Ag, 0.47% Cu and 5.75% Zn) was discovered in 1919 by prospecting, the Cabin Zone deposit (72 000 tonnes of 6.9% Zn and 1% Cu) discovered in 1946 by drilling, and the Pine Bay mine (1.18 million tonnes at 1.5% Cu) discovered in 1967 by drilling a surface EM anomaly.

The reader is referred to the 1991 report for a detailed history of previous work on the three properties.

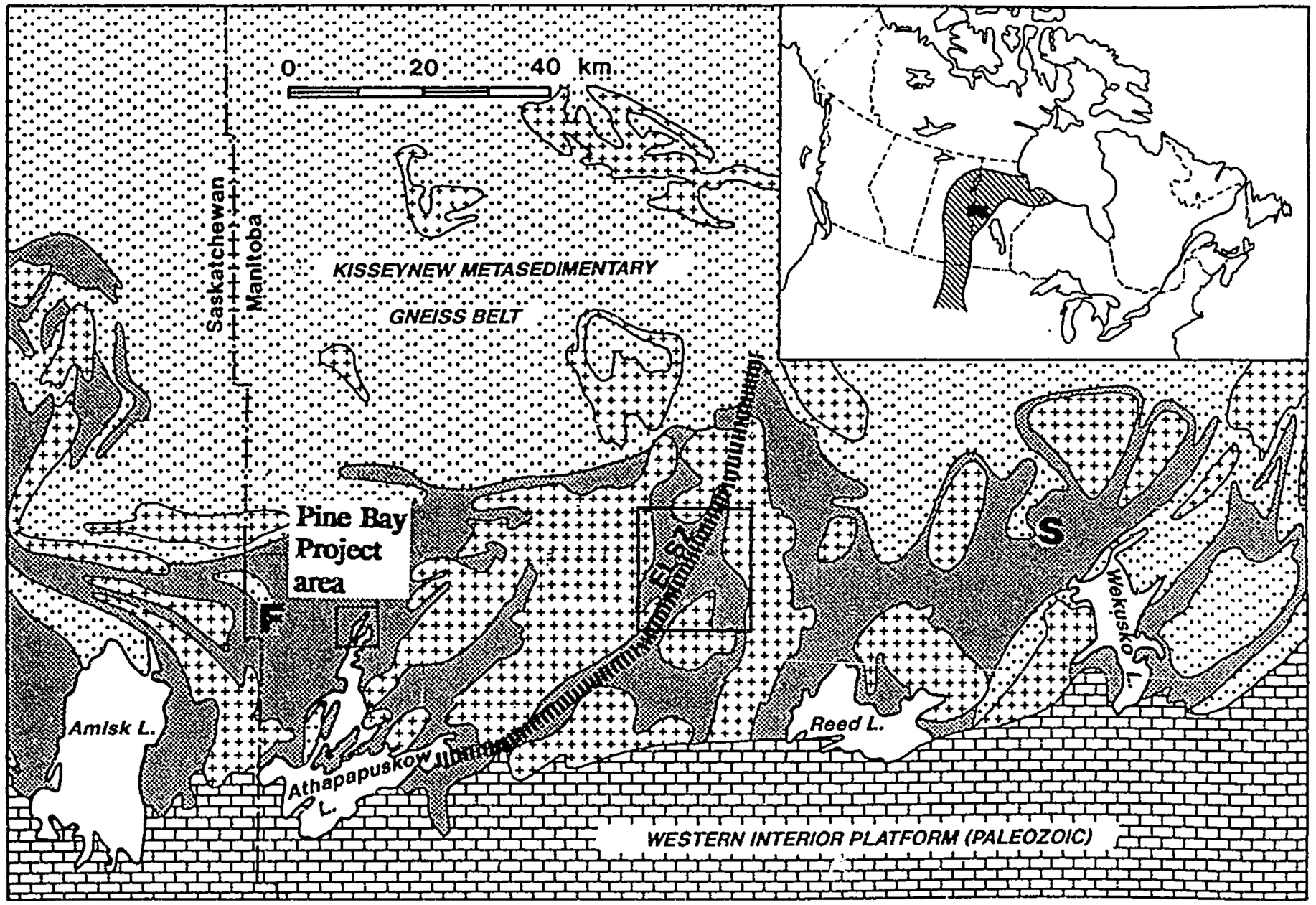


Figure 1 *Simplified geological map of the Flin Flon belt with location of the* **Pine Bay project area** *F - Flin Flon; S - Snow Lake; ELSZ - Elbow Lake shear zone. Inset diagram shows location of Flin Flon belt within the Trans-Hudson Orogen (diagonal lines).*

TABLE 1

Pine Bay - Project 284, Listing of Claims on Explored Area Lease No. 35

Lease No.	Claim Name	Claim No.	Lot	Group
928	Little Bear	30886	614	421
M-1061	Ago	29474	606	421
M-1062	Alder	29632	611	421
M-1064	Neo	29473	607	421
M-1126	Olive	29634	609	421
M-2640	Zero	P.4191	2961	421
M-2641	Mince	P.4202	2960	421
M-3669	M.P. Fr.	P.9127	3205	421
M-3670	M.P. 1 Fr.	P.9128	3203	421
M-3673	M.P. 14	P.9134	3209	421
M-3679	M.P. 21	P.11960	3225	421
M-3732	M.P. 11	P.9131	3206	421
M-3733	M.P. 12	P.9132	3207	421
M-3734	M.P. 13	P.9133	3233	421
M-4139	Rayo	29711	615	421
M-9103	Pine 7, 25 Pine 9, 10 Pine 14, 15 Bay 50 Fr.	P.3877C, P.3878C, P.3882C, P.3883C, P.4013D, P.3915C, P.76909	3809	421
M-9104	Bay 16	P.3884C	3810	421
M-9105	Bay 19 Fr., 20 Bay 21 Fr., 32 Fr. Bay 51	P.3887C, P.3888C, P.3889C, P.8804C, P.4012D	3811	421
M-9106	Sour 1	P.9044C	3812	421
M-9379	Bay 5	P.3873C	3825	421
M-9499	Bay 3, 4 Bay 6, 7	P.3871C, P.3872C, P.3874C, P.3875C	3844	421
M-9500	Doug 3	P.3383E	3845	421
M-9501	Bay 17, Walt Fr.	P.3667E, P.3885C	3846	421
M-9502	Bay 18	P.3886C	3847	421

P.2809E (unsurveyed)

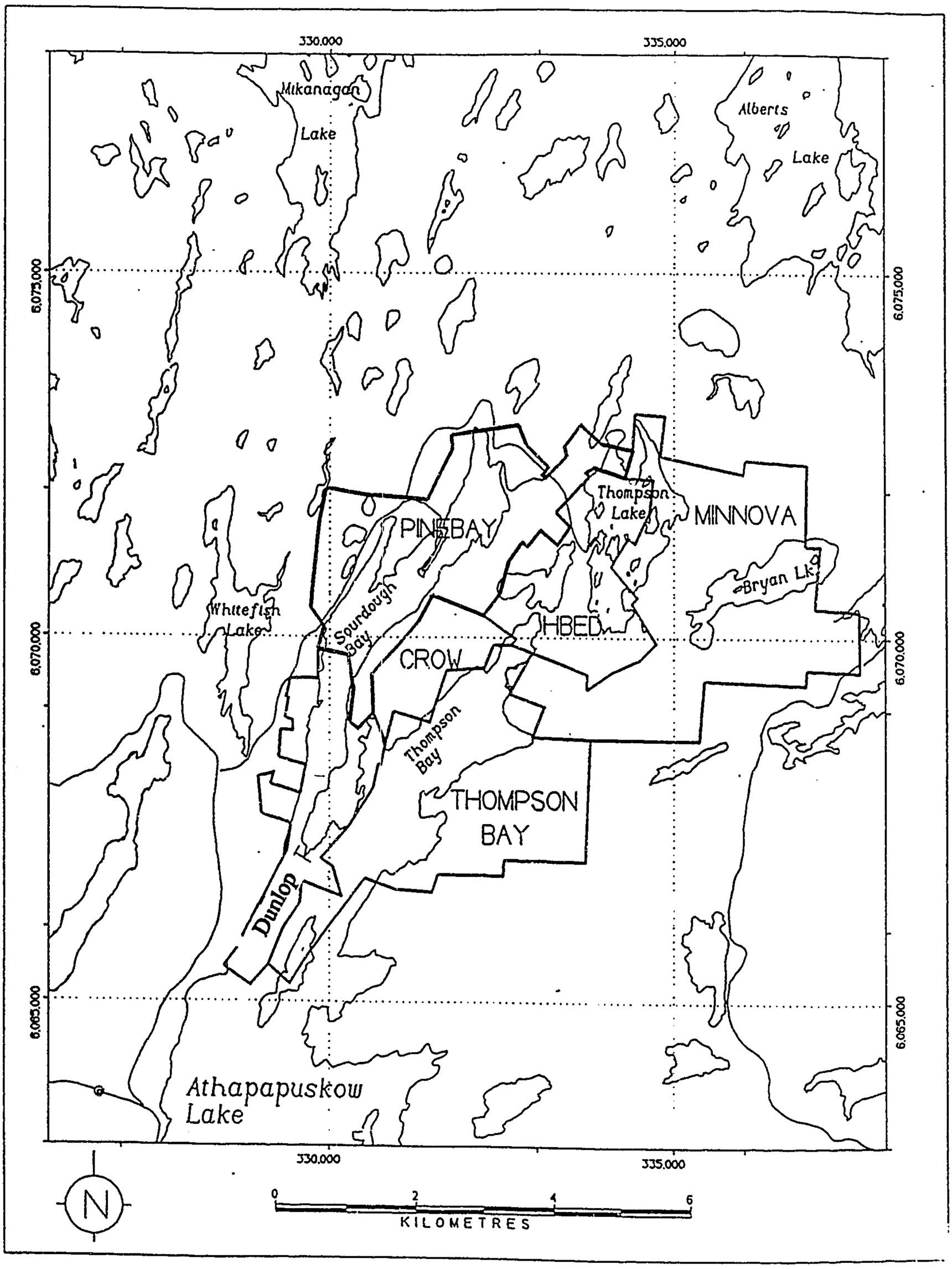


Figure 2, Outline of Pine Bay group of properties and adjacent properties.

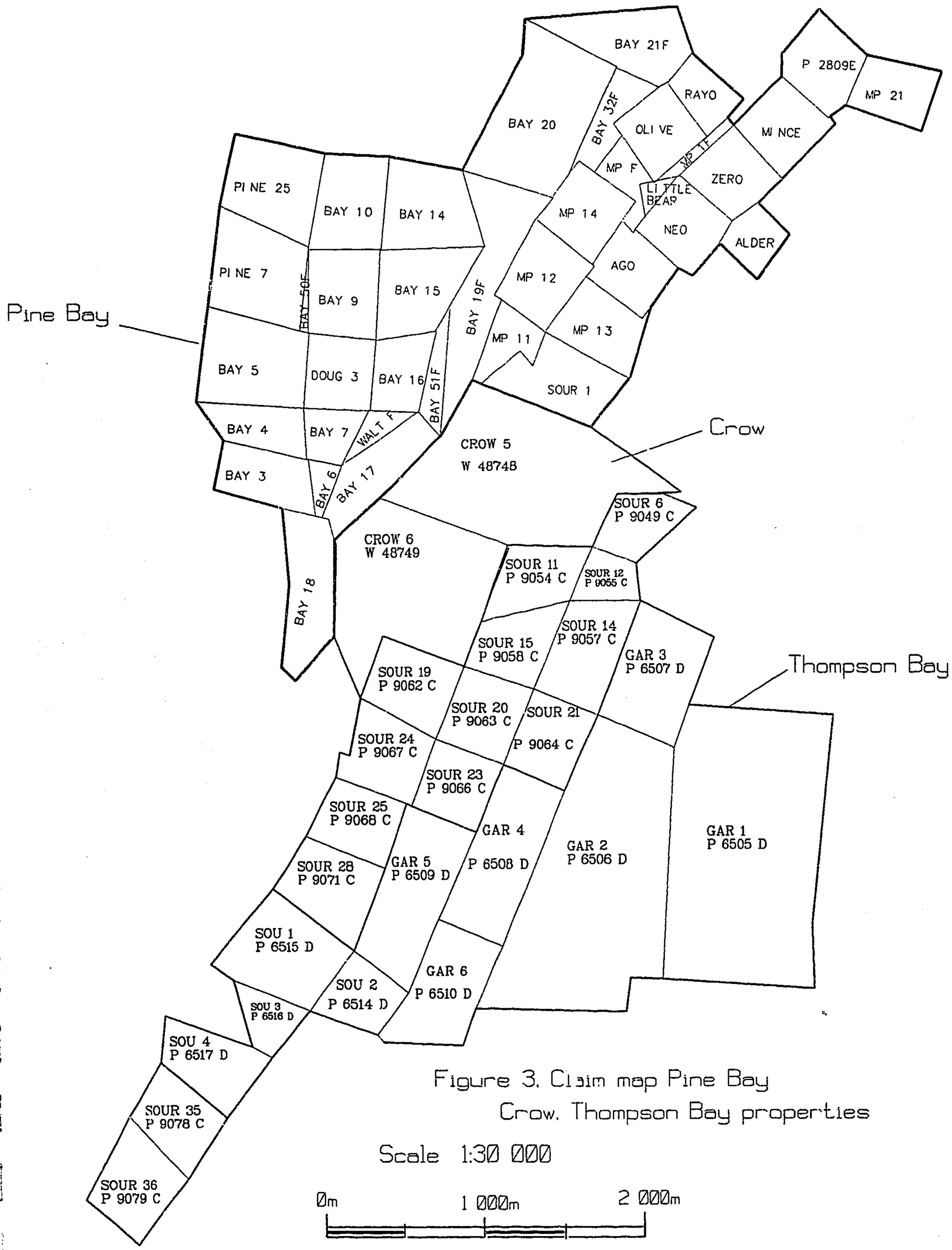


Figure 3. Claim map Pine Bay
Crow, Thompson Bay properties

Scale 1:30 000

2.0 GEOLOGY

2.1 Regional geology

The Pine Bay property is situated within the early Proterozoic Flin Flon greenstone belt, which is part of the southern Churchill Structural Province and is an element of the Trans-Hudson Orogen (Hoffman, 1990). The Flin Flon belt is overlain to the south by a flat lying Ordovician dolomitic limestone basin (Fig. 1), Airborne electromagnetic surveys indicate that the Flin Flon belt extends a considerable distance southward under the Paleozoic limestone cover. The Kisseynew metasedimentary gneiss belt bounds the Flin Flon belt to the north and a gneissic terrain of uncertain origin bounds the Flin Flon belt to the south (Fig. 1; Bailes and Syme, 1989).

The Flin Flon belt is for the most part at the lower greenschist metamorphic grade, the prefix "meta" is omitted thereafter in this report. The stratigraphy of the belt is divided in two distinct groups: The Amisk Group is dominantly a shallow to moderately deep marine deposited basalt and basaltic-andesite volcanic sequence, felsic volcanics form a small part of this Group, the Missi Group is a metamorphosed terrigenous sedimentary sequence dominated by sandstones and conglomerates (Bailes and Syme, 1989). U-Pb zircon ages suggest that volcanism of the Amisk group occurred at 1886 Ma, the Missi group unconformably overlies the Amisk group, it is dated at approximately 1830 Ma. Several intrusions cross-cut the Amisk Group but are not present in the Missi Group, these include: fine to medium grained diorites, small porphyritic felsic stocks and differentiated gabbroic intrusions.

The Amisk Group of volcanics include arc tholeiite, back arc/ocean floor and shoshonitic assemblages. Virtually all of the VMS deposits in the Flin Flon belt are associated with the arc tholeiite assemblage. Back-arc or ocean floor basalts in the Flin Flon belt host only a few, small, copper rich massive sulphide deposits, and consequently have a lower exploration potential than the arc tholeiite assemblage. Back-arc tholeiite assemblages dominate the Amisk Group volcanics in the Flin Flon and Snow Lake areas, whereas back-arc/ocean floor basalts dominate the metavolcanic rocks of Elbow Lake. The shoshonitic assemblage is a very minor component (Syme, 1992).

Back-arc tholeitic basalts are characterized by enrichment relative to N-MORB of Large Ion Lithophile (LIL) elements (K, Rb, Ba, Th, Sr) and depletion of High Field Strength (HFS) elements (Hf, Ti, Zr, Y) and are very depleted in Ni and Cr (Syme, 1992).

The stratigraphy of the Flin Flon belt is mostly north-northeast trending; the structural fabric is dominated by faults. In the Flin Flon area, regional scale faults are interpreted to divide the belt in major stratigraphic blocks where stratigraphy cannot be correlated from one block to the other. Five phases of folding have been recognized in

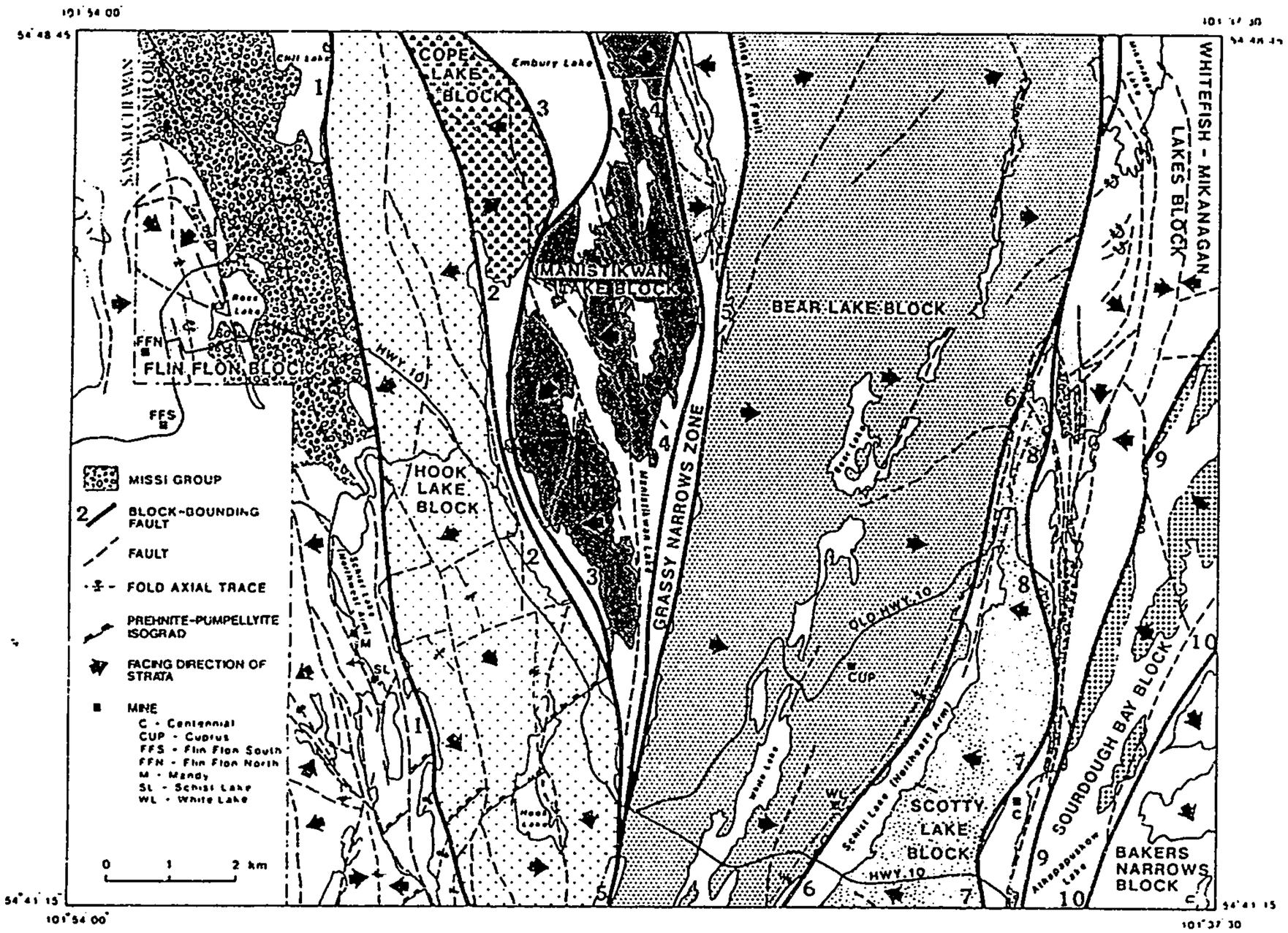


Figure 4 *Structural blocks, major faults and folds, and metamorphic isograds in the Flin Flon-White Lake area. Structure in the Missi Group is from Stauffer and Mukherjee (1971). Block-bounding faults are: 1 — Cliff Lake fault, 2 — Manistikwan Lake fault, 3 — Big Island and Embury Lake faults, 4 — Rosenberg Lake fault, 5 — Inlet Arm fault, 6 — Northeast Arm fault, 7 — Old Highway 10 fault, 8 — Scotty Lake fault, 9 — Sourdough Bay fault, 10 — North Arm fault.*

Taken from Bailes and Syme, 1989

the area (P1-P5); one is pre-Missi and the four others post-Missi (Bailes and Syme, 1989).

The Pine Bay property lies within the Sourdough Bay block (Fig. 4). This block comprises a north-northeast trending, northwest facing, subvertical homoclinal succession composed of mafic to intermediate flows, felsic volcaniclastic rocks and associated felsic dykes, mafic volcaniclastic and sedimentary rocks (Bailes and Syme, 1989).

2.2 Local Geology

2.2.1 Introduction

This section presents the results of the mapping carried out in 1992 on the Pine Bay property. The nomenclature used for the legend is the same as that in the 1991 mapping program with addition of the units not present in the 1991 map area. Although the Legend ascribes successive numbers to each units, they are not necessarily in stratigraphic order. The reader is referred to the geological map included in the report and 1:5 000 scale detailed map appended.

The Pine Bay units will be discussed by geographical areas mapped in 1992 with the intention of "filling the unmapped areas of 1991", for a complete picture the reader is referred to the 1991 report.

The property is underlain by the Amisk Group of volcanic rocks cut by multiple intrusions, the Amisk group is divided into 13 major units, which are subdivided into subunits based on textural or volcanological characteristics. Two main domains underlie the property area, the Baker Patton felsic domain (Unit 1 to 7 on legend, Appendix IV) is an extensive sequence of dacitic to rhyolitic volcaniclastic rocks which covers most of the northeast portion of Pine Bay property. Basaltic to dacitic volcanism dominates the western part of Pine Bay (Units 9 to 13). Unit 8, consisting of exhalative horizons, is singled out because of its relevance to exploration for volcanogenic massive sulphide type deposits.

Several different types of intrusions were identified (Unit 14 to 16). Some of these intrusions are likely synvolcanic, the clastic dykes for instance, but most are clearly post volcanic.

2.2.2 Pine Bay Property

Thompson Lake Area

The northeastern most part of the property, at a small peninsula in the northern part of Thompson lake (Fig. 5), is underlain by a quartz phyric rhyolite breccia, part of the Baker Patton felsic volcanic complex (Unit 1b). This unit is mostly a micro

hyaloclastitic breccia to coarser rhyolitic flow breccia. The matrix of the breccia is strongly chloritic; locally, hydrothermal brecciation may cause the breccia texture. Quartz phenocrysts form 5 to 10% of the rock. This rock unit is identical to the rhyolitic micro-breccias occurring on the North-Star mine peninsula in the immediate stratigraphic footwall of the North Star deposit. Gale (1992) correlates this unit further north with the rhyolitic flow unit hosting the Leo Lake showing and southward with the North Star Mine sequence (Fig. 6). This unit is underlain by the "two quartz rhyolite" crystal rich lapilli tuff (Unit 6 on Fig. 6).

Flintoba Creek area

This area consists of the portion on either sides of Flintoba creek after it takes a North-south swing (Fig. 5). Unit 1c, at the western shore of Thompson Lake on both sides of the gabbro intrusion (Unit 14a), is a massive rhyolitic flow. The weathered surface is light brown and fresh surface is green chloritic. The rhyolite contains 1-5% small quartz phenocrysts and 1-10% small plagioclase crystals; it is massive to flow banded with flow lobes of pillow-like shape and locally 1-5% vesicles.

Unit 1b, stratigraphically overlying Unit 1c, is a rhyolite flow characterized by flow brecciation. The weathered surface is light grey, and the fresh surface medium green with local flow lobes and flow banding. This rhyolite flow contains 1-2% small quartz phenocrysts and 1-5% plagioclase phenocrysts.

Cross cutting Unit 1b, a small clastic dyke (Unit 15c) contains 10-20% rounded and broken up quartz crystals and 1-5% plagioclase crystals in a fine grained felsic matrix.

These units, contrary to their counterparts southward, display weak hydrothermal alteration; the presence of plagioclase phenocrysts is indicative of a weak sericitization. The intense, conformable Baker Patton alteration zone (see section 4) is cut off by an ENE-WSW fault that approximately follows Flintoba creek from Pine Bay and possibly cuts straight across to Thompson Lake (Fig. 5).

Unit 7b along the point of Sourdough Bay is a dacitic to rhyodacitic tuff, it contains 5-10% plagioclase crystals and 1% small quartz crystals, the weathered surface is whitish, the fresh surface is green chloritic. This unit locally contains 1-2% amygdules and is part of the hanging wall sequence of the Cabin Zone deposit.

Area south of the Baker Patton zone

Unit 6a is a dominantly dacitic flow aphyric to quartz-feldspar phyric. It is massive to locally flow banded with lobes; the flows have a brownish colour on weathered surface and a black colour on fresh surface (Fig. 5). Unit 6d, overlying the

previous unit, is a massive aphyric rhyolite flow (white on weathered and fresh surface and locally sericitized).

A clastic dyke (Unit 15c), continuous for at least 400 m, is generally concordant but locally clearly cross cuts Unit 6a. The clastic dyke contains 10-20% rounded and broken quartz phenocrysts in a fine grained siliceous matrix. A late diatreme plug (Unit 16a) cross-cuts the felsic volcanic flows. The term diatreme is loosely used to designate an intrusion breccia rich in heterolithic angular wall rock fragments. The fragments up to several metres in diameter are composed mainly of the surrounding volcanics but locally fragments of iron formation are also present. The foliation within the fragments is randomly oriented and is not developed in the matrix. This indicates that the intrusion is post tectonic. The matrix is formed of pinkish equigranular granodiorite to monzonite. The matrix material is similar to the granodioritic intrusions occurring on the Crow property; both types of intrusions are strongly magnetic, late tectonic, and are likely cogenetic.

Birch Bay peninsula

A cherty tuff horizon (Unit 12e) occurs on a small island between Birch Bay and Pine Bay. It is a well bedded 2 m thick horizon where white aphyric chert beds are interbedded with fine grained siliceous ash tuff; bedding is generally 1 to 5 cm thick (Fig. 7). This unit is in contact to the west with a plagioclase phyric andesitic lapilli tuff. The cherty tuff occurs at a contact between two distinct andesitic tuff units. The one eastward is weakly magnetic whereas the one westward is strongly magnetic. This contact, NNE-SSW to N-S trending, hosts the Sourdough Bay deposit approximately 1.5 km south of the small island where the cherty tuff occurs.

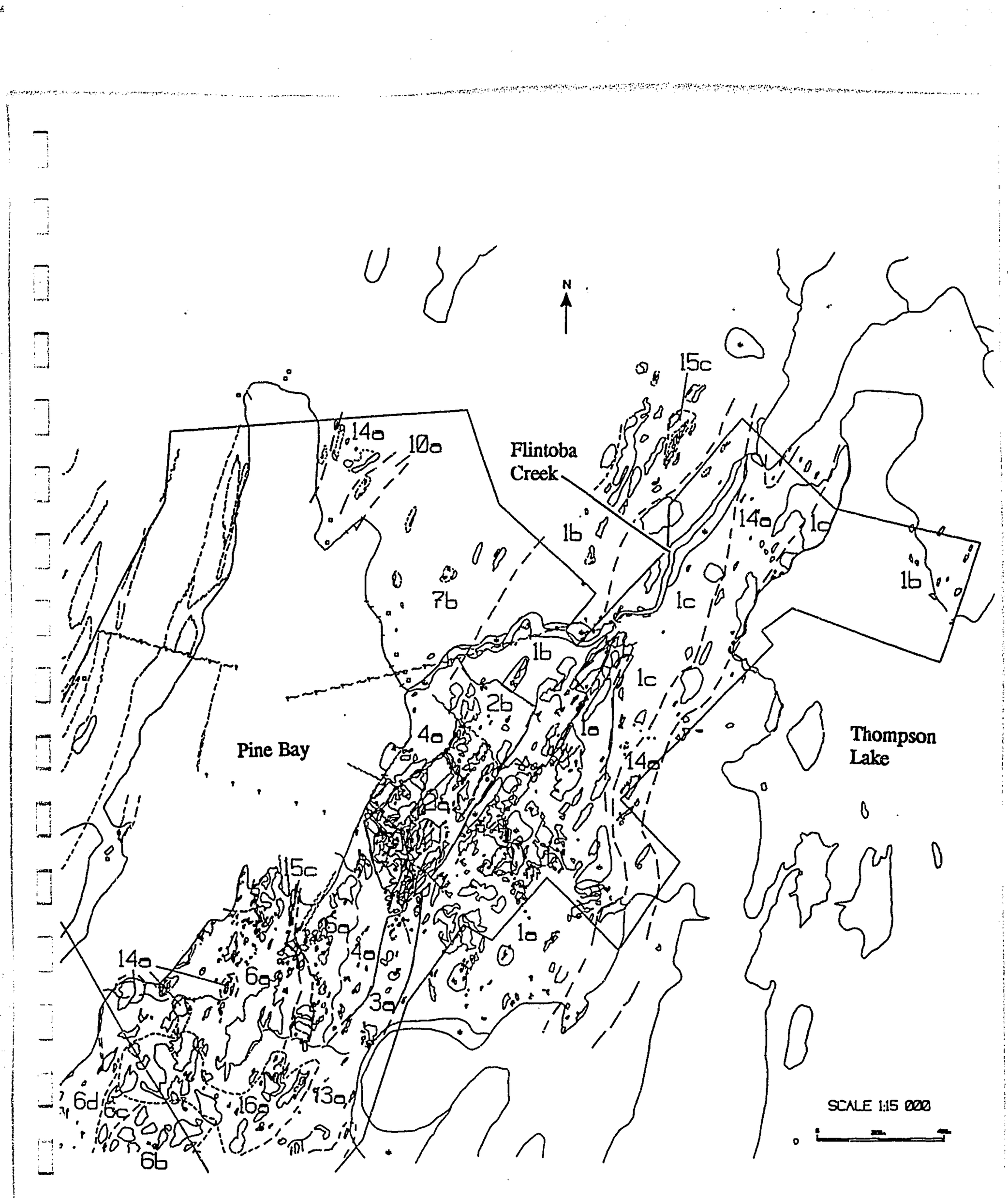


Figure 5 Southeast portion of the Pine Bay property, Legend: 1a "two quartz" crystal rich lapilli tuff, 1b aphyric rhyolite breccia, 1c aphyric rhyolite flow, 2a and 2b rhyolitic and rhyodacitic flows, 3a Heterolithic rhyolite breccia, 4a Rhyolite breccia, 6a aphyric dacite flow, 6b rhyodacitic subvolcanic centre, 6c aphyric rhyodacitic flow breccia, 6d white rhyolite flow, 7b rhyodacitic tuff, 10a vesicular basalt flow, 14a gabbro, 15c clastic dyke, 16a diatreme.

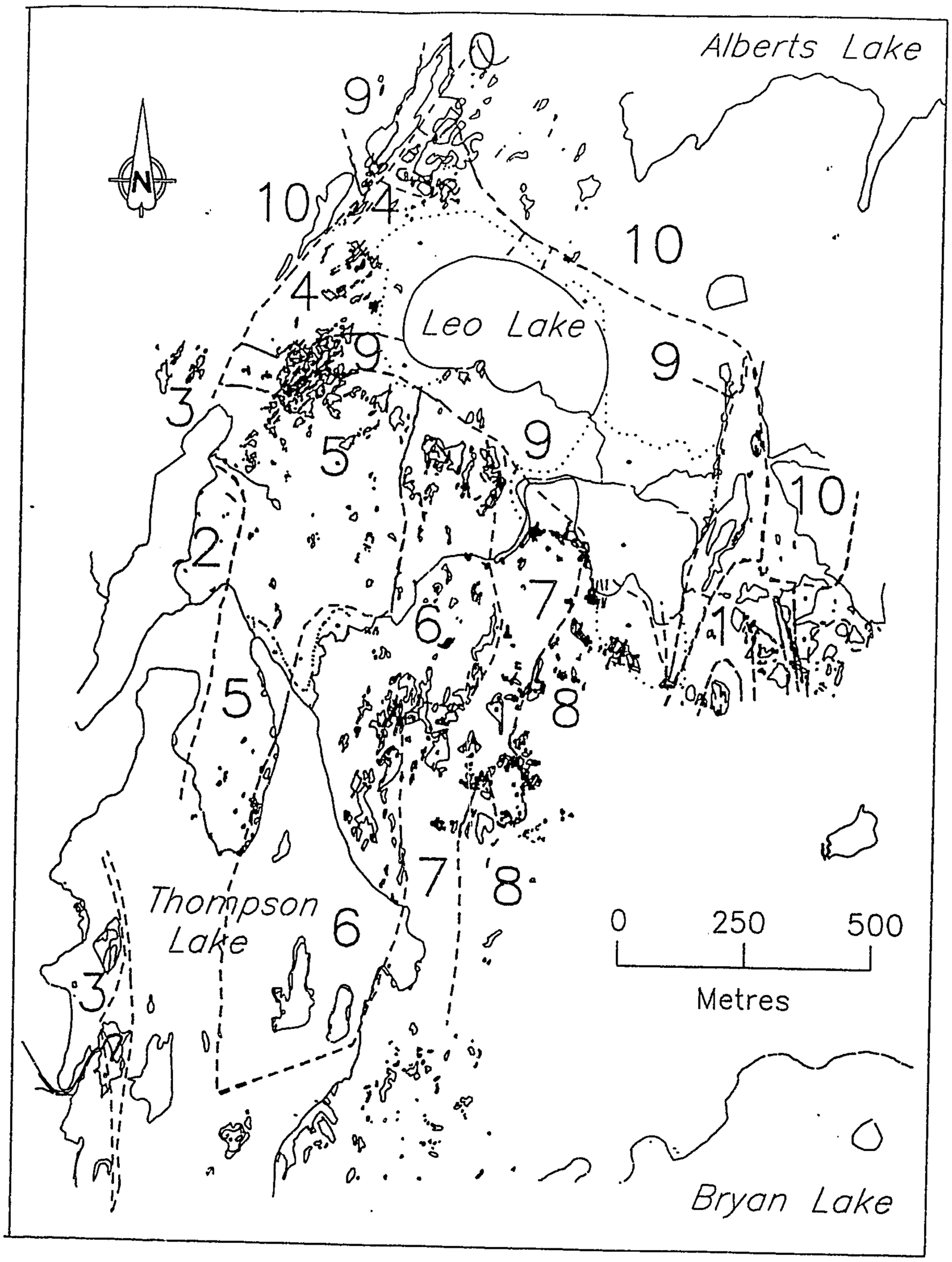


Figure 6 *Geology of the Leo Lake area. Legend: 1) Basaltic flows; 2) Dacitic rocks; 3) Rhyolite flow lobes and microbreccia; 4) Rhyolite flow, massive; 5) Rhyolite - amygdular flows and abundant rhyolite dykes; 6) Rhyolite lapilli tuff, 5-25% quartz crystals; 7) Rhyolite flows, aphyric; 8) Rhyolite flows, quartz and feldspar phyric; 9) Rhyolite dyke, 1 to 1.5 cm quartz crystals; 10) Gabbro.*

taken from Gale et al., 1992

3.0 DRILLING

3.1 Introduction

Four diamond drill holes of NQ size (total of 2281.23 m) were drilled on the Pine Bay property between August 1 and September 15, 1992 by Amisk Drilling Inc. of Flin Flon, Manitoba. The core is stored at the Pine Bay mine site. Down hole Transient EM surveys were done after completion of each hole by Patterson Geophysics of LaRonge, Saskatchewan.

The aim of this drilling campaign was to test a large gravimetry anomaly occurring over the Baker Patton deposit (technical specifications for the drill holes are listed in table 2). The two first holes tested the gravimetry anomaly (BP_1-92, BP_2-92), the third hole tested the down dip extension of a small massive sulphide lens northeast of the Baker Patton deposit (BP_3-92), and the fourth hole tested the extension of the Baker Patton horizon southward from Hole BP_2-92 and the down dip extension of the Cabin Zone deposit (Fig. 9 and appended map, for location of drill holes). Following intersection of a 20 m wide syngenetic sulphide stringer zone in the Cabin zone horizon in Hole BP_4-92, Hole BP_2-92 was extended by 175 m to reach the same stratigraphic horizon.

Table 2
Drilling Statistics

HOLE	Length (m)	Azimuth /dip	Loc.	Cu,Zn Au,Ag Assays	Mo assays	length assayed (m)	% of hole assayed	Sludge samples	W.R samples
BP_1-92	507.30	300/-66	L87+00N 35+50E	126	3	111.68	22.0	0	24
BP_2-92	488.16	295/-65	L86+00N 36+00E	293	194	193.20	39.6	0	24
BP_3-92	496.21	300/-70	L89+00N 36+30E	189	0	119.18	24.0	162	25
BP_4-92	613.87	300/-66	L85+00N 35+50E	134	0	99.05	16.1	201	25
BP_2-92 EXT	175.69			13	0	12.05	6.9	0	9
TOTAL	2281.23			755	197	535.16	23.5	363	108

3.2 Assay results

The four drill holes intersected stringers of chalcopyrite, sphalerite and zones of disseminated chalcopyrite over impressive widths within strongly sericitized and locally chloritized felsic volcanics. All assay results above 0.2% Cu or Zn are summarized in the Tables of Results (Table 3,4,5,6 and 7). In the tables, Tr. (trace) means that the

assay result is below detection limit (<0.01% Cu, Zn, <1.7 g/t Ag, <0.01 g/t Au).

The occurrence of Cu and Zn has been divided into three types:

(1) Remobilized veinlets, consisting of cross-cutting chalcopyrite or sphalerite veinlets typically associated with faulting and quartz veining. The veinlets are composed of Cpy-Py-Qz or Sp-Py, no chlorite alteration is associated with these veins. These widespread remobilisates in Holes BP_1-92 to BP_4-92 are designated as "R vlt" in the occurrence type column of the Assay Result Tables. The occurrence of these remobilisates indicates that the hydrothermal system mobilized a large amount of Cu and Zn, however, the remobilization does not indicate proximity to a massive sulphide deposit.

(2) Syngenetic stringers, consist of concordant chalcopyrite, sphalerite, pyrite, pyrrhotite veinlets or/and disseminations of chalcopyrite associated with intense chloritization. Syngenetic stringer type mineralization is a very proximal indication for the presence of a massive sulphide deposit (Str. in Table of Results). This type of mineralization was intersected in Hole BP_3-92 from 329.0 m to 358.0 m in the down-dip extension of a small massive sulphide lens in the Baker Patton horizon. It was also intersected from 541.9 to 559.15 m in Hole BP_4-92 in the Cabin Zone horizon.

(3) Massive sulphide is defined as an accumulation of 60 to 100% sulphide minerals. Volcanic hosted massive sulphides are typically banded and exhalative type textures are common (MS in Table of Results). Massive sulphide was intersected in Hole BP_2-92 in two 3 m wide sections in the Baker Patton horizon. However, the absence of banding and of exhalative textures in the massive pyrite and the virtual absence of chlorite alteration indicates that the mineralization is of epigenetic type (vein type)

Table 3
Best assay results, Hole BP-1-92

from (m)	to (m)	width (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Occ. Type	Description
105.52	106.34	0.82	0.32	tr.	tr.	tr.	R.vlt	Sericitized lap. tuff, Py v.
193.75	194.00	0.25	3.23	tr.	tr.	2.75	R.vlt	Ser. crystal tuff, cpy vein
201.50	202.00	0.50	0.29	tr.	tr.	tr.	R.vlt	Ser. lap. tuff, 1% cpy diss
226.25	227.89	0.64	0.89	tr.	tr.	2.41	R.vlt	Dacitic dyke, 1% cpy vlts
317.63	320.69	3.06	0.34				R.vlt	Ser. lap.tuff, 1% diss cpy
incl.								
319.14	319.92	0.78	0.43	0.03	tr.	2.07	R.vlt	
319.92	320.69	0.77	0.64	0.04	tr.	4.14	R.vlt	
321.43	322.14	0.71	0.44	0.01	tr.	2.75	R.vlt	Ser. lap. tuff, diss py, cpy
339.00	348.75	9.75	0.59			3.52	R.vlt	Ser. to chl. lap. tuff, 1 to 2% diss cpy
incl.								
341.25	342.00	0.75	0.95	0.02	0.09	5.17	R.vlt	
346.50	347.25	0.75	2.58	0.02	tr.	13.40	R.vlt	
351.00	352.50	1.50	0.45	0.01	tr.	3.45	R.vlt	Ser. chl. lap. tuff diss Cpy
413.50	414.50	1.00	0.78	0.02	tr.	3.49	R.vlt	Thinly bedded cherty tuff, 1-2% cpy in chert breccia
incl.								
414.25	414.50	0.25	2.31	0.03	tr.	6.55	R.vlt	
415.50	416.50	1.00	0.02	0.51	0.06	3.10	R.vlt	Cherty tuff, Sp vlts
432.60	433.60	1.00	0.01	0.74	tr.	2.07	R.vlt	Thinly bedded mudstone, py beds, Sp vlts
435.10	435.70	0.60	0.11	0.60	tr.	4.14	R.vlt	
490.80	492.30	1.50	1.14	0.02		6.08	R.vlt	Chert, cross cutting cpy veins
incl.								
490.80	491.00	0.20	4.87	0.10	0.15	24.10		

Table 4
Best assay results, Hole BP-2-92

from (m)	to (m)	width (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Occ. Type	Description
97.40	99.00	1.60	0.31				R.vlt	Clastic dyke, Cpy veins
139.15	139.85	0.70	0.50	tr.	tr.	tr.	R.vlt	Rhy. lap. tuff, Cpy veins
187.00	187.20	0.20	0.60	tr.	tr.	2.40	R.vlt	Sil. Rhy. flow, Cpy veins
222.70	223.10	0.40	1.93	tr.	0.08	7.20	R.vlt	Clastic dyke, Cpy veins
310.80	313.20	2.40	0.82	tr.	0.52	10.00	MS	Massive Py, 90% Py
incl.								
310.80	311.80	1.00	1.18	tr.	0.59	11.90	MS	idem
332.55	334.10	1.55	0.14	tr.	0.29	6.13	MS	Semi-massive Py, 50% Py
374.70	375.20	0.50	2.02	tr.	tr.	2.60	R.vlt	Clastic dyke, Cpy veins
449.00	462.80	13.80	0.13				R.vlt	Brecc. Rhy. Cpy diss+veins
incl.								
450.55	450.85	0.30	0.90	tr.	0.05	9.00	R.vlt	idem
459.25	459.55	0.30	1.05	tr.	0.09	6.40	R.vlt	idem

Table 5
Best assay results, Hole BP-3-92

from (m)	to (m)	width (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Occ. Type	Description
146.95	147.20	0.25	2.01	tr.	tr.	5.20	R.vlt	Clastic dyke, qz-cpy veins
205.50	206.00	0.50	0.59	tr.	tr.	2.60	R.vlt	Rhy. lap. tuff 0.5% Cpy v.
218.80	219.10	0.30	0.67	tr.	tr.	3.50	R.vlt	Rhy. lap. tuff, 2% Cpy v.
220.50	220.90	0.40	0.97	tr.	tr.	2.80	R.vlt	2% Cpy in qz veinlets
262.65	266.50	3.75	0.59				R.vlt	Brecciated cherty tuff, 1-5% Cpy ass. with qz vlts
incl.								
264.15	264.55	0.40	2.39	0.02	tr.	10.00	R.vlt	
265.25	265.65	0.40	2.24	0.01	tr.	7.50	R.vlt	
329.00	333.80	4.80	0.39	tr.	tr.	2.72	Str.	Chloritized, rhy. lap. tuff, 1-2% Cpy diss.
incl.								
331.00	331.60	0.60	1.01	tr.	tr.	4.40	Str.	
336.90	339.60	2.70	0.29	tr.	tr.	3.21	Str.	Chl.lap. tuff 1% Cpy diss.
352.4	353.30	0.90	0.55	tr.	tr.	2.60	Str.	Idem
355.00	355.60	0.60	0.22	tr.	tr.	2.80	Str.	Idem
356.20	357.80	1.60	0.22				Str.	Idem
incl.								
357.30	357.80	0.50	0.44	tr.	tr.	2.50	Str.	
365.15	366.05	0.90	0.94	1.68	0.24	5.10	Str.	Brecc. rhy. 5% Cpy + qz v
394.40	394.90	0.50	0.35	tr.	tr.	2.20	R.vlt	Rhy. flow, 5% Py, 1% Cpy
444.85	447.35	2.50	0.23				R.vlt	Rhy. lap. tuff, 1% Cpy v
459.90	460.40	0.50	0.25	0.03	tr.	3.20	R.vlt	Rhy. flow, 1% Cpy str.
462.70	463.20	0.50	0.62	0.02	0.03	2.60	R.vlt	Rhy. flow, 3% Cpy str.

Table 6
Best assay results, Hole BP-4-92

from (m)	to (m)	width (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Occ. Type	Description
165.78	166.48	0.70	0.28	0.01	tr.	2.30	R.vlt	Chlor. lap. tuff, 1% cpy veins
196.45	196.95	0.50	0.18	0.03	tr.	3.00	R.vlt	0.5% Cpy in qz veinlets
254.10	254.60	0.50	0.25	tr.	tr.	2.10	R.vlt	Tuff breccia, 5% Py+Po, 0.5%
263.10	263.85	0.75	0.20	tr.	tr.	2.40	R.vlt	Cpy
291.70	292.40	0.70	0.28	0.01	tr.	2.00	R.vlt	Congl. brecc., 15% Po in matr.
306.60	308.65	2.05	0.03	0.39	tr.	2.50	R.vlt	idem
315.25	316.00	0.75	0.01	0.30	tr.	2.50	R.vlt	Cherty tuff, 20% Py, 10% Po
541.9	559.15	17.75	0.04	0.86			Str.	Congl. debris flow, 10% Po
incl.								Cabin Zone horizon,
541.90	547.30	5.40	0.07	1.36			Str.	Chlorite-sulphide stringer zone,
incl.								
545.70	546.25	0.55	0.14	3.63	0.04	2.10	Str.	30-100% pervasive black
547.30	550.20	2.90	0.03	0.28			Str.	chlorite, 5-50% Po+Py, tr.-5%
550.20	554.20	4.00	0.02	1.11			Str.	Sp
554.20	559.15	5.70	0.03	0.40			Str.	str., tr. Cpy.

Table 7
Best assay results Hole BP-2-92 Ext1

from (m)	to (m)	width (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Occ. Type	Description
498.90	499.40	0.50	0.04	0.89	tr.	1.90	R.vlt	Mass. dacite 1% Sp veinlets
513.75	514.25	0.50	0.02	0.51	tr.	2.20	R.vlt	Dac. lap. tuff, 10% Po, 1% Sp
587.00	589.95	2.95	0.05	0.84			Str.	Cabin Zone horizon, 10-40% pervasive chl., 5-20% Py+Po
incl.								
588.25	588.85	0.60	0.08	1.64	tr.	3.00	Str.	tr-3% Sp str.

3.3 Geology

The reader is referred to Appendix I for detailed logs of each hole. The volcanic units intersected by the four drill holes can be divided in three groups, they are from east to west (Fig. 7):

(1) The Baker Patton "two quartz rhyolite" pyroclastic sequence. This sequence is dominantly a crystal rich rhyolite lapilli tuff which contains 10-20% quartz crystals with a characteristic bimodal size distribution (1-3 mm and 5-8 mm). In Hole BP_1-92 and BP_2-92 the matrix of this rhyolitic lapilli tuff is very strongly sericitized (20-50% Ser.). In addition, it contains 5 to 20% pyrite disseminated and in stringers. In contrast, the rhyolitic lapilli tuff in Hole BP_4-92 and BP_3-92 displays less intense sericitization and pyritization. Pyrite associated with pyrrhotite, disseminated and in stringers, represent 1-5% of this unit. In Hole BP_3-92, massive to flow brecciated rhyolite flows containing 5% quartz phenocrysts are interdigitated with the lapilli tuffs.

(2) Stratigraphically overlying the pyroclastic sequence is an epiclastic unit dominated by heterolithic debris flows, thinly bedded cherty tuffs, mudstone beds and lapilli tuffs. In the heterolithic debris flows, the fragments are coarse sand to conglomeratic in size, angular to rounded, and dominantly of felsic volcanic origin with minor mafic volcanic and mudstone fragments. The cherty tuffs and mudstones are generally interbedded. The mudstones are dark green, very chloritic, with locally some fine grained pyrite beds. The cherty tuffs consist of brecciated chert beds 1 to 50 cm thick, interbedded with felsic ash tuffs.

This sequence is important as it represents a period of volcanic quiescence immediately on top of the Baker Patton pyroclastic sequence. The lateral facies changes in that unit is also very significant. In Hole BP_4-92, this unit is dominated by heterolithic and conglomeratic debris flows. In Hole BP_2-92, it is a mix of debris flows, thinly bedded tuffs and cherty tuffs. In Hole BP_1-92, abundant mudstones and cherty tuffs are associated with debris flows (Fig. 7).

The eastward "swing" of the stratigraphy between Hole BP_4-92 and BP_2-92 is probably a paleo-slope associated with a synvolcanic fault. The debris flows in Hole BP_4-92 represent a down slope facies whereas the facies in Holes BP_1-92 and BP_2-92 are indicative of a less turbulent environment, possibly on top of a "dome-type" structure. In Hole BP_1-92, the abundance of cherty tuffs and mudstones and pyrite beds occurring in the chloritic mudstones indicate proximity to a hydrothermal vent.

(3) Stratigraphically overlying the epiclastic sequence is a rhyodacitic unit of flows and tuffs. The flows, massive to flow brecciated, generally contain 5 to 20% quartz grains, 0.5 to 2 mm in size. Progressive sericitization and chloritization occurs with proximity to the Cabin Zone horizon.

Synvolcanic clastic dykes, containing 10 to 20% quartz phenocrysts (2-8 mm in size) cross-cut the volcanic units. Their textures vary from clastic (heterolithic clasts bearing, porphyritic) to medium grained equigranular (dioritic). They are also characterized by chilled margins and multiple injections in the thicker dykes. A 3 m wide clastic dyke occurring in the immediate hanging wall of the Cabin zone horizon. It was previously interpreted as being a crystal tuff "marker horizon" (1991 report). The dyke is clearly subconcordant to stratigraphy between the Cabin Zone deposit and Hole BP_4-92 and can be correlated with surface exposures southward (Fig. 9). Therefore, the well constrained portion of the dyke, is a good marker horizon for the Cabin Zone, but it should not be considered as such northward of the Cabin Zone deposit, where it might very well cross-cut stratigraphy.

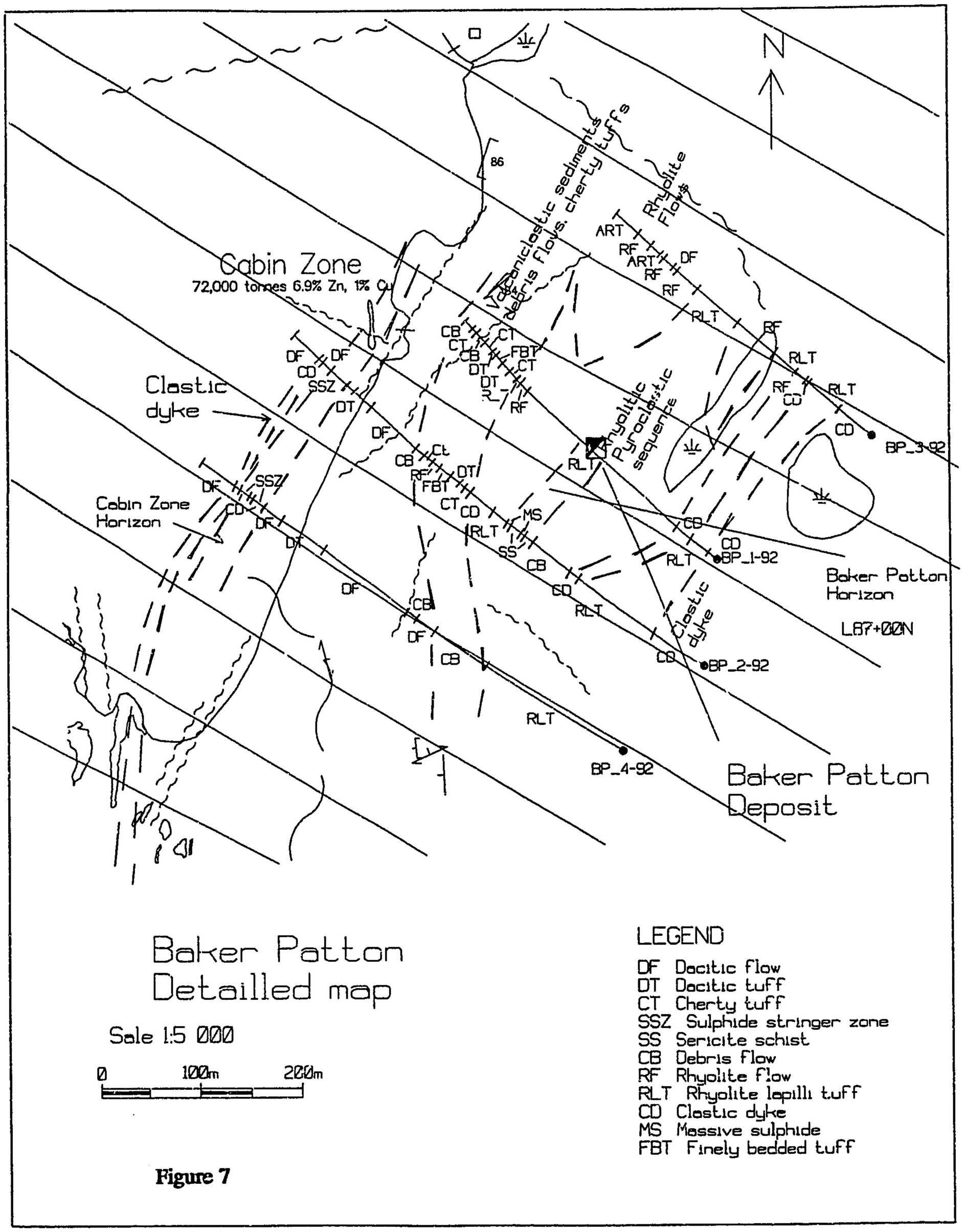
3.3.1 Structure

The Baker Patton volcanic stratigraphy is subparallel to the regional foliation trending North-northeast (030 degree), with the dip being 80 to 85 degree east and is west facing. The strain state of the units intersected varies from weak to strong. Evaluation of the strain state of each unit is provided in the drill hole logs appended. The strain state is divided into three categories:

(1) Weak: No foliation to very discrete; strain markers such as: vesicles, crystals, fragments, display no stretching, fracturation or pressure shadows.

(2) Moderate: Penetrative foliation is well developed; strain markers display obvious stretching/flattening, pressure shadows are common around phenocrysts and pyrite crystals, but fragments and phenocrysts are still preserved.

(3) Strong: Penetrative foliation with partial to complete replacement of primary



Baker Patton Detailled map

Sale 1:5 000

0 100m 200m

LEGEND

DF Dacitic flow
DT Dacitic tuff
CT Cherty tuff
SSZ Sulphide stringer zone
SS Sericite schist
CB Debris flow
RF Rhyolite flow
RLT Rhyolite lapilli tuff
CD Clastic dyke
MS Massive sulphide
FBT Finely bedded tuff

Figure 7

mineralogy through ductile deformation processes (pressure solution, recrystallisation, mylonitization), resulting in the strong dominance of micaceous minerals (chlorite, sericite). The remaining porphyroclasts display pressure shadows, fracturing and rotation; quartz veins (partial strain marker) may be strongly folded and boudinaged.

In general, the strain state of the rocks in Holes BP_1-92, BP_3-92 and BP_4-92 is weak to moderate. Hole BP_2-92 displays much higher strain, fault zones 0.30 m to 30 m wide, occur throughout the hole. The strong foliation in these faults tends to be parallel to core axis suggesting a fault zone running subparallel to the trace of the hole. Quartz veining is ubiquitous within the faults. The clastic dykes are generally more competent than the sericitized rhyolite lapilli tuffs resulting in frequent brittle fracturing and faulting of the clastic dykes. These fractures are commonly filled by quartz veins.

Stretching lineations were measured in a 3 m section of Hole BP_4-92 (310-313 m) in a heterolithic debris flow in which the fragments are very distinctive. The strain state in that interval is in the constriction field of a Flinn diagram where X >> Y = Z. The fragments assume a "cigar" shape contained within the regional foliation, forming a typical LS fabric. The aspect ratio of the fragments in the interval measured is approximatively 4-1-1 (x-y-z). Fifty-four measures of the plunge of the stretching lineation within S1 gave an average of 73 degrees to the south. This value is in agreement with the plunge of the Cabin Zone deposit (Fig. 8).

3.4 Mineralization

3.4.1 Baker Patton

Hole BP_1-92, drilled directly under the Baker Patton deposit, intersected a 10 m wide section of disseminated Cpy (9.75 m of 0.59% Cu) within a strongly sericitized rhyolitic crystal rich lapilli tuff. The southward plunge of the mineralization shows that this hole missed the Baker Patton massive sulphide zone.

Hole BP_2-92 intersected two 3 m wide massive pyrite horizons (2.1 m true width) enclosed within a strongly pyritized (25% Py) sericite schist (2.4 m of 0.82% Cu, 0.52 g/t Au, 10 g/t Ag and 1.55 m of 0.14% Cu, 0.29g/t Au, 6.13 g/t Ag). The grade, width and mineralogy of these massive pyrite intersections are similar to the shallower intersections of the Baker Patton mineralization.

This massive sulphide horizon shows continuity from surface to the 250 m level, and the down hole Transient EM survey indicates that the mineralization extends at depth.

The massive sulphide intersected in Hole BP_2-92 does not display banding and

has very little chlorite alteration and stringers associated. It is probably an epigenetic-type mineralization (vein-type) rather than an exhalative VMS deposition.

3.4.2 Cabin Zone

Hole BP_4-92 intersected a 20 m wide chlorite, sulphide stringer zone (17.75 m of 0.86% Zn) in the Cabin zone horizon at 350 m vertical depth (Fig. 7 and 8). This Hole confirms the extension of the Cabin zone mineralization at depth and to the south. The presence of a wide section of syngenetic sulphide stringer zone indicates proximity to a massive sulphide deposit. An intersection of similar width of sulphide stringer zone in Hole 30-86, 100 m higher and 150 m to the north of the BP_4-92 intersection, indicates very good continuity of the mineralization within this horizon (Fig. 7 and 8).

Hole BP_2-92 was extended, following the encouraging intersection of Hole BP_4-92, to reach the Cabin Zone horizon at a vertical depth of 450 m. The Cabin zone horizon was chloritized and contained Py-Po and sphalerite (0.84% Zn/3 m) but the intensity and width of the mineralization is much less than in Hole BP_4-92.

Hole BP_1-92, targeted to test the Baker Patton horizon, was stopped 125 m short of the Cabin zone horizon. If the hole is extended, it would reach the Cabin zone at a vertical depth of approximately 500 m (Fig.8).

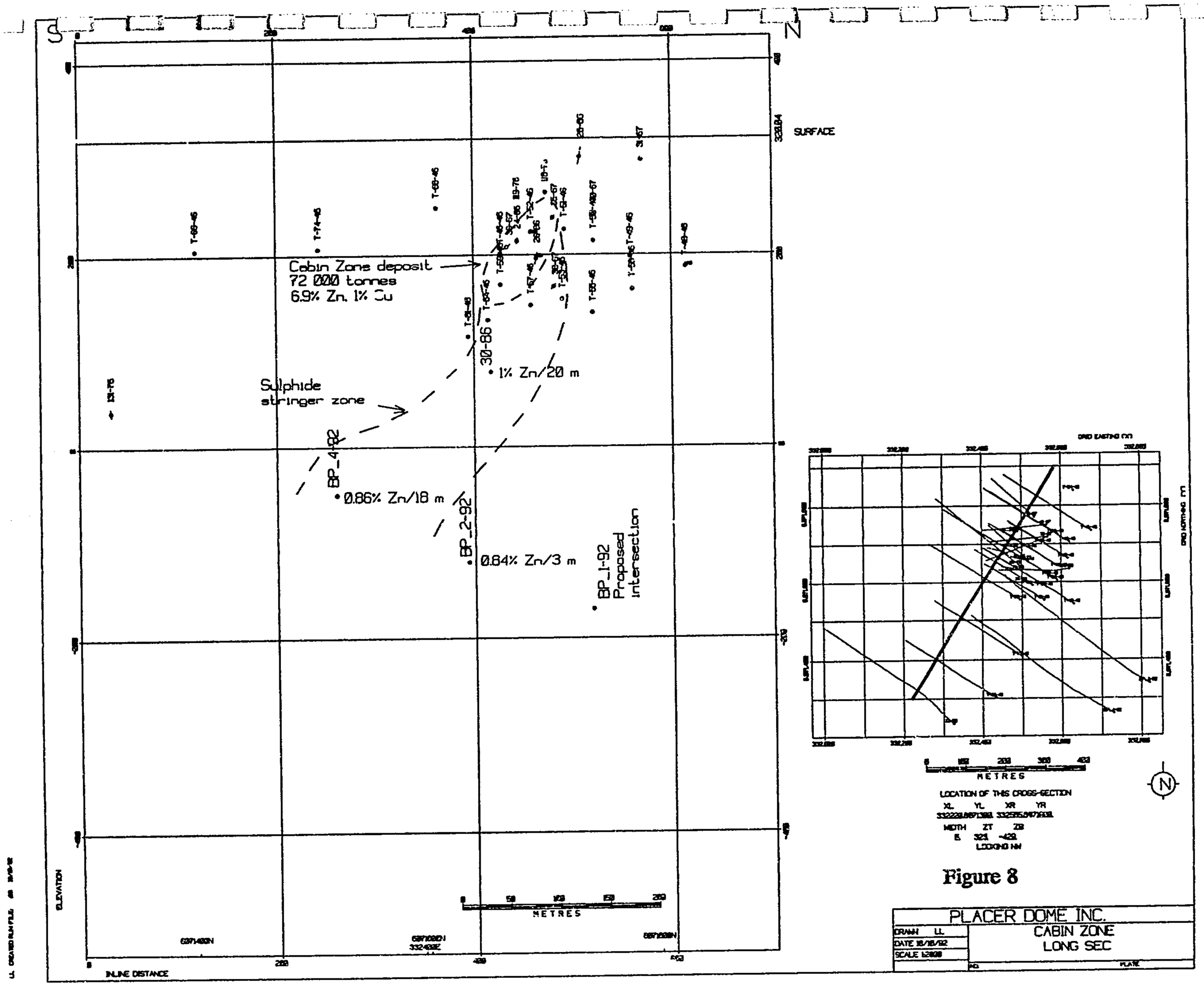


Figure 8

PLACER DOME INC.	
DRAWN LL	CABIN ZONE
DATE 16/10/92	LONG SEC
SCALE 1:2000	
NO.	PLATE

4.0 LITHOGEOCHEMISTRY

4.1 Introduction

Lithogeochemical sampling was carried out systematically in the 1991 exploration campaign both in selected drill holes and on surface outcrops. In 1992, sampling was continued on surface exposures and in the four drill holes drilled in the Baker Patton zone. All samples collected in 1992 were analyzed for major elements and selected trace elements by XRF method at XRAL lab of Don Mills Ont. Lithogeochemical sample data of the 1991 and 1992 campaign were integrated together and will be discussed here without distinction. Lithogeochemistry was used mainly to discriminate between lithological units and to outline alteration zones.

The volcanic rocks of the Pine Bay property form a bimodal suite dominated by felsic volcanics on the Pine Bay ground (dacite to rhyolites) and by basalts to andesites on Thompson Bay (appended map). The basalts are typical Flin Flon arc tholeiites characterized by large contents of large ion lithophile elements (Ba 50-1000 ppm), low content of high field strength elements (Zr 10-100 ppm, TiO2 0.3-1.1 %), and low Cr content (30-100 ppm). The rhyolites are characterized by low abundance of high field strength elements (Zr 80-150 ppm, Y 2-20 ppm), and high Zr/Y (5-40, refer to Appendix II).

4.2 Data quality evaluation

In 1992, 311 samples were sent to XRAL assay lab of Don Mills Ontario; 108 were taken from drill holes and 169 from surface. They were pulverized using an agate mill and analyzed for major oxides and selected trace elements (Cr, Sr, Rb, Y, Zr, Nb, Ba) using the XRF method. An "in house" standard was used to monitor the reliability of the analyses, the standard is a fresh aphyric basalt flow of the Brandywine formation in British Columbia. Thirty-four samples of this standard were sent at regular intervals to the lab (Table 8). Statistics on the standards show a good reliability for major elements analyses. The coefficient of variation (standard deviation/average * 100) on the 10 major oxides varies between 0.88 and 3.92% with an average of 1.8% (Table 9).

For the trace elements, seven obvious data entry errors by the lab were found. This means that 3% of data entry for trace elements were wrong, compared to none for major oxides. Once the data entry errors are removed, Cr and Sr have a coefficient of variation of 4.4 and 4.5% respectively, showing good reliability. Barium (Ba) and Zirconium (Zr) have coefficient of variation of 15.3 and 19.7% which is a relatively high margin of error (standard deviation 21.2 and 17.6). Yttrium (Y), Rubidium (Rb) and Niobium (Nb) show high coefficients of variations (40.6, 44.7 and 51.1%); these results are considered unreliable. The high margin of error for these elements is caused by the content of these elements being very close to or under the detection limit of the Lab (10

ppm, Table 9). In consequence, Yttrium, Niobium and Rubidium results are not used in any ratios or diagrams in the following discussion.

4.3 Hashimoto alteration index

The Hashimoto alteration index:

$$\frac{(MgO+K_2O)}{(MgO+CaO+Na_2O+K_2O)}\times 100$$

was chosen in order to define broad scale alteration zones. This index is very effective in outlining zones of Na, Ca depletions. Alteration pipes associated with base metal deposits are commonly zoned: the core is intensely chloritized (Mg, Fe enrichment, Si, Ca, Na depletion) and the rims of the pipes are sericitized (K enrichment, Na, Ca depletion). The sericitization zone may extend into a large semi-conformable alteration zone (Franklin, 1991). The Hashimoto index does not discriminate between the proximal chloritization zone and more distal sericitization zone. Therefore, this index is used as a first elimination process: the zones of hashimoto higher or equal than 90 are selected as being deeply altered and in these zones mass balance calculations for Mg, Fe and Si is used to indicate proximity to a chloritic alteration pipe.

Three alteration zones of Hashimoto higher than 90 were outlined on the Pine Bay property (numbers refer to Fig. 9):

(1) Directly underlying and overlying the Pine Bay deposit, the alteration zone clearly cross cuts stratigraphy, indicating a highly focused fluid circulation.

(2) The Baker Patton alteration zone is a large conformable alteration zone indicating a widespread fluid circulation caused by high permeability of host rock. The host rock is the Baker Patton "two quartz" rhyolite, a strongly sericitized felsic pyroclastic sequence. The Baker Patton deposit lies within this alteration zone and the alteration zone constitutes the footwall of the Cabin Zone deposit. The four drill holes of the 1992 drill campaign were drilled within this zone.

(3) The Thompson Lake alteration zone occurs in the north-east part of the Pine Bay property. The alteration consists of chloritization within a quartz phyric rhyodacitic flow breccia. The alteration occurs in the footwall stratigraphy of the North Star mine horizon.

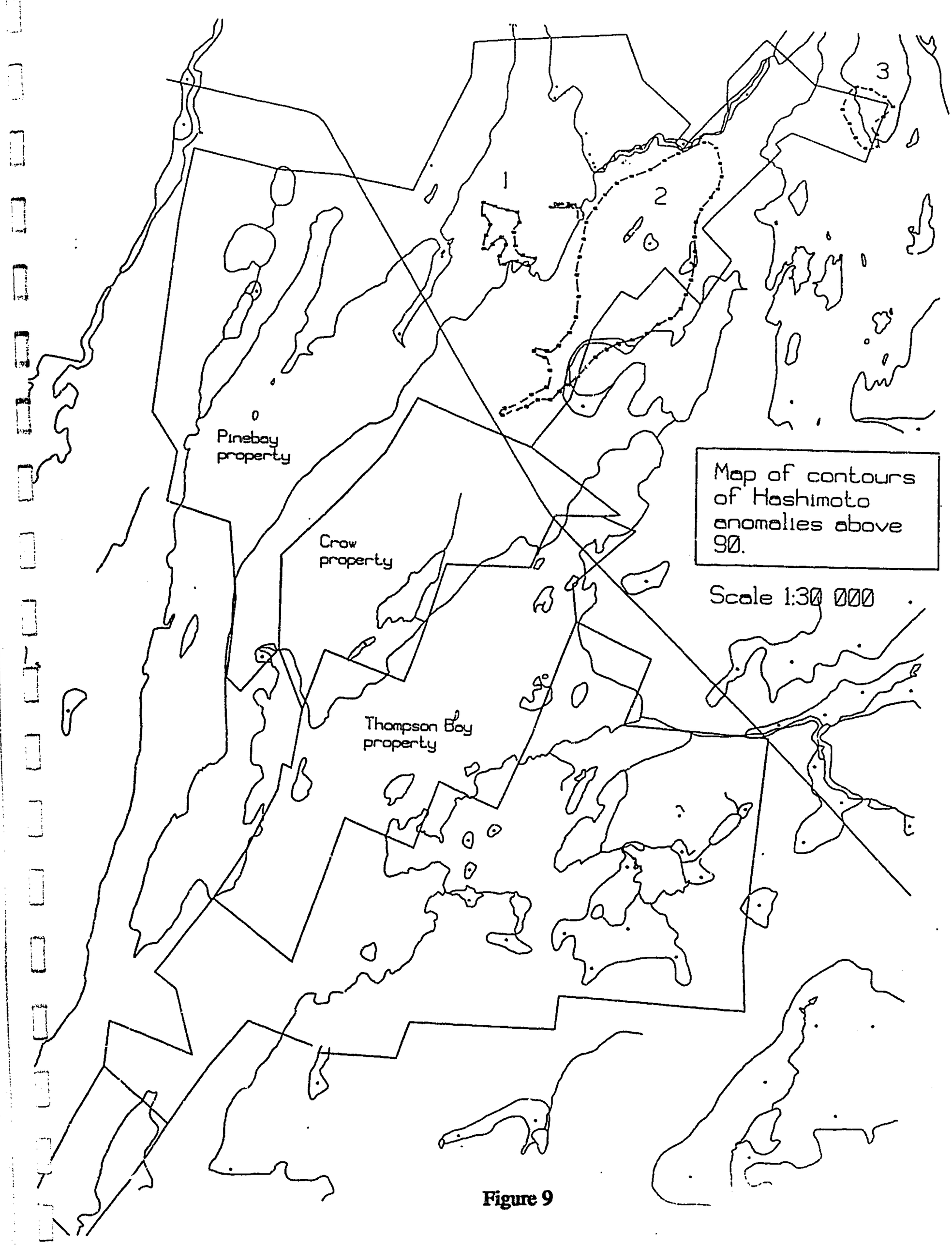

1
2
3
0
Pinebay
property
Crow
property
Thompson Bay
property
Map of contours
of Hashimoto
anomalies above
90.
Scale 1:30 000

Figure 9

Table 8
Standards, Brandywine basalt (British Columbia)

Sample	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
2041	50.9	15.5	8.55	7.13	3.31	0.57	11.3	0.16	1.43	0.24	-0.1	99.1	188	10	474	12	85	39	147
2054	51.4	15.6	8.62	7.2	3.28	0.59	11.4	0.16	1.46	0.24	-0.1	100	194	13	482	15	90	14	171
2090	51	15.5	8.56	7.15	3.27	0.62	11.3	0.16	1.45	0.24	-0.05	99.3	188	10	10	22	184	26	159
2111	51.5	15.7	8.69	7.29	3.31	0.57	11.9	0.16	1.51	0.25	-0.4	100.6	197	10	491	13	107	10	129
2136	51.2	15.6	8.63	7.25	3.36	0.57	11.8	0.16	1.5	0.25	-0.4	100	191	12	494	11	101	10	129
2150	51.2	15.5	8.62	7.26	3.41	0.56	11.7	0.16	1.51	0.25	0.45	99.8	198	14	497	13	101	10	141
2156	51.4	15.5	8.56	7.19	3.41	0.58	11.7	0.16	1.5	0.25	-0.4	100	194	11	494	10	106	10	150
2171	51.5	15.7	8.72	7.3	3.37	0.56	11.8	0.16	1.52	0.25	-0.45	100.6	215	10	510	10	94	10	140
2179	51.3	15.6	8.7	7.21	3.38	0.58	11.7	0.16	1.52	0.25	-0.5	100	196	10	508	13	99	10	140
2194	50.2	15.3	8.52	7.31	3.2	0.56	11.7	0.16	1.48	0.25	-0.3	98.5	188	30	461	18	103	37	148
2590	50.6	15.3	8.56	7.36	3.22	0.54	11.6	0.16	1.47	0.25	-0.6	98.6	191	20	458	10	98	36	114
3612	51.1	15.5	8.67	7.31	3.37	0.55	11.8	0.17	1.49	0.25	-0.45	99.9	192	37	441	10	89	20	138
3627	49.5	15	9.73	7.24	3.24	0.54	11.4	0.16	1.47	0.25	-0.15	98.5	199	36	449	24	104	32	133
3642	50.6	15.3	8.41	7.25	3.3	0.59	11.3	0.16	1.46	0.25	-0.5	98.2	195	20	453	11	121	36	114
3660	50.9	15.5	8.68	7.37	3.35	0.55	11.8	0.16	1.49	0.25	-0.05	100.1	195	10	457	12	95	42	140
3880	50.7	15.4	8.7	7.5	3.4	0.56	11.9	0.17	1.5	0.25	-0.25	99.9	194	13	460	10	88	40	142
3895	50.5	15.4	8.53	7.26	3.25	0.57	11.6	0.16	1.48	0.24	-0.35	98.8	207	10	505	36	241	113	132
3907	51.1	15.4	8.63	7.26	3.27	0.57	11.7	0.16	1.49	0.25	-0.45	99.5	192	11	447	10	89	37	122
3922	50.4	15.2	8.52	7.63	3.28	0.55	11.8	0.16	1.5	0.25	-0.6	98.9	209	15	459	10	248	168	144
3926	50.3	15.3	8.55	7.27	3.21	0.52	11.6	0.16	1.46	0.24	-0.4	98.3	187	19	448	27	83	33	137
3941	50.5	15.4	8.55	7.36	3.18	0.53	11.6	0.16	1.47	0.24	-0.35	98.8	188	157	486	10	49	76	138
3962	50.1	15.4	8.3	7.34	3.2	0.53	11.7	0.16	1.42	0.24	-0.25	98.3	183	21	453	15	97	23	145
3985	50.4	15.3	8.48	7.28	3.23	0.56	11.6	0.16	1.49	0.24	-0.4	98.5	186	19	450	10	91	38	184
4000	50.6	15.3	8.42	7.22	3.23	0.6	11.5	0.16	1.49	0.25	-0.35	98.5	193	13	448	15	99	29	172
4002	51.2	15.5	8.62	7.34	3.34	0.55	11.9	0.16	1.5	0.25	-0.45	100	205	23	466	13	90	33	195
4017	50.3	15.3	8.44	7.27	3.24	0.55	11.6	0.16	1.48	0.24	-0.35	98.3	192	33	456	24	86	30	138
4031	50.5	15.3	8.45	7.34	3.21	0.55	11.6	0.16	1.48	0.24	-0.45	98.5	192	19	452	16	90	34	179
4065	50.7	15.4	8.42	7.27	3.23	0.56	11.6	0.16	1.48	0.25	-0.45	98.8	224	21	467	16	99	29	201
4082	50.7	15.4	8.54	7.45	3.28	0.54	11.7	0.16	1.49	0.24	-0.45	99.2	200	23	472	21	93	49	169
4292	50.4	15.4	8.43	7.42	3.2	0.61	11.5	0.16	1.43	0.25	-0.2	98.7	196	30	448	10	94	40	169
4046	50.9	15.5	8.52	7.61	3.22	0.57	11.8	0.16	1.46	0.25	-0.25	99.9	210	18	461	18	83	40	144
4097	50.5	15.5	8.44	7.34	3.23	0.56	11.6	0.16	1.44	0.24	-0.5	98.6	197	28	431	10	96	30	130
4111	50.7	15.5	8.42	7.33	3.25	0.57	11.4	0.16	1.46	0.24	-0.3	98.8	199	16	475	12	87	12	128
4177	51.1	15.6	8.6	7.32	3.35	0.53	11.8	0.16	1.48	0.25	-0.55	99.8	195	27	466	12	96	27	165
Average	50.8	15.4	8.58	7.31	3.28	0.56	11.64	0.16	1.48	0.25	-0.33	99.2	196	23	454	15	105	36	139

Table 9

Statistics

	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
Variance	0.20	0.02	0.05	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.04	0.5	73.4	610.0	6374	35.5	1565	916.2	450.9
Standard deviation	0.45	0.14	0.22	0.11	0.07	0.02	0.17	0.00	0.02	0.00	0.20	0.7	8.6	24.7	79.8	6.0	39.6	30.3	21.2
coeff. of variation (%)	0.88	0.92	2.61	1.49	2.08	3.92	1.46	1.47	1.68	1.97	-59.66	0.7	4.4	109.2	17.6	40.6	37.6	84.1	15.3

Substracting probable data entry errors

variance	none	none	none	none	none	none	none	none	none	none	none	none	none	64.7	418.3	none	310.1	200.6	none
standard deviation	none	none	none	none	none	none	none	none	none	none	none	none	none	8.0	20.5	none	17.6	14.2	none
coeff. of variation (%)	none	none	none	none	none	none	none	none	none	none	none	none	none	44.7	4.5	none	19.7	51.1	none

4.4 Mass balance calculation

4.4.1 Method

Mass balance calculation is used for two main reasons: (1) to eliminate the effect of volume loss or gains on the mass change of a given oxide and (2) to assure that the rocks compared originate from the same precursor. The method used here is derived from the work of Barrett, Cattalani and MacLean; the reader is referred to MacLean (1990) for a detailed discussion of the Mass change calculation method.

Mass balance calculation method:

(1) Select a least altered equivalent to the altered unit to investigate. The least altered equivalent is selected on the basis of petrography and geochemistry.

(2) To test the homogeneity and lack of alteration the selected samples are plotted on a Zr/Ti graphic. The selected least altered samples should form a cluster of points.

(3) Analyses from the altered unit to be evaluated are plotted on a Zr/Ti graph, all samples should fall on one alteration line that can be traced through the origin. All samples not on the alteration line are not considered for mass balance calculation as they originate from a different protolith. The least altered Zr/Ti value determined earlier should plot on the same alteration line. Points, on the alteration line, higher than the least altered value represent mass loss and those below represent mass gain, relative to the initial protolith (Fig. 10).

(4) The mass balance calculation is done on the selected samples normalized on a 100%, volatile free basis. The value of the oxides to be evaluated are determined in the least altered precursor (LP), the formula for the mass balance calculation of a given sample (S) is the following:

$$\frac{Al_2O_3(S)}{Al_2O_3(LP)} \times \frac{Oxide(S) - Oxide(LP)}{Oxide(LP)} \times 100$$

Note that the ratio of Al2O3(S)/Al2O3(LP) was chosen rather than Zr(S)/Zr(LP) because of the higher coefficient of variation of Zr (19.7%) than Al2O3 (0.92%) in the standards analyzed (Table 9).

Calculation of mass balance for Fe2O3, MgO and SiO2 is particularly important. Barrett and Cattalani (1991) consider that for VMS deposit exploration:

(1) Zones of chlorite alteration in which the original Fe, Mg and Si in the rock have simply been reconstituted to form chlorite through alteration of mafic minerals and feldspar will show near-zero mass changes. These zones are of marginal interest to exploration.

(2) Zones of chlorite alteration in which Fe and Mg have been added to the rock from hydrothermal solutions will show mass gains for Fe and Mg. These zones are of definite interest to exploration.

(3) Zones of chlorite alteration in which Fe and Mg have been added to the rock, but mass loss of Si has also occurred due to a phase of hydrothermal leaching. These zones are excellent targets for exploration.

4.4.2 Thompson Lake alteration zone

The least altered precursor is taken from the rhyolite flows on either side of Flintoba creek, north of the North Star road (Fig.5). The least altered samples have sodium values higher than 3% and LOI lower than 2% (see Appendix III), they form a cluster of point on a Zr/TiO2 diagram proving that they originate from the same protolith and that they were not affected by significant mass gains or mass losses (Fig.11).

Samples from the Thompson Lake alteration zone lie on the same alteration line of a Zr/TiO2 diagram showing that they come from the same precursor (Fig. 12). Overall they show weak mass gains and mass losses relative to their least altered equivalent (Fig. 12).

Mass balance calculations for Mg and Fe show a very strong Mg enrichment and a moderate Fe enrichment relative to the precursor (Fig. 13). Silica does not show significant mobility (Fig. 14). Strong magnesium and iron enrichment is reflected in the mineralogy of this zone where chlorite is pervasive. Chlorite alteration zones are a very good indication of proximity to a VMS deposit; this zone is definitely a high priority target for exploration.

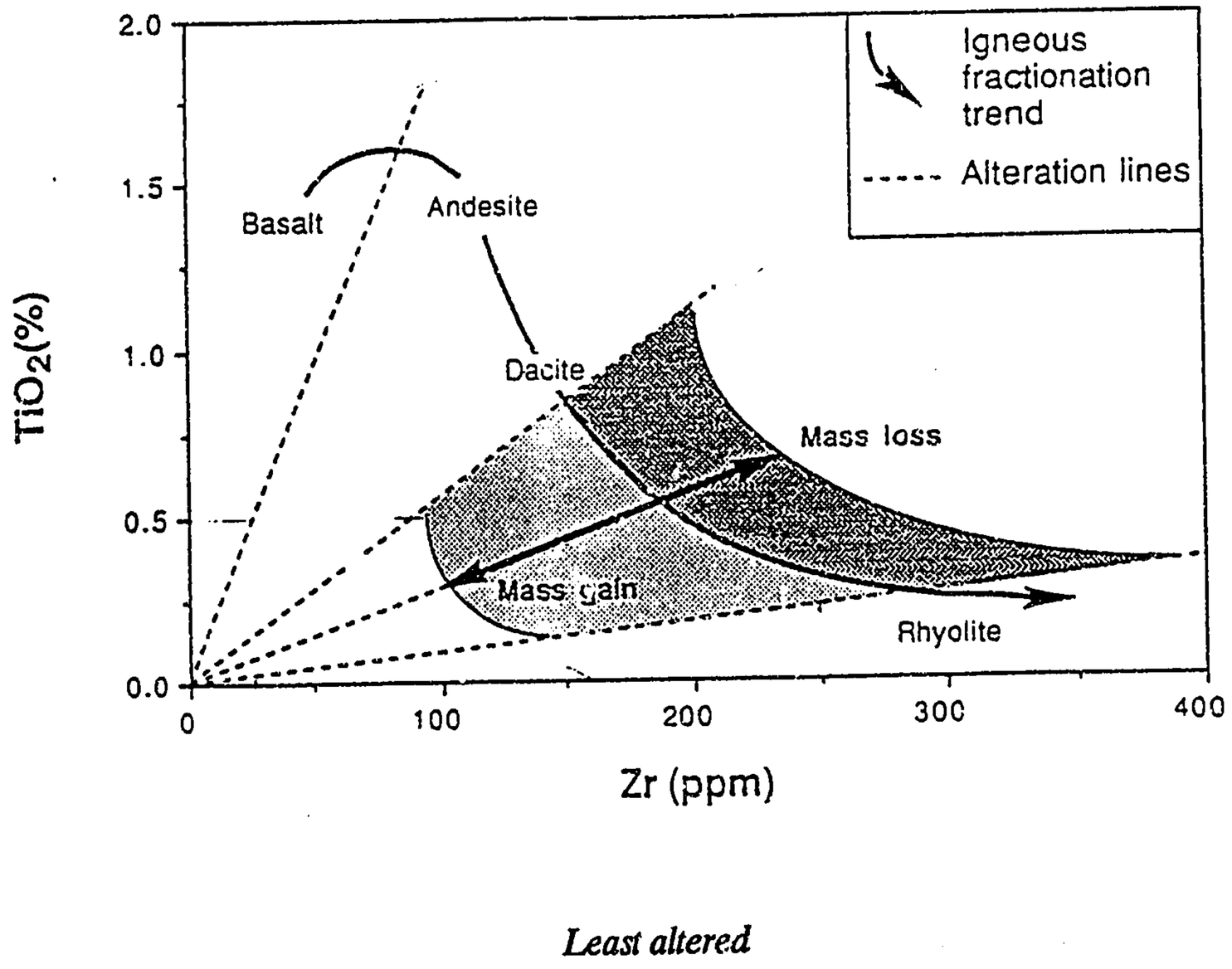


Figure 10

Least altered

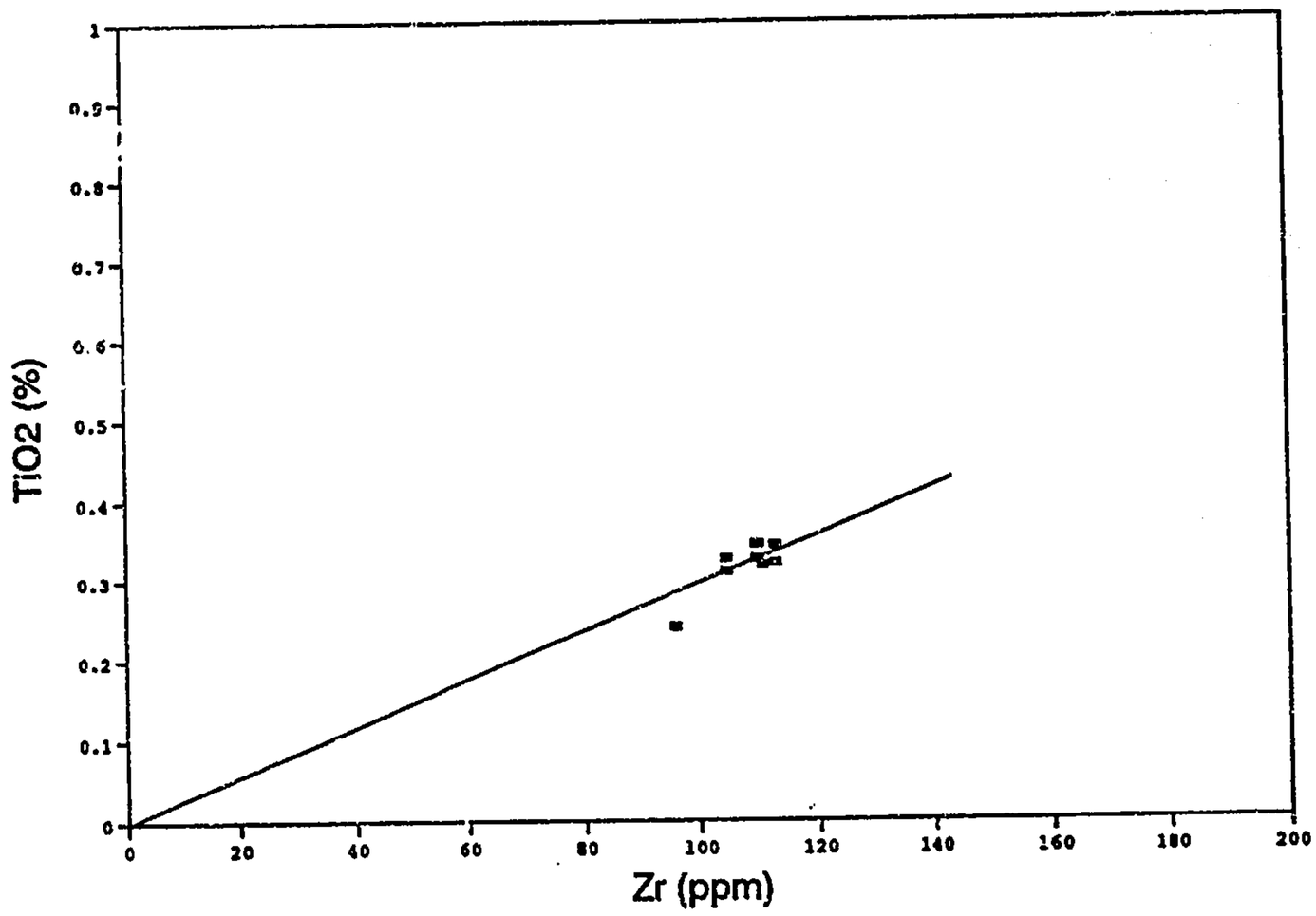


Figure 11

Figure 12

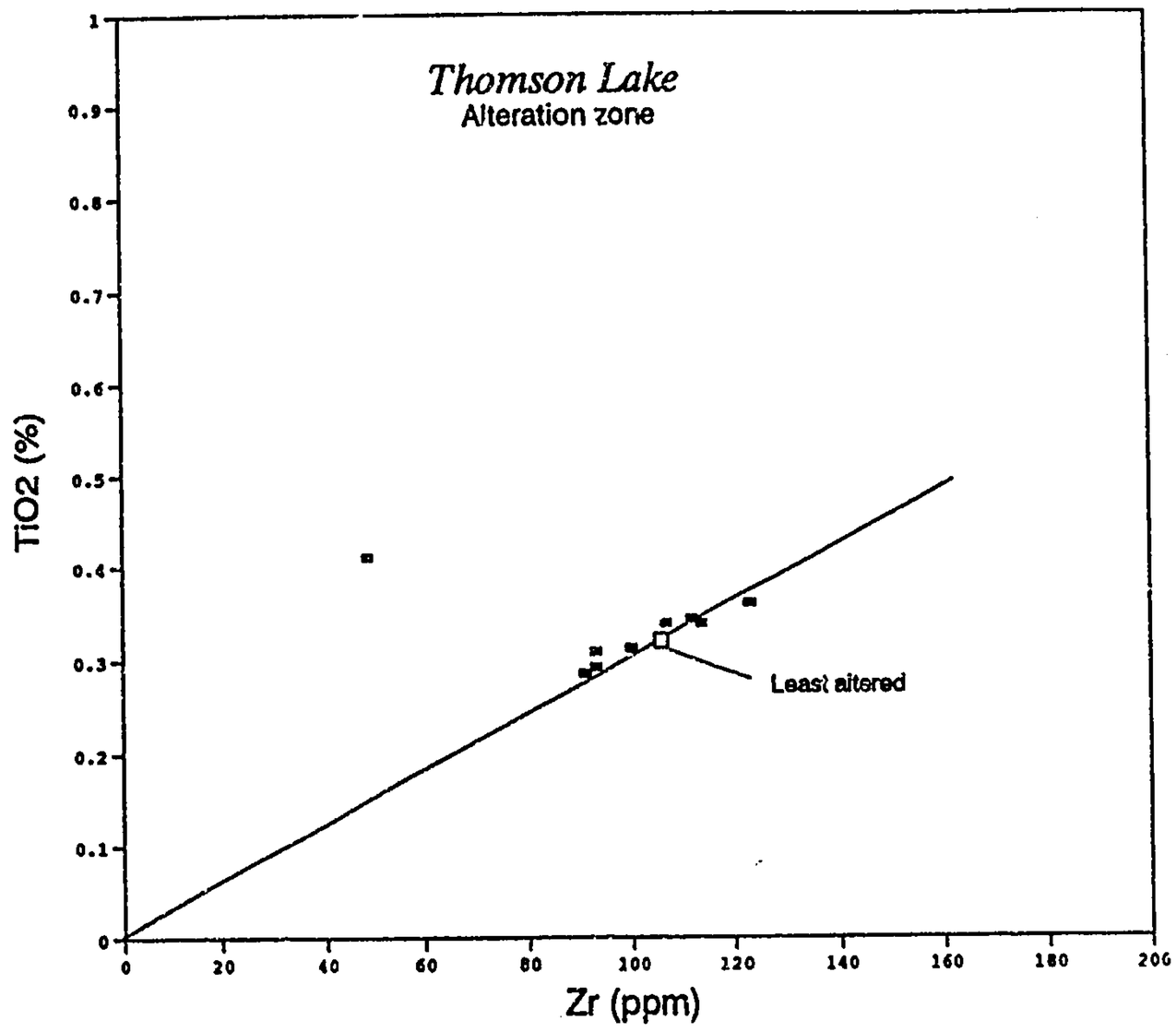


Figure 13

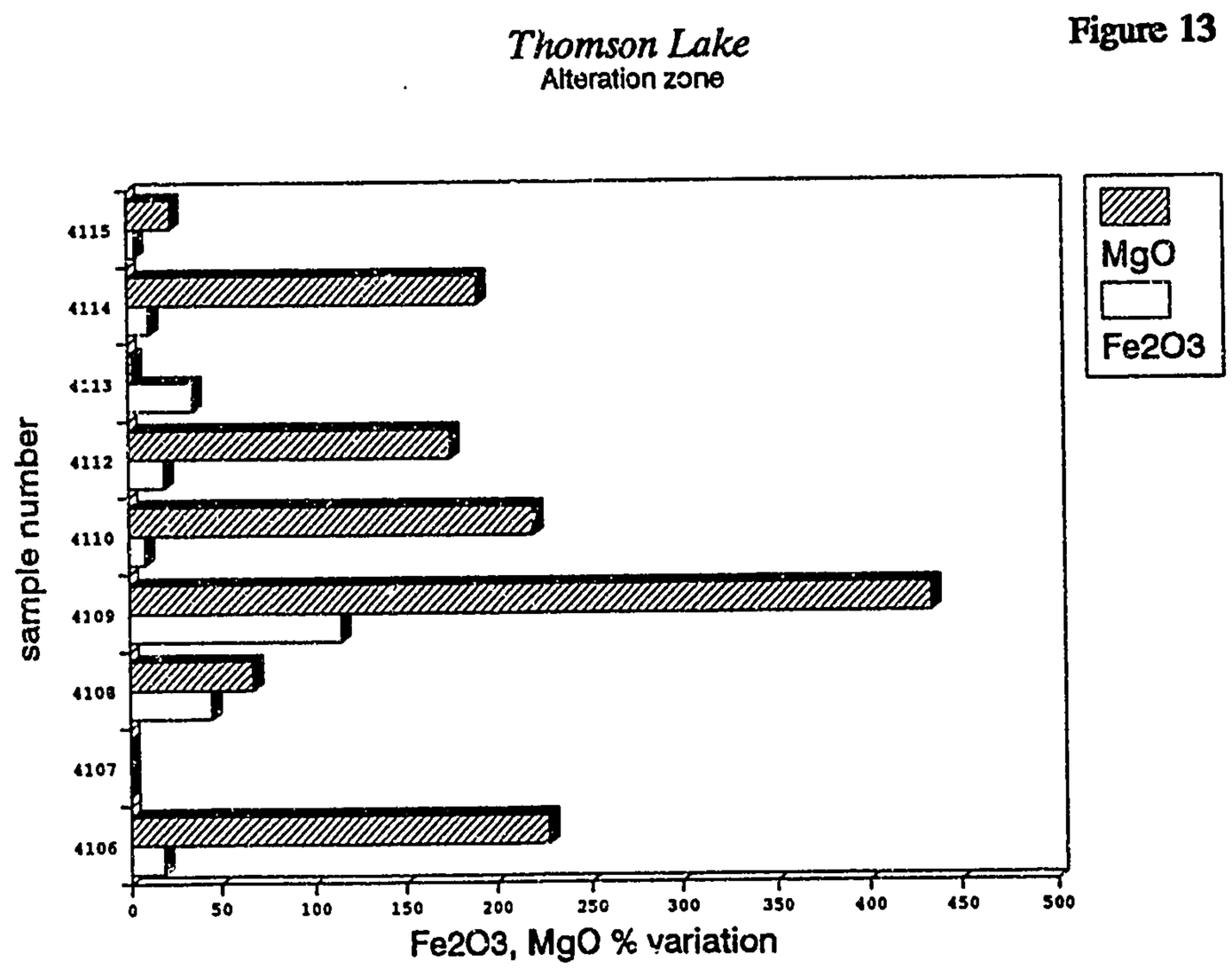
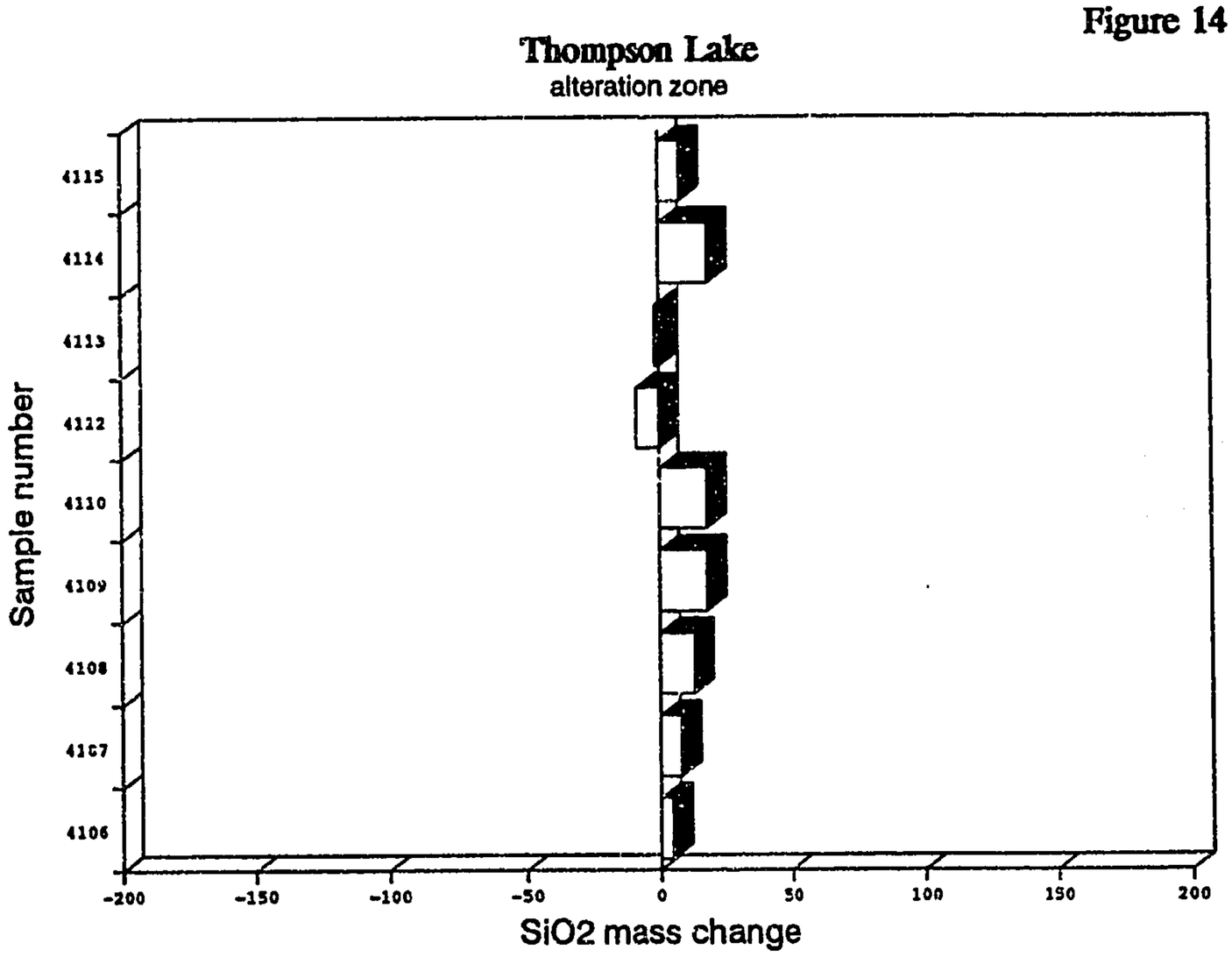


Figure 14


Thompson Lake
alteration zone
Sample number
4115
4114
4113
4112
4110
4109
4108
4107
4106
-200
-150
-100
-50
0
50
100
150
200
SiO2 mass change

4.4.3 Baker Patton alteration zone

Systematic sampling for whole rock lithogeochemistry (every 25 m) of Holes BP_2-92 and BP_4-92 that traversed the Hanging wall/foot wall of the Baker Patton and Cabin Zone deposits is taken as representative of the Baker Patton alteration zone (Fig. 7). On the Zr/Ti graph for both holes, most samples from the "Two quartz rhyolite" volcanics fall close to the alteration line of the chosen precursor (Fig. 15 and 16). Most samples of the volcanics display a week to moderate overall mass loss which is more pronounced in Hole BP_4-92. The clastic dykes, diorites and volcaniclastic sediments are clearly outside of the "two quartz" rhyolite alteration line (Fig. 15 and 16). All samples clearly outside of the alteration line were not included in the mass balance calculations. On the various graphs of mass balance/depth they were given a value of zero.

The stratigraphy in the Baker Patton area is west facing so that stratigraphic tops are towards the bottom of the holes. In the footwall of the Baker Patton deposit, intersected by Hole BP_2-92, Fe is moderately to strongly enriched only in very close proximity to the deposit (Fig. 17), but Mg is strongly depleted and Mn is moderately depleted (Fig. 19 and 21). This alteration is reflected in the mineralogy of the footwall where Py and Sericite are abundant but chlorite is very scarce. This footwall alteration is not typical of VMS type deposits.

In the footwall of the Cabin Zone horizon, Fe is weekly enriched in Hole BP_4-92 and moderately enriched in Hole BP_2-92 (Fig. 17 and 18). In contrast, Mg is strongly enriched in Hole BP_4-92 and weakly in Hole BP_2-92 (Fig. 19 and 20). Mn is also strongly enriched in hole BP_4-92 relative to BP_2-92. Silica does not display significant mobility (Fig. 23 and 24), however, the intense chlorite sulphide stringer zone of the Cabin zone intersected in Hole BP_4-92 was not sampled for lithogeochemistry due to the large concentration of sulphide veinlets. That horizon would very likely display a very strong Silica loss.

Enrichments of Fe, Mg, Mn in the footwall of the Cabin zone are similar to the foot wall alteration underlying typical VMS type base metal deposits. The Cabin Zone horizon is a prime target for this type of deposit. The zoning from Mg and Mn enrichment in Hole BP_4-92 to Fe enrichment in Hole BP_2-92 indicates that Hole BP_2-92 is more proximal to a massive sulphide deposit than Hole BP_4-92.

Figure 15

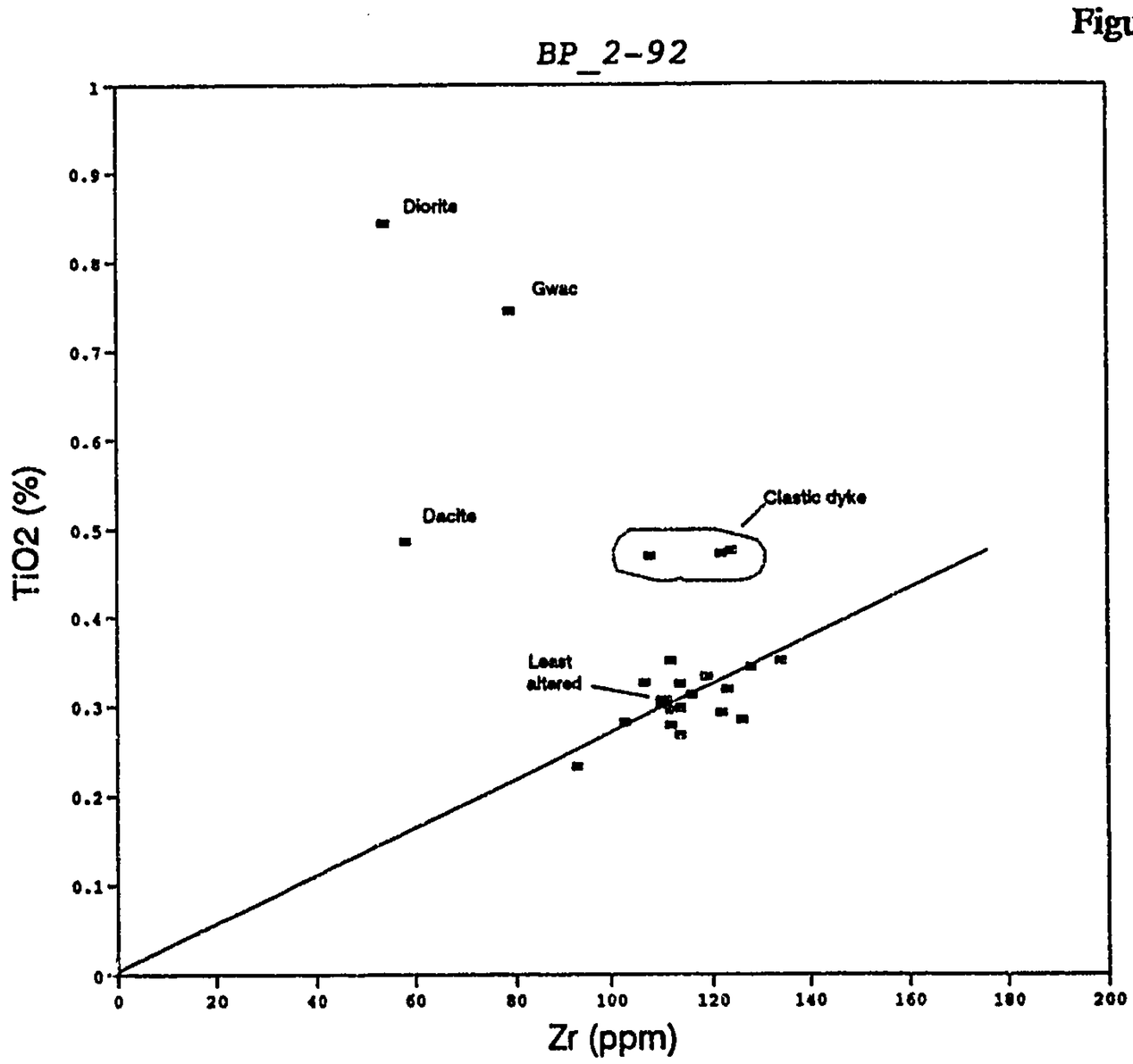


Figure 16

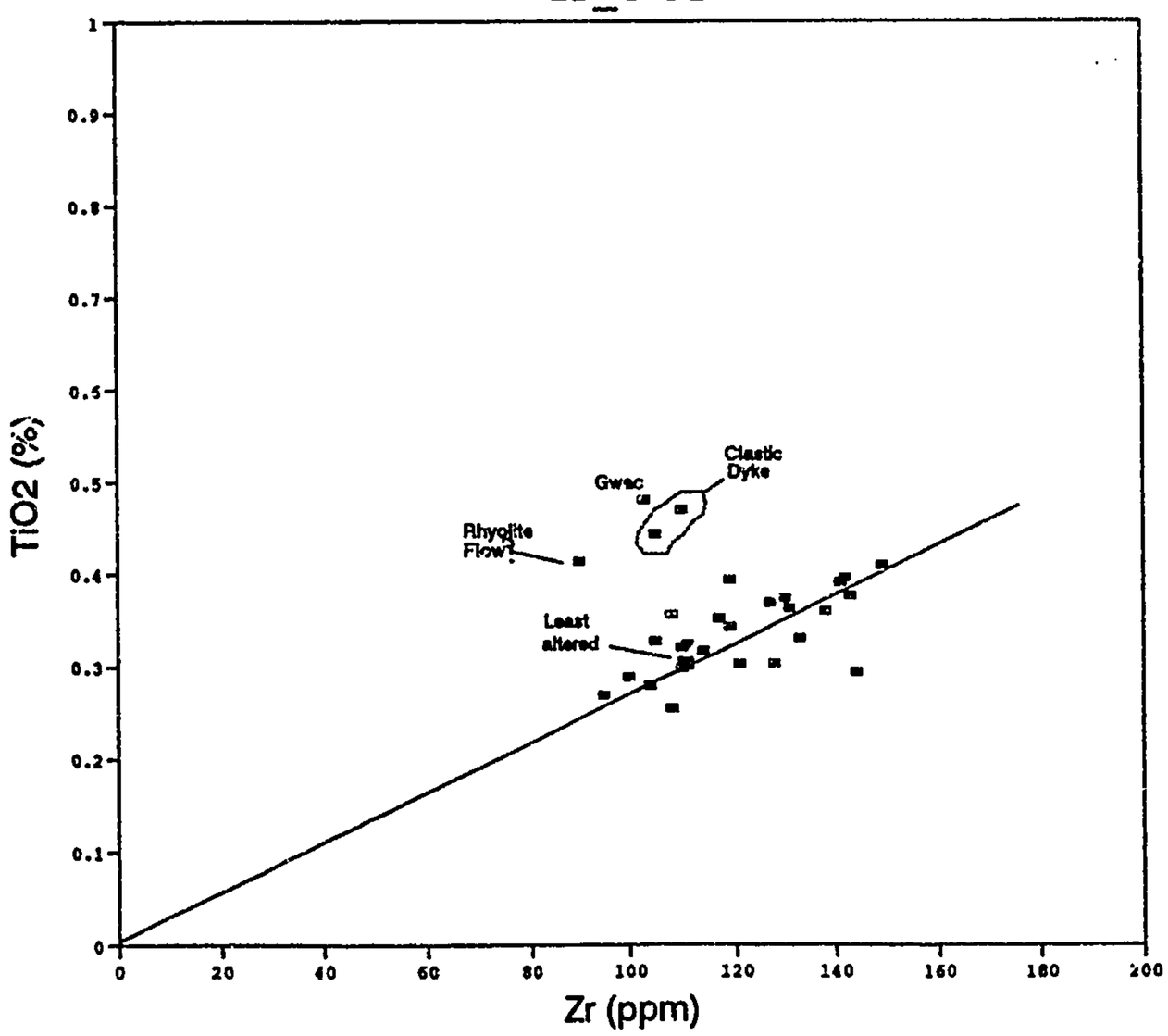
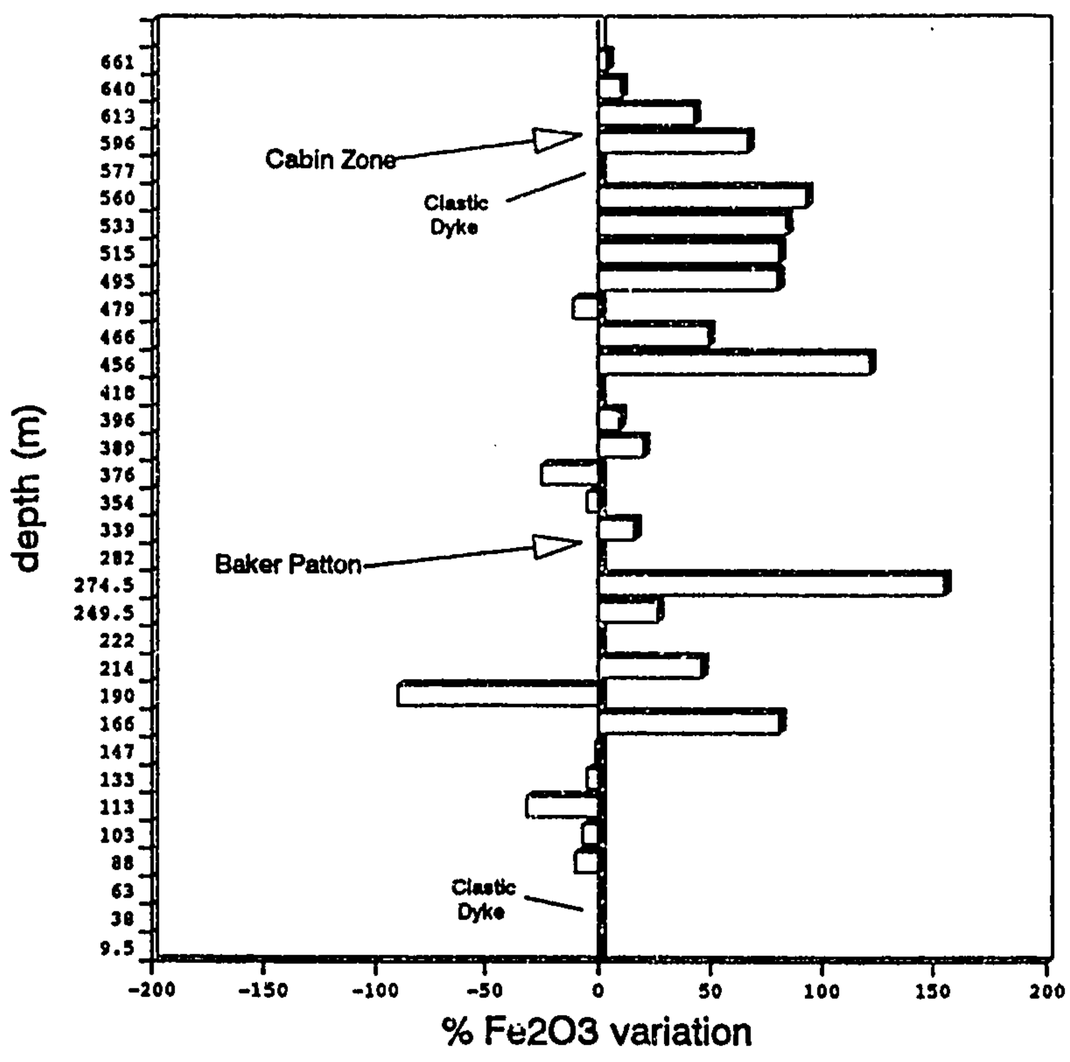
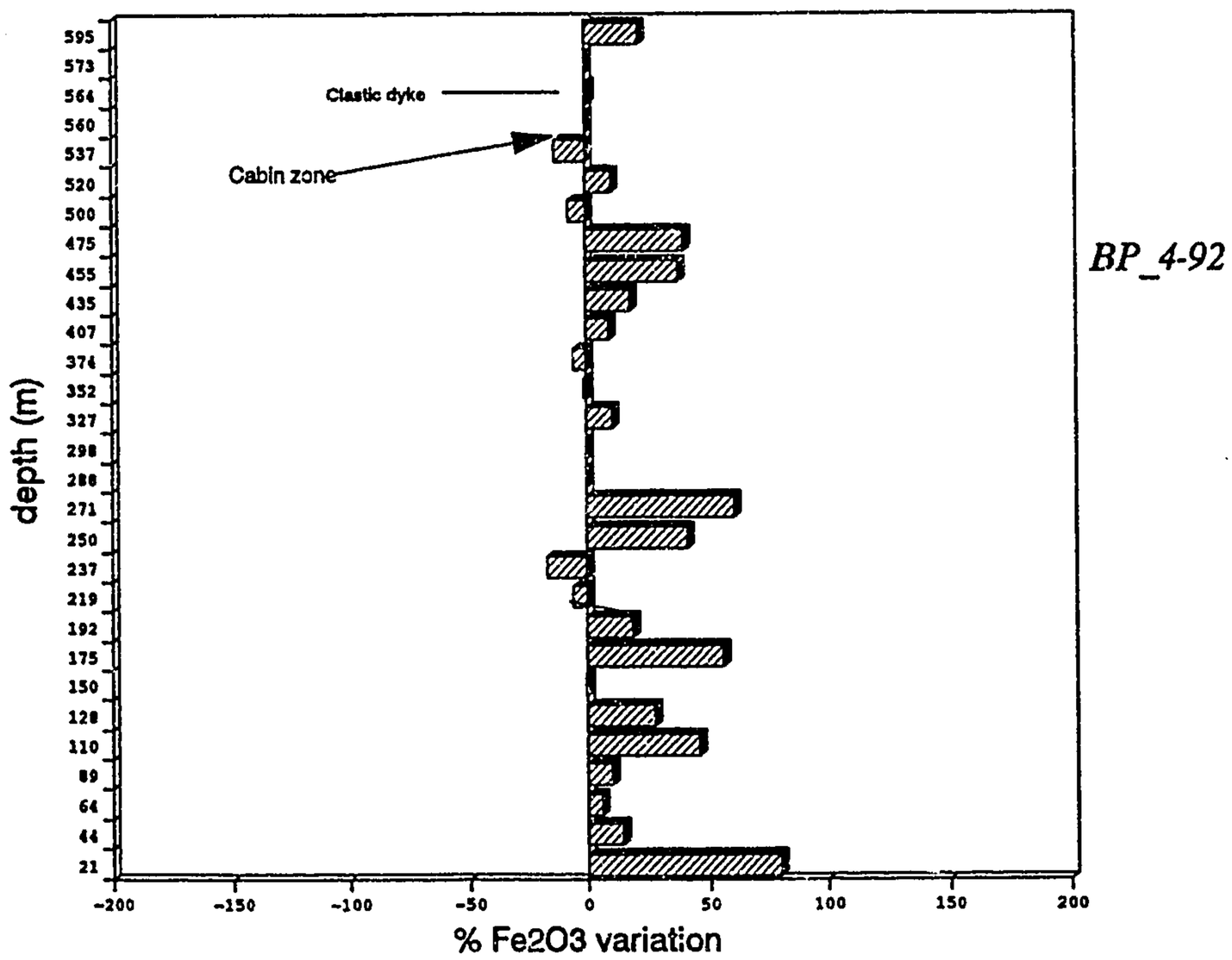


Figure 17



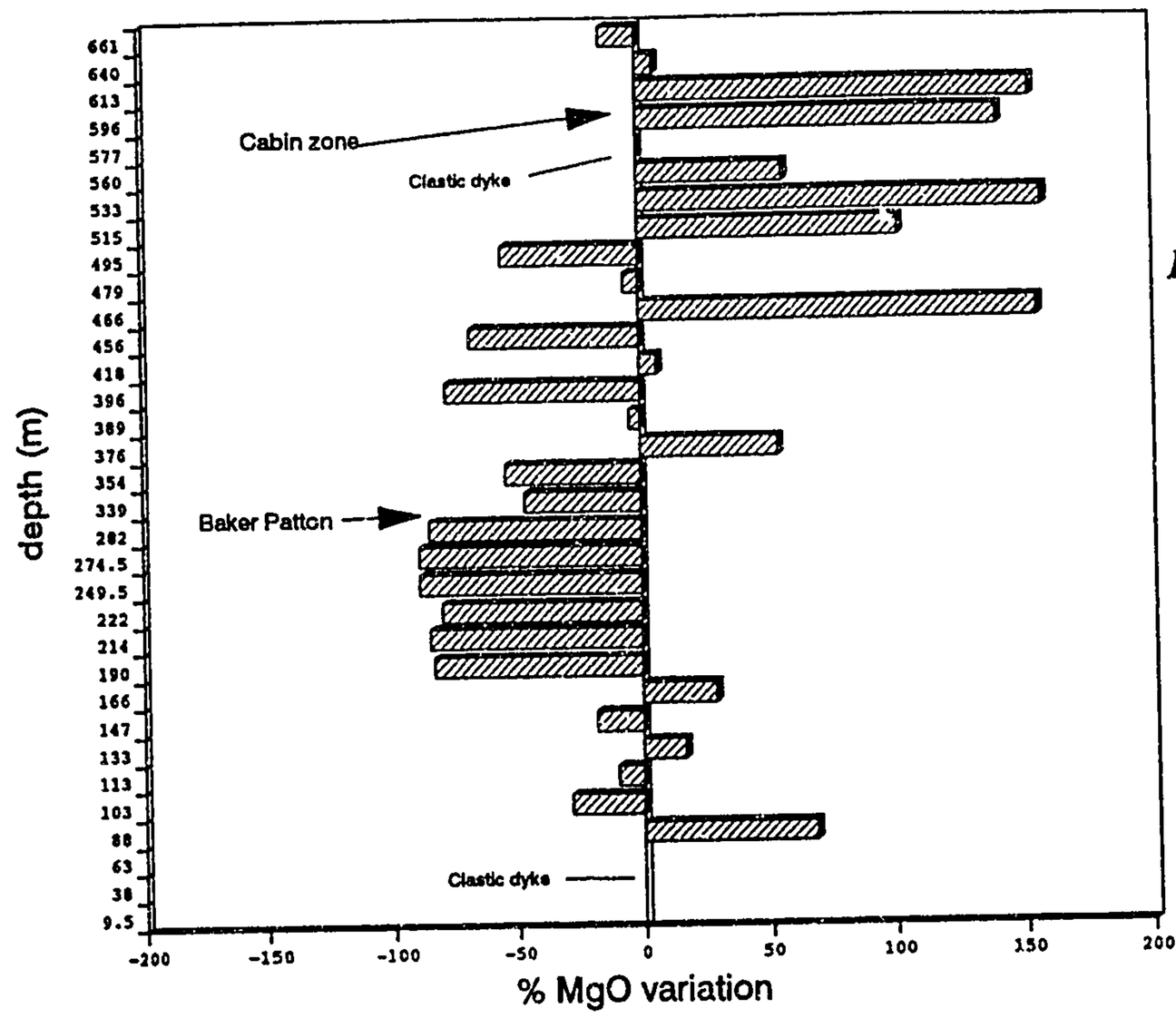
BP_2-92
mass balance

Figure 18



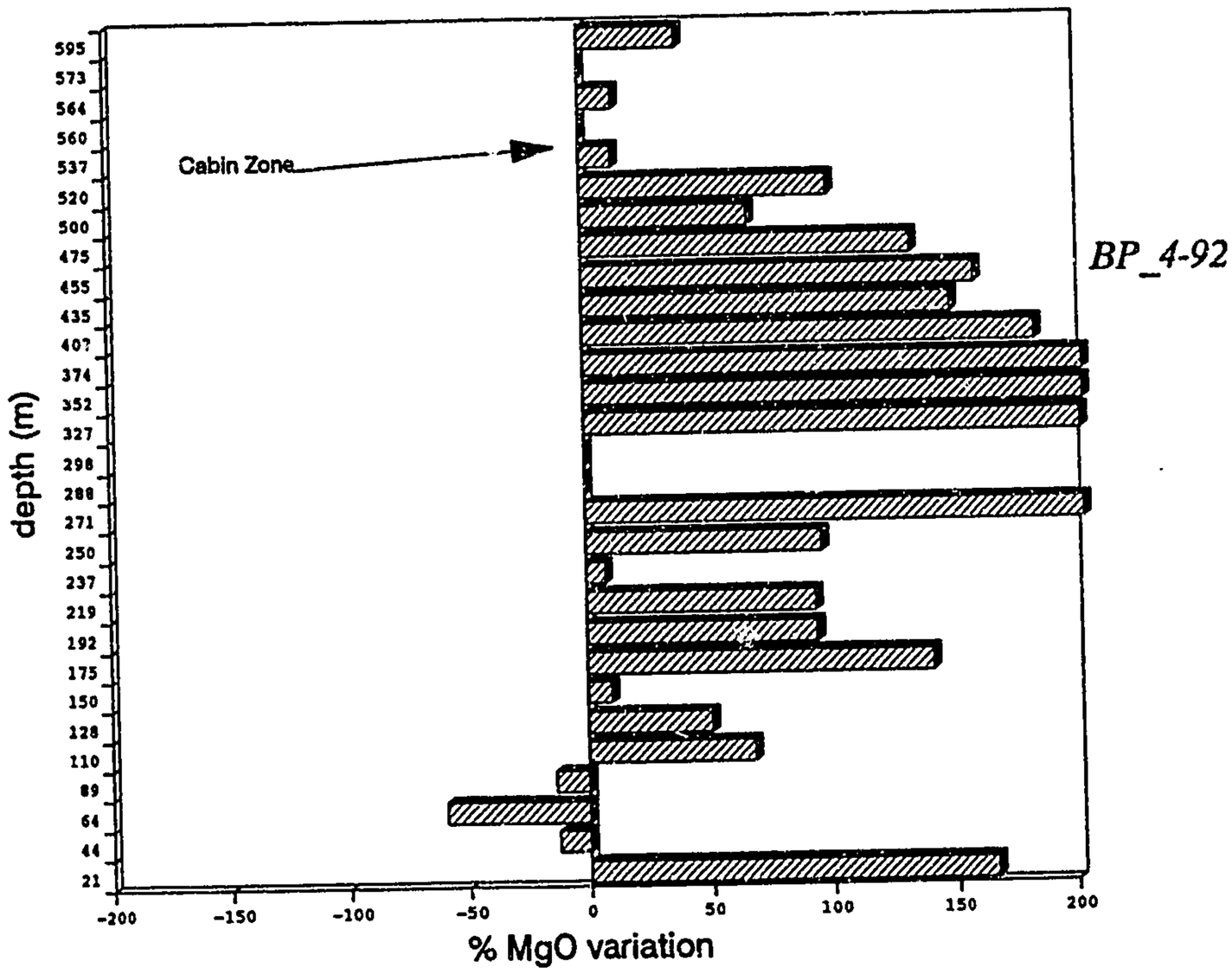
BP_4-92

Figure 19



BP_2-92

Figure 20



BP_4-92

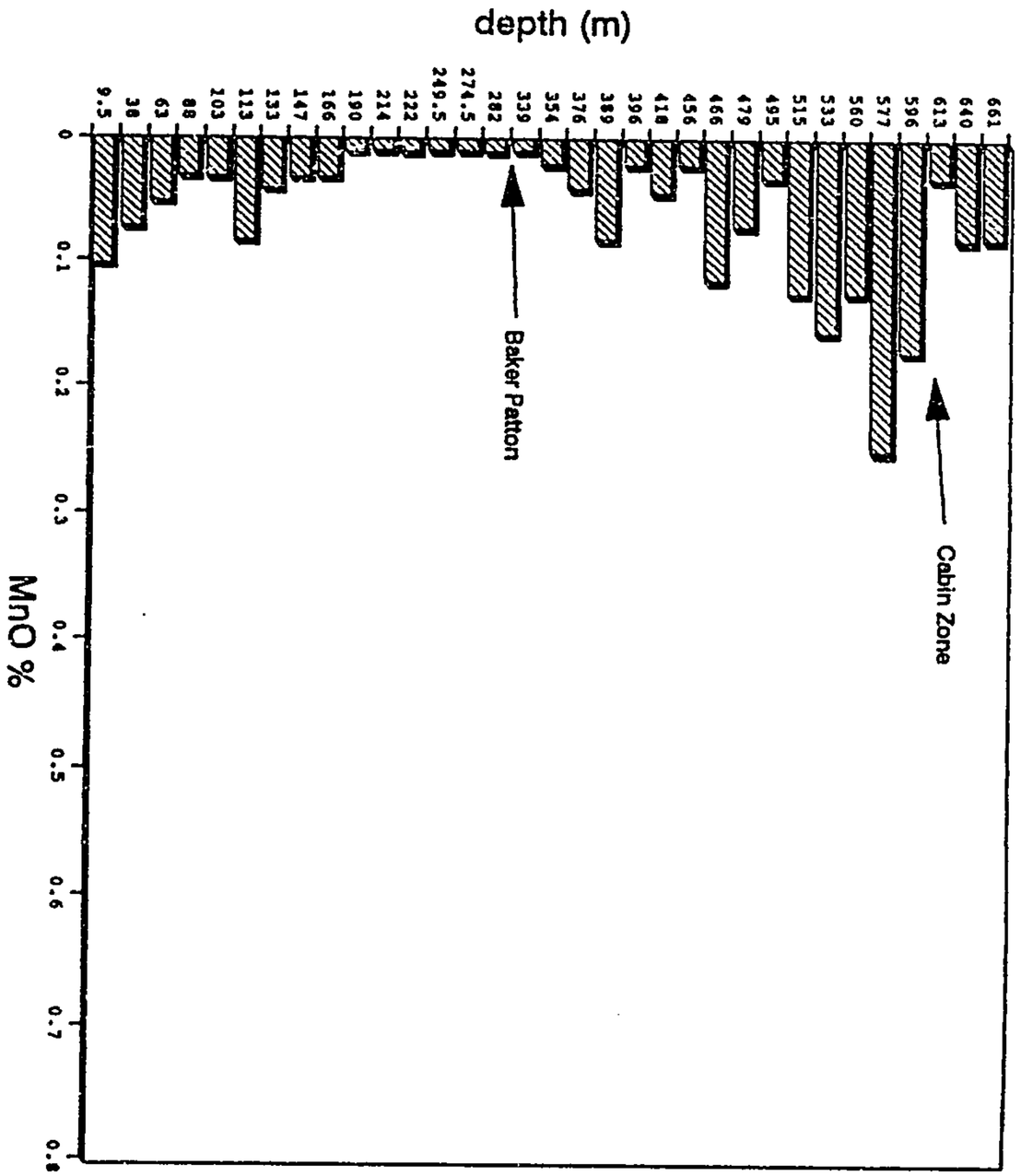


Figure 21

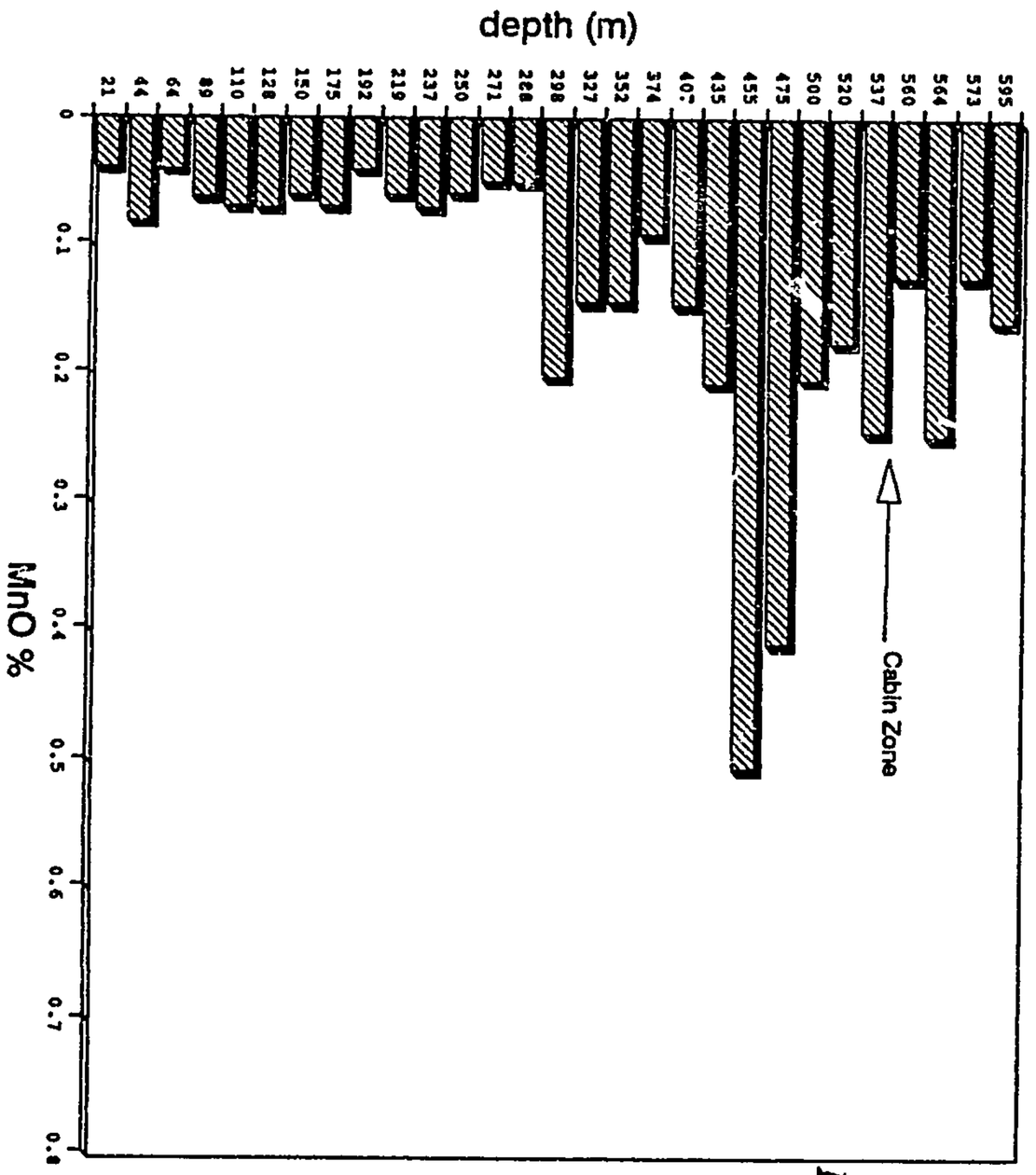
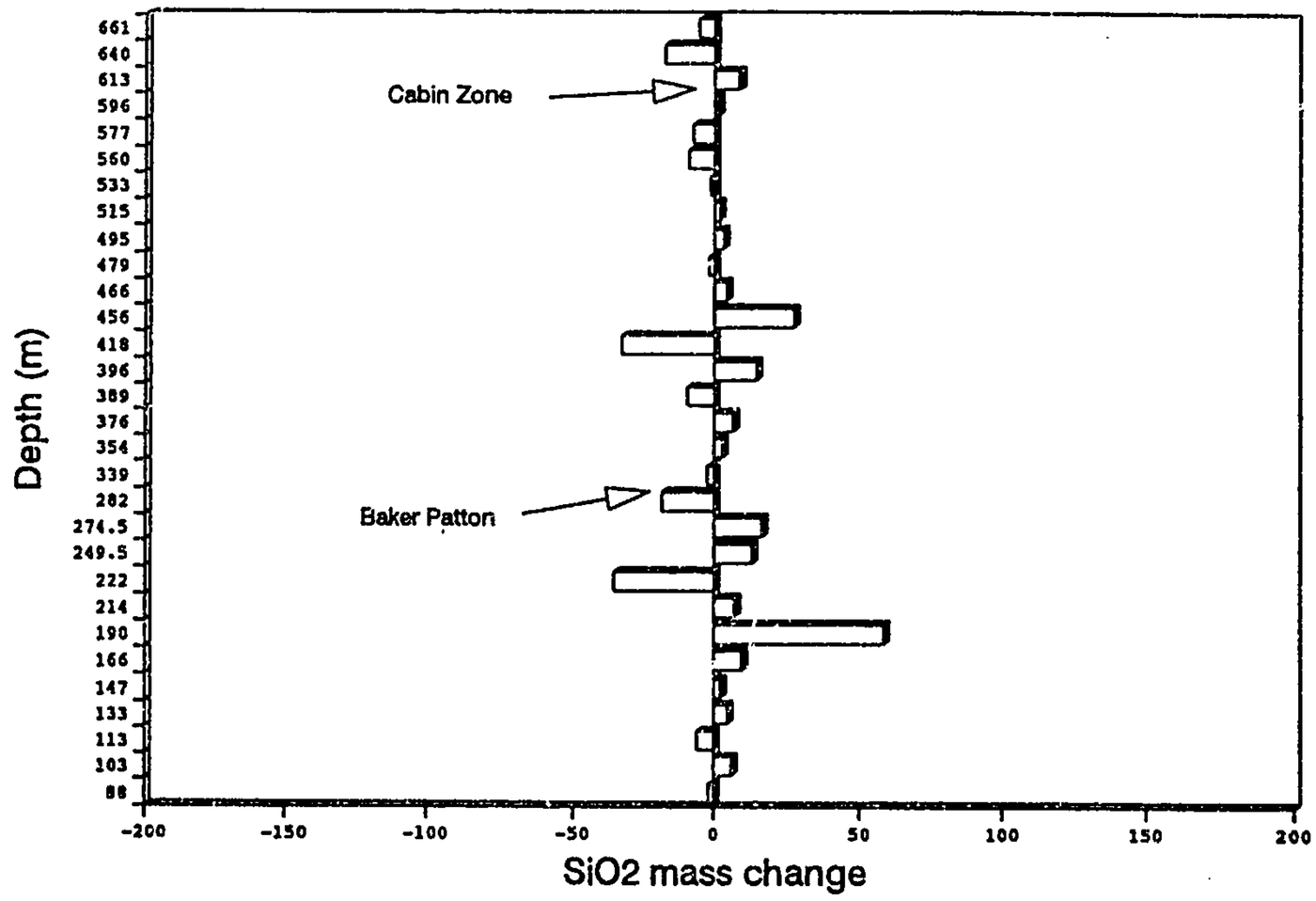


Figure 22

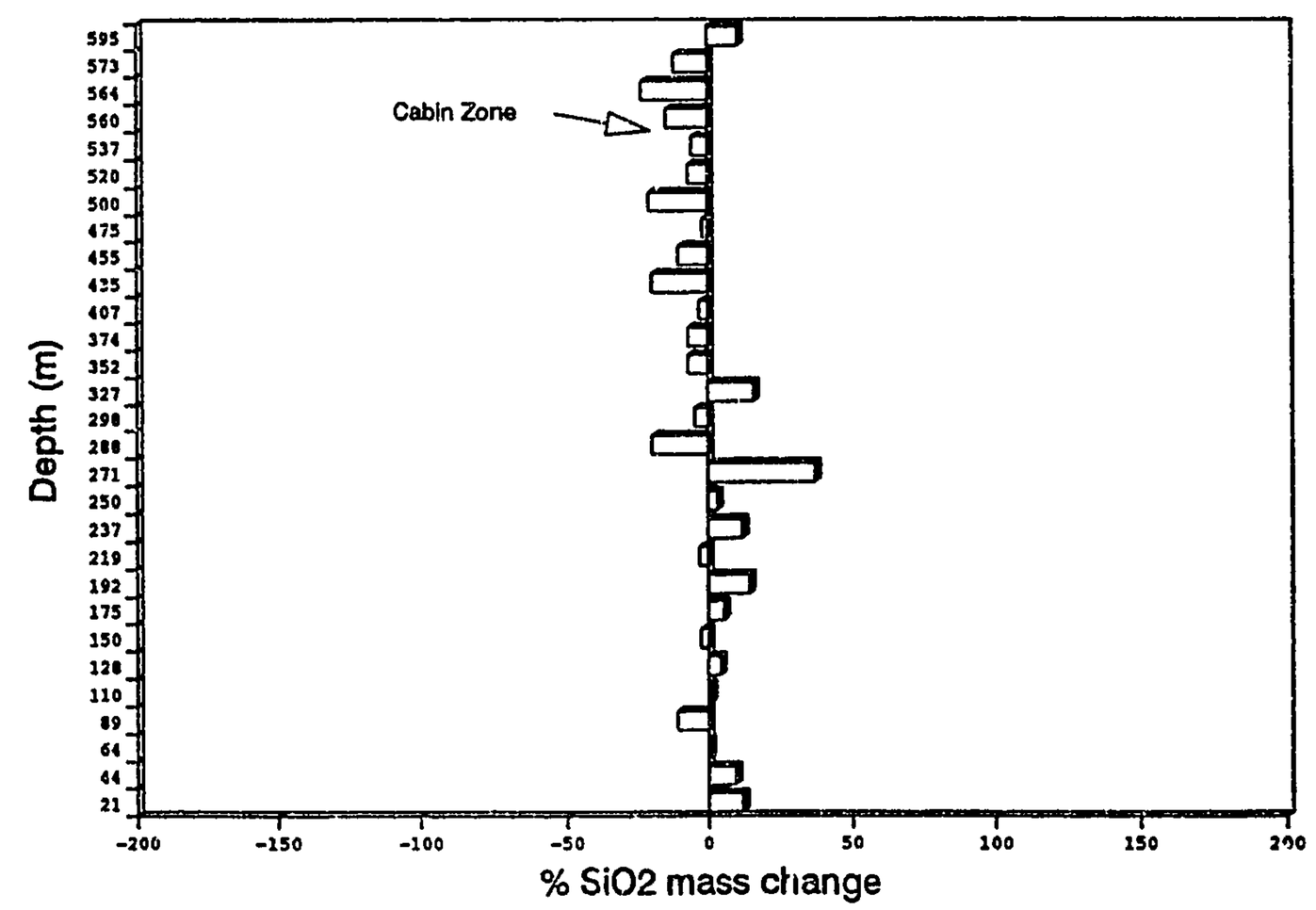
BP_2-92

Figure 23



BP_4-92

Figure 24



5.0 CONCLUSIONS

The Pine Bay property is underlain by a large felsic volcanic centre that hosts several massive sulphide deposits. The property covers most of the stratigraphic top of the volcanic centre, probably the most favorable stratigraphy. Three base metal deposits occur on the Pine Bay claims and several favorable horizons remain untested at depth and along strike from known base metal deposits.

Mapping on the Pine Bay property was successful in oulining two important mine horizons: the Centennial Mine-Sourdough deposit mineralized horizon was delineated in Birch Bay and the North Star Mine-Leo Lake showing horizon was recognized on the point of Thompson Lake.

The Baker Patton deposit was shown to extend at depth, with a consistent thickness of 3 m. This deposit is interpreted on the basis of alteration and massive sulphide textures to be of epigenetic origin (vein type). A broad zinc-rich chlorite-sulphide stringer zone was intersected in the Cabin Zone horizon, south of the known Cabin Zone deposit, at a 350 m vertical depth. This intersection opens up a huge area at depth where the potential to find a large base metal deposit (10-20 million tonnes) is very good.

Lithogeochemistry has outlined three zones of strong alteration defined by Hashimoto index contours above 90: (1) The Pine Bay mine alteration zone is discordant to stratigraphy and extends in the foot wall and hanging wall of the deposit, (2) The Baker Patton alteration zone is a large subconcordant zone that hosts the Baker Patton deposit and is the footwall to the Cabin Zone deposit, (3) The Thompson Lake alteration zone lies in the same stratigraphic horizon as the North Star Mine and has never been drilled. Mass balance calculations have proven to be effective in establishing proximity to sites of VMS type ore deposition. Such proximity has been recognized in the Thompson Lake alteration zone and Cabin Zone horizon.

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Maclean, W.H., 1990. Mass change calculations in altered rock series. Mineralium Deposita, vol. 25, p. 44-49.

Syme, E.C., 1992. Elbow Lake project, part A: Supracrustal rocks, in Manitoba Energy and Mines, minerals division, Report of Field Activities 1992, p. 32-45.

APPENDIX I

CERTIFICATES OF QUALIFICATIONS

CERTIFICATE OF QUALIFICATION

I, Louis Gauthier, of 104 Cliche Appt. C, in the City of Val d'Or in the Province of Quebec do hereby certify that:

1. I am a Geologist employed by Placer Dome Inc. with offices at 1440 Hugh Allan Way, Kamloops, British Columbia and 200 3rd Avenue East, Val d'Or, Quebec.

2. I am a graduate in geology from the university of Montreal (B.Sc. 1988, M. Sc. 1993) and have practiced my profession from 1990 to the present.

3. I am a member in good standing of The Geological Association of Canada and The Canadian Institute of Mining and Metallurgy.

4. I hold valid Manitoba Energy and Mines Prospecting Licence 1595.

Louis Gauthier, MSc

CERTIFICATE

I, **Gary Norman Lustig**, of 1673 Springhaven Place, in the City of Kamloops in the Province of British Colombia do hereby certify that:

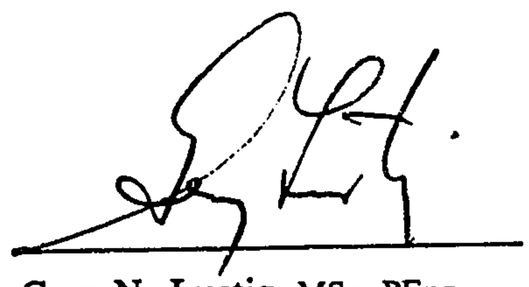
1. I am a Geologist employed by Placer Dome Inc. with offices at 1440 Hugh Allan Way, Kamloops, British Columbia.

2. I am a graduate in geology from the University of Saskatchewan (B.Sc., 1973) and the University of Manitoba (M.Sc., 1979), and have practiced my profession throughout Canada from 1973 to 1982 (with the exception of a two year period during which I was in full time graduate studies), and 1987 to the present, and in Australia from 1982 to 1986.

3. I am a member in good standing of The Association of Professional Engineers of Saskatchewan (Member 4392), The Geological Association of Canada (Fellow), The Canadian Institute of Mining and Metallurgy, the Australasian Institute of Mining and Metallurgy, The Prospectors and Developers Association of Canada, and the B.C. and Yukon Chamber of Mines.

4. Field work described in this report was carried out under my direction. I made numerous visits to the property and reviewed the results of the field work.

5. I hold valid Manitoba Energy and Mines Prospecting Licence 1513.



Gary N. Lustig, MSc, PEng.

APPENDIX II

STATEMENTS OF EXPENDITURE

SUMMARY OF TOTAL EXPENDITURES, 1992
PINE BAY - PROJECT 284

90	Property Costs				$54,611.93
91	Geology	1	Salaries	$38,195.45	
		2	Contractor	$6,375.23	
		11	Supplies	$2,404.59	
		12	Freight	$499.58	
		14	Whole rock analysis	$4,688.06	
		Sub-total			$52,162.91
92	Geophysics	1	Salaries	$5,443.49	
		2	Gravity survey	$17,128.52	
		2	Transient EM survey	$23,380.68	
		13	Grid preparation	$12,016.48	
		Sub-total			$57,969.17
95	Drilling	1	Salaries	$18,588.64	
		2	Drilling contractor	$149,472.81	
		11	Supplies	$15,749.85	
		12	Freight	$213.89	
		14	Assays	$24,695.55	
		14	Whole rock analysis	$2,710.50	
		Sub-total			$211,431.24
99	Logistics	11	Supplies	$379.16	
		12	Freight	$1,135.54	
		30	Food	$3,680.46	
		31	Accomodations	$3,762.50	
		32	Travel	$14,891.93	
		33	Vehicle expense	$7,054.79	
		34	Camp operation	$1,112.45	
		35	Communications	$999.68	
		Sub-total			$33,016.51
TOTAL					**$409,191.76**

SUMMARY OF EXPENDITURES APPLICABLE FOR CREDIT AS REQUIRED WORK, COVERED BY THIS REPORT PINE BAY - PROJECT 284

91	Geology	1	Salaries	$38,195.45	
		2	Contractor	$6,375.23	
		11	Supplies	$2,404.59	
		12	Freight	$499.58	
		14	Whole rock analysis	$4,688.06	
		Sub-total			$52,162.91
92	Geophysics	1	Salaries	$5,443.49	
		2	Transient EM survey	$23,380.68	
		13	Grid preparation	$12,016.48	
		Sub-total			$40,840.65
95	Drilling	1	Salaries	$18,588.64	
		2	Drilling contractor	$149,472.81	
		11	Supplies	$15,749.85	
		12	Freight	$213.89	
		14	Assays	$24,695.55	
		14	Whole rock analysis	$2,710.50	
		Sub-total			$211,431.24
99	Logistics	11	Supplies	$379.16	
		12	Freight	$1,135.54	
		30	Food	$3,680.46	
		31	Accommodations	$3,762.50	
		32	Travel	$14,891.93	
		33	Vehicle expense	$7,054.79	
		34	Camp operation	$1,112.45	
		35	Communications	$999.68	
		Sub-total			$33,016.51
TOTAL					**$337,451.31**

APPENDIX III

DIAMOND DRILL LOGS

```
IDEN6B0201   284BP 1-92    NQ01AUG92DGM   AMISAUG92          GRD000.00          0101
IPRJPLACER DOME INC.                    BAKER PATTON GRAVITY ANOMALY DRILL TEST
S000      0   549MT  514.50300.00-66.00          6071445.00 332835.00    320.04
S001    549  3596    514.50300.00-65.00
S002   3596  6096    514.50307.16-63.80
S003   6096  9143    514.50312.63-65.00
S004   9143 12192    514.50313.00-62.00
S005  12192 15240    514.50313.06-61.00
S006  15240 16093    514.50313.06-58.50
S007  16093 18287    514.50313.06-58.50
S008  18287 21336    514.50313.00-57.00
S009  21336 24384    514.50312.66-56.50
S010  24384 27431    514.50312.66-54.00
S011  27431 30480    514.50311.16-54.80
S012  30480 36515    514.50311.66-52.80
S013  36515 48769    514.50313.16-50.50
S014  48769 51450    514.50314.16-48.00
/NAM                                                  QZPFKFEPACHBCZMSCAD:XXYY
LNAM                                                  AKTACLLIHEMGPYPRCPSL
/SCL        MT.2PC.0
LSCL            PC.0       LCTM
A001
AUMM                   SAMP
A002
AUMM                   SAMP       AU     AG     CU     ZN     MO
A003
AUMM                   SAMP
A004
AUMM                   SAMP
P        0   107      XCASE
PMSV   107  2082    A3XXTDYQZPF   FGXT2528
L                          5G          77 C      FO    15              D+
R                          UNIT IS LIGHT TO MEDIUM GREEN, FINE GRAINED,
R                          DISTINCTIVE FEATURE IS PRESENCE OF EQUANT VITREOUS
R                          GREY QTZ AND ACTINOLITE GRAINS (3MM, 3%) AND
R                          (5-10MM, 50%). THIS UNIT IS A RHYODACITIC COMPOSITION
R                          CLASTIC DYKE. PERVASIVE DISS PY, 1-1.5MM IN DIAMETER.
R      160   167           BROKEN CORE AT THIS LOCATION, MAY HAVE BEEN SOME
R                          REGRINDING, PIECES ARE LIMONITIC, WEATHERED. WELL
R                          DEFINED FOLIATION.
R     1578  1614           PYRITE STREAK, 80% PERVASIVE PY
N     1767  2082    FGXRYVCQZMS   SI  28)8      FO    45P4            P3
L                          YW          79
R                          QTZ CRYSTAL RHYOLITE TUFF, YELLOWISH-WHITE
R                          FINE GRAINED. DISTINCTIVE FEATURE IS PRESENSE OF 3%
R                          1 AND 4-5MM DIAMETER QUARTZ GRAINS, THIS
R                          UNIT IS THE "TWO QUARTZ RHYOLITE" THIS UNIT HAS LESS
R                          FELDSPAR GRAINS THAN THE PRINCIPAL INTERVAL.
P     2082  4371    XTXRYVCQZMS   FGXT08=8      FO    30
L                          YW     FO                              D1
R                          UNIT IS EXTREMELY DISTINCTIVE QUARTZ CRYSTAL TUFF,
R                          TWO QUARTZ RHYOLITE. QUARTZ GRAINS 1-2MM, 3% AND
R                          3-6MM, 3-4%. RANDOM DISTRIBUTION, GRAINS ARE ALWAYS
R                          EQUANT IN SHAPE.  MATRIX IS FINE GRAINED,
R                          VERY SLIGHTLY YELLOWISH WHITE IN COLOUR, ACCOUNTS FOR
R                          75% OF MODE, 2% PYRITE DISS THROUGHOUT THE MATRIX,
R                          LOCALLY 20% PY AS BANDS PARALLEL TO THE FOLIATION OR
R                          AS RANDOMLY ORIENTED NETWORKS OF VEINLETS.
D     2082  3085    XTXRYVCQZMS   XTFG1616      FO    45
L                          YWPY   BNFO                            D=
```

R		9448	9554				10% PY, PRESSURE SHADOWED PYRITE GRAINS, SHADOW IS
R							COMPOSED OF GREY QTZ. THIS INTERVAL IS VERY SIMILAR
R							TO THAT INTERSECTED AT 43.71 M.
R		10551	10640				30% PY, MACROVEIN OF EUHEDRAL PYRITE GRAINS, MEAN
R							GRAIN SIZE 5MM. PYRITE GRAINS EUHEDRAL TO SUBHEDRAL,
R							ADJOINING PYRITE GRAINS, TR. CPY 2MM IN DIAMETER,
R							MACROVEIN IS 3CM IN TRUE THICKNESS
R		11121	11137				VEIN OR ZONE OF PYRITIZATION WITHIN THE QUARTZ
R							CRYSTAL TUFF, 70% PYRITE AS EUHEDRAL CRYSTALS,
R							MEAN GRAIN SIZE, 3-4MM.
D		11137	11237	A7XRYVCQZTA	XTFG	FO 30	
L				GY		L2 B+	
R							DISTINCTIVE INTERVAL IN WHICH THERE HAS BEEN A
R							FLOODING OF A LIGHT PUKEY GREEN YELLOW MINERAL, SOFT,
R							INTO THE QUARTZ CRYSTAL TUFF. THE TUFF UNIT HAS
R							LOCALLY BEEN COMPLETELY ENCOMPASSED BY THE TALC TO
R							FORM BLOCKS THAT ARE ISOLATED FROM THE REST OF THE
R							ROCK. THE TALC HAS A FLUID TEXTURE, FINE GRAINED,
R							WAVEY LOCALLY.
R		11975	11993				70% PERVASIVE PY
R		12506	12557				40% PY, PYRITIZED QUARTZ CRYSTAL TUFF PY OCCURS AS
R							SUBHEDRAL TO EUHEDRAL GRAINS RANGING FROM 1MM TO
R							15MM, MEAN GRAIN SIZE IS 2MM,
R							COARSE GRAINS NEAR TOP OF INTERVAL.
R		12629	12648				70% PY, PYRITE FLOODED QTZ CRYSTAL RHYOLITE
R							TUFF WHICH CONTAINS EUHEDRAL TO SUBHEDRAL PYRITE
R							GRAINS, TYPICAL PYRITE FLOODING.
R		13280	13290				90% PY, INTERVAL OF EUHEDRAL COARSE GRAINED PYRITE
R							FLOODING OF RYOLITE TUFF
N		13655	13700	SH3RYVCTAPY	FGSH	FO 40	P2
L				YGMS			B1
R							INTERVAL OF MILD TO MODERATE SHEARING, UNIT IS LIGHT
R							YELLOW-GREEN WHICH MAY BE INDICATIVE OF TALC, AS IS
R							SOFT MINERAL, PYRITE A FLATTENED EUHEDRAL GRAINS,
R							SQUASHED, MEAN GRAIN SIZE 10MM IN DIAMETER. 26 CM
R							INTERVAL BETWEEN TOP AND BOTTOM IS FINE GRAINED
R							PYRITE
D		14100	15300	PY1RYVCQZPY	FGXT15+5	FO 40	
L				YW		K=	
R							THIS INTERVAL IS ONE IN WHICH THE RHYOLITE CRYSTAL
R							TUFF TAKES ON A BRECCIATED FABRIC, THIS IS
R							ATTRIBUTEABLE TO ANASTOMOSING PYRITE STRINGERS (5-7%)
R							THE VEINS ARE COMPOSED OF 1-2MM DIAMETER, ANHEDRAL
R							X'TALLINITY BLEBS OF PY WHICH OCCUPY GREY COLOURED
R							VEINLETS SUBPARALLEL TO THE FOLIATION. THE VEINLETS
R							PRODUCE A PSEUDO-BRECCIA TEXTURE. IN SOME INTERVALS
R							PYRITIZATION IS MORE INTENSE AND PYRITE BECOMES
R							SEMI-MASSIVE OVER INTERVALS OF UP TO 3 CM
R		15437	15447				NARROW INTERVAL OF SEMI-MASSIVE PYRITE, IN THE FORM
R							OF A SEAM. PY IS COARSE GRAINED, EUHEDRAL TO
R							SUBHEDRAL X'TALLINITY.
R		16644	16656				INTERVAL OF 40% SUBHEDRAL TO EUHEDRAL PYRITE GRAINS,
R							SEMI-MASSIVE, MINERALIZATION IS ALONG A
R							SEAM WHICH IS PARALLEL TO THE FOLIATION.
R		16977	16978				BLEBS OF CPY, BLEBS ARE UP TO 10 X 4 MM IN SIZE,
R							ACCOUNT FOR UP TO 50% OF THE NARROW STRINGER.
P		17340	19520	PCXTFLPQZPF	FGXT15+6	FO 40	P3
L				5AMS			B+
R							THIS UNIT IS A SLIGHT VARIATION, IF NOT A TRANSITION
R							FROM THE QTZ CRYSTAL RHYOLITE TUFF, THE COMPOSITON

AND MORPHOLOGY ARE SIMILAR, THE VARIATION IS THE PRESENCE OF A BANDING WHICH IS ATTIBUTEABLE TO ELONGATE CRYSTAL-RICH RHYOLITIC LAPILLIS. THE LAPILLIS ARE 1-3CM IN THICKNESS, AND ARE LONGER THAN DEFINED BY THE CORE DIAMETER. AN ESTIMATION OF LENGTH IS 10 CM. 3-5% QUARTZ GRAINS BIMODALLY DISTRIBUTED, 1-2MM, AND 5MM, GRAINS ARE EQUANT IN SHAPE.
90% LAPILLIS

19222 19230
INTERVAL OF SEMI-MASSIVE SULPHIDE, PYRITE AS SUBHEDRAL GRAINS WITH A MEAN DIAMETER OF 6MM, MOST OF THE INTERVAL IS COMPOSED OF PATCHES OF FINE GRAINED PY THAT IS 2.5-3 CM IN DIAMETER. SEAM OF PYRITE PARALLELS FOLIATION OF UNIT.

19390 19391
1 CM THICK VEIN WITH FINE GRAINED CHALCOPYRITE AS PATCHES, ACCOUNTS FOR ABOUT 50% OF THE VOLUME OF THE VEIN. HOST ROCK IS DEVOID OF SULPHIDE.

P 19520 22462 PCXTFLPPFQZ MGFO2778 FO 33 P2
AG BX D+

THIS UNIT, ALTHOUGH A LAPILLI TUFF AS ABOVE IS DISTINCTIVE IN THAT IT IS MEDIUM GRAINED, IT IS NOT COMPOSED OF QUARTZ CRYSTAL TUFF, AS THE FORMER, AND IT IS MUCH MORE FELDSPAR-RICH. IT IS COMPOSED OF 80-85% IRREGULARLY SHAPED CLASTS, GREY-WHITE IN COLOUR, 2-4 CM IN DIAMETER, CLASTS ARE SUB-ANGULAR TO SUB-ROUNDED THEY ARE COMPOSED OF SUBROUNDED GRAINS OF FELDSPAR AND QUARTZ, GRAINS ARE 1-2.5MM IN DIAMETER, ACCOUNT FOR 20% OF MODE RESPECTIVELY. MATRIX IS FINE GRAINED AGGREGATE OF QUARTZ AND FELDSPAR. THE CLASTS ARE TUFFACEOUS IN NATURE; HOWEVER ARE NOT AS PROMINENT AS THE QUARTZ CRYSTAL RHYOLITE TUFF (2 QUARTZ RHYOLITE). UNIT IS RHYOLITIC LAPILLI TUFF, TRANSITIONAL VARIATION AS PROCEED THROUGH STRATA. DOMINANT MINERALIZATION IS PYRITE AS EUHEDRAL THROUGH TO ANHEDRAL GRAINS AND DISSEMINATIONS, LOCALLY REACHING UP TO 5%, CPY AS BLEBS AND PATCHES IN VEINLETS, ONLY RARELY ENCOUNTERED.
D4624 CONTAINS 1% CHALCOPYRITE AS BLEBS AND PATCHES WITHIN NARROW VEINLETS, _1CM IN THICKNESS.

P 22462 22768 MXXDCDYQZPF MGMX MX
AGAC SV CT 50 P2

SHARP CONTACT WITH LAPILLI TUFF UNIT, FINE TO MEDIUM GRAINED, GREY-GREEN, PLAGIOCLASE FELDSPAR AND QUARTZ GRAIN-RICH UNIT. THE QUARTZ GRAINS ARE SUB-EQUANT, GREY IN COLOUR (1-1.5MM, 10%), 10% PLAG. GRAINS ARE ANHEDRAL TO SUBHEDRAL LATH-LIKE, 0.5-1.0MM IN DIAMETER. MATRIX MATERIAL IS FINER GRAINED AGGREGATES OF ABOVE MINERALS UNIT CONTAINS EUHEDRAL PYRITE GRAINS,
D4626 BLEBS OF CHALCOPYRITE ALONG NARROW _0.5MM VEINLETS PARALLEL TO FOLIATION. CPY ACCOUNTS FOR _1% OF INTERVAL.

P 22768 25863 FOXRYVCQZPF FGFO36=6 FO 38 P2
BN U+

UNIT IS A QUARTZ CRYSTAL TUFF WITH A MODERATE PLAG. CONTENT AS ASH. COARSER GRAINED THAN THE CLASSIC QUARTZ CRYSTAL TUFF INTERSECTED AT THE BEGINNING OF THE HOLE, IS NOT THE CLASSIC 2 QUARTZ RHYOLITE; HOWEVER THE EQUANT GREY QUARTZ GRAINS ARE PRESENT, IS 1-2 AND 5MM IN DIAMETER. WHITE PLAGIOCLASE GRAINS

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R                                (LATH-LIKE, 1X0.2MM). 1-2% QUARTZ CRYSTALS BANDING IS
R                                WELL DEFINED IN THE CORE, PARALLEL TO FOLIATION.
R                                PYRITE AS EUHEDRAL GRAINS (1-2MM, _1%)
R                                20-25% SERICITE
R    24628 24638                 SEAM OF PYRITE GRAINS, EUHEDRAL, UP TO 7MM IN
R                                DIAMETER ZONE OF INTENSE SULPHIDIZATION
R    24765 24775                 PYRITE SEAM, 40% PY WITH LIGHT GREEN CHLORITE (TALC?)
R    25059 25062                 20% PY IN A 3 CM QZ VEIN AT 55 DEGREES TO CA
R    25160 25163                 10% PY IN 3 CM VEIN AT 50 DEGREES TO CA
R    25169 25215                 50% PY, EUHEDRAL PYRITE GRAINS, UP TO 2CM/SIDE,
R                                SUSPENDED IN A SERICITIC, PALE GREEN-WHITE MATRIX OF
R                                RHYOLITIC COMPOSITION TUFF, QUARTZ GRAIN CONTENT _1%
R                                QUARTZ CRYSTALS ARE SUB-EQUANT TO EQUANT, 5MM IN
R                                DIAMETER.
R    25237 25259                 GROUND CORE, MAY BE LOWER RECOVERY AS A RESULT.
N    25336 25346  PY3RYVCPY      CG              ¢¢    45
L                                                                          U3
N    25534 25550  PY4RYVCPY      CG              ¢¢    40
L                                                                          U4
R    25619 25781                 20% PY, INTERVAL OF MORE INTENSE PYRITIZATION,
R                                LOCALLY MACROVEINS OF EUHEDRAL PYRITE GRAINS
R                                WHERE PYRITE CONTENT REACHES
R                                UP TO 30%. THE EUHEDRAL PYRITE GRAINS ARE SUSPENDED
R                                IN A PUKEY PALE GREEN, FINE GRAINED TALC? WHICH
R                                ALTERS UP TO 60% OF THE INTERVAL, ALTERATION IS
R                                PATCHY, AREAS ARE ISOLATED, NOT ALTERED AT ALL, IS
R                                TYPICALLY SERICITIZED RHYOLITIC TUFF.
P    25863 28012  PCXTFLPQZMS    FGPC1765        FO    46                   P2
L                                7APF    FO              BN    46                 U+
R                                INTERVAL OF RHYOLITIC COMPOSITION LAPILLI TUFF. THIS
R                                IS A VARIATION ON THE RHYOLITE CRYSTAL TUFF. 60% SUB-
R                                ROUNDED CLASTS, WHITE, PLAGIOCLASE FELDSPAR-RICH ARE
R                                PRESENT THROUHGHOUT, INTERSTITIAL MATERIAL IS FINE
R                                GRAINED, PALE GREEN, TALC? INTERSTICES ARE
R                                MINERALIZED WITH EUHEDRAL GRAINS OF PY (1-6MM, 3%).
R                                THE UNIT HAS A WELL DEVELOPED BANDING PARALLEL TO
R                                FOLIATION.
R    26741 26761                 UNIT RHYOLITIC COMPOSITION LAPILLI TUFF, PART OF THE
R                                INTERVAL MAY HAVE BEEN LOST IN GRINDING.
R    26943 26947                 40% PY, MACROVEIN OF EUHEDRAL PYRITE GRAINS
R    27416 27456                 30% PY, SEAM OF EUHEDRAL TO SUBHEDRAL X'TALLINITY PY
R    27452 27457                 30% PY, PYRITIZED INTERVAL OF LAPILLI TUFF.
P    28012 28686  XTXRYVCQZPF    FGXT15=5        FO    42                   P3
L                                YWMS                                       D+
R                                QUARTZ CRYSTAL RHYOLITE TUFF. DISTINCTIVE FEATURE IS
R                                90% FINE GRAINED QUARTZ-MUSCOVITE GROUNDMASS
R                                QUARTZ GRAINS ARE GREY, VITREOUS
R                                3-5MM IN DIAMETER. PYRITE GRAINS ARE FREQUENTLY
R                                THE CORE OF THE QUARTZ GRAINS, THE QUARTZ OCCUPYING
R                                A PRESSURE SHADOW POSITION
R                                D4634 QUARTZ CRYSTAL TUFF, 3-5% PYRITE.
R                                D4635 "                                 "
R                                D4636 "                                 "
R                                D4637
N    28335 28422  PY3ALTNPYMS    FGFO            FO    35                   P2    MO_+
L                                AGCL                                  P4        U3
R                                UNIT IS LIKELY INTENSELY CHLORITIZED AND SERICITIZED
R                                RHYOLITE TUFF, MEDIUM GREEN TO GREY-GREEN IN
R                                COLOUR. HEAVILY DISSEMINATED WITH EUHEDRAL PYRITE
R                                GRAINS, (1-3MM, 35%).
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R                              ***NOTE*** MOLBDENITE STRINGER PRESENT, (3MM, _1%)
R                              5 DEGREES TO CA, IS NOT PARALLEL TO THE FOLIATION,
R                              IS LATER THAN THE DOMINENT DEFORMATION. MAY INDICATE
R                              THAT THE INTERVAL IS DIRECTLY IN THE VICINITY OF THE
R                              THE BAKER PATTON WORKINGS.
R                              D4638 35% EUHEDRAL PYRITE IN SERICITE-CHLORITE SCHIST
R                                    NARROW STRINGER OF MO.
N    28456 28485    PY3ALTNPYMS    FGFO              CT    20                  P2
L                              AGCL                   FO    30    P4      U3
R                              UNIT OF PERVASIVELY SERICITIZED, CHLORITIZED, PYRIT-
R                              IZED TUFF?, UNIT IS NOW RECOGNIZED AS A PYRITIC
R                              SERICITE CHLORITE SCHIST, MILDLY FOLIATED.
R                              D 4639 PYRITIZED RHYOLITE TUFF, PYRITE INTERVAL FROM
R                              284.57-284.85M, PYRITE 30%.
R                              D4640 3% PYRITE DISSEMINATIONS IN QUARTZ CRYSTAL TUFF
P    28686 30150    PCXTFLPPFQZ    FGFO1768          FO    45                  P2
L                              5A                                          J)
R                              UNIT IS A FINE GRAINED, RELATIVELY MASSIVE LAPILLI
R                              TUFF, POSSIBLY RHYODACITIC IN COMPOSITION.
R                              DISTINCTIVE FEATURE IS ABSENCE OF QUARTZ CRYSTALS.
R                              PYRITE AS FINE DISSEMINATIONS THAT OCCUPY THE INTER-
R                              STICES BETWEEN THE SUB-ROUNDED TO ROUNDED FESIC GREY
R                              CLASTS. 90% CLASTS RANGE IN THICKNESS FROM 2-10CM,.
R                              THE UNIT LIKELY CONTINUES INTO THE NEXT PRINCIPLE
R                              INTERVAL EXCEPT THAT CHLORITE ALTERATION BECOMES SO
R                              INTENSE IT BECOMES DIFFICULT TO RECOGNIZE ANY
R                              LITHOLOGIES.
N    28930 29547    AL7TFLPCLMS    FGFO              MX                        P1
L                              3G                                  P5      U1
R                              UNIT OF DARK GREEN CHLORITE-RICH ALTERED LAPILLI TUFF
R                              D4643 CHLORITE-RICH UNIT, PYRITE AS EUHEDRAL GRAINS,
R                              ACCOUNT FOR 20% OF MODE.
N    29158 29162    MXXQZVN    QZXMX             ¢¢    45
R    29241 29250              D4644 BARREN WHITE QUARTZ VEIN WITH CHLORITE-RICH
R                              ROCK, 10% PY, 50 DEGREES TO CA
R    29306 29485              ZONE OF QUARTZ VEIN FLOODING, BARREN WHITE, 4CM IN
R                              THICKNESS, 15 DEGREES TO CA.
N    29475 29541    AL5TFLPCL      F3                FO    47
L                                                          P3      U+
R                              ZONE OF MODERATE CHLORITE ALTERATION, NOT QUITE AS
R                              STRONG AS THE ABOVE INTERVAL.
R    29610 29636              BARREN WHITE QUARTZ VEIN WITH IRREGULAR PATCH OF
R                              CREAM COLOURED DOLOMITE, OCCUPIES FRACTURE IN VEIN,
R                              IS 3X0.6CM, 40 DEGREES TO CA
R    29667 29675              BARREN WHITE QTZ VEIN, 8 CM WIDE AT 90 DEGREES TO CA
R    29675 29723              WHITE QUARTZ VEIN WITH PATCHES OF DOLOMITE 2 CM WIDE
R                              PARALLEL TO CA, SAMPLE D4545
R    29754 29762              BARREN WHITE QZ VEIN 8 CM WIDE AT 65 DEGREES TO CA
R    29822 29825              BARREN WHITE QZ VEIN 3 CM WIDE AT 45 DEGREES TO CA
R    29825 29861              BARREN WHITE QZ VEIN 36 CM WIDE AT 50 DEGREES TO CA
N    30091 30150    AL5TFLPCL      FGFO              FO    48
L                              4G                                  P3      U+
R                              CHLORITE ALTERED LAPILLI TUFF, MODERATE TO HEAVY
R                              ALTERATION, MINOR PYRITE AS EUHEDRAL GRAINS.
P    30150 33722    PCXTFLPPFQZ    PCFG2757          FO    43                  P2
L                              5A     FO                 BN    43          U+
R                              THIS UNIT IS SEPARATED FROM THE ABOVE LAPILLI TUFF IN
R                              THAT THE CLASTS ARE FINE GRAINED LIGHT TO MEDIUM GREY
R                              , TYPICALLY 1 CM IN THICKNESS. THESE CLASTS HAVE THE
R                              APPEARANCE OF BEING FLATTENED, WHEREAS IN THE
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OVERLYING UNIT THE CLASTS ARE MORE SUBROUNDED. THE FORM OF THE PYRITE IS ALSO DIFFERENT, IT IS STILL INTERSTITIAL TO THE CLASTS BUT IS ALSO AS EUHEDRAL GRAINS WHICH ACCOUNT FOR UP TO 3% OF THE MODE. THIS INTERVAL GENERALLY HAS A MORE CONSISTENT PY CONTENT THROUGHOUT
.***NOTE*** IN THIS UNIT THE QUARTZ CRYSTALS ARE ALSO PRESENT, EQUANT, GREY, 3MM, ACCOUNT FOR 1-3% OF MODE.

N	31282 31332	AL7ALTNCL FGMX MX	
		2G PX D*	
		INTENSELY CHLORITIZED LAPILLI TUFF, CHLORITE ROCK.	
P	33722 35325	AL3TFLPQZPF FGBN FO 40	
		5AQZ FO BN 40	
		LAPILLI TUFF UNIT, ALTERNATING BETWEEN FLATTENED CLASTS AND TUFFACEOUS FINE GRAINED INTERVALS. CLASTS ARE MEDIUM TO LIGHT GREY, 1-3 CM IN THICKNESS AND ELONGATED. INTERVAL IS LOCALLY CHLORITIZED AND MAY BE LOCALLY SILICIFIED, CLASTS ARE TRANSLUSCENT WHITE WHERE INDICATED TO BE SILICIFIED. TR-1% CPY IN THE INTERSTICES AS BLEBS AND 5MM THICK VEINLETS.	
	31762 31837	D4647	
	31837 31913	D4648	
	31913 31992	D4649	
	31992 32068	D4650	
	32068 32143	D4651	
	32143 32213	D4652	
	32212 32283	D4653	
N	32531 32998	A3XDCVCCLMS FGFO FO 30	
		AGQZ BN P3 L)	
		INTERVAL OF DACITIC COMPOSITION TUFF, FINE GRAINED LOCALLY WELL LAMINATED. THE ENTIRE INTERVAL IS NOT ALL FINE GRAINED TUFF SOME IS LAPILLI TUFF, BUT MOST IS FINE GRAINED, BANDED. BANDING, 1-2CM IS DEFINED BY WHITE MICA RICH AND CHLORITIZED INTERVALS. CHLORITIZED INTERVALS 15-20 CM IN LENGTH. PYRITE LAMINATIONS UP TO 1 CM IN THICKNESS, AGGREGATES OF FINE GRAINED PYRITE, ACCOUNT FOR _1% OF MODE.	
N	33725 35325	PY2TFLPPYQZ FGLM2757 BN 40 P1	
		5A BN L1	
		INTERVAL OF PYRITE FILLED INTERSTICES OF THE LAPILLI TUFF. PYRITIC MUD WITH RHYOLITE CLASTS INCORPORATED. ***NOTE*** THIS INTERVAL IS DISTINGUISHED BY THE PRESENCE OF CPY BLEBS AND PATCHES. OVER THE ENTIRE INTERVAL ACCOUNTS FOR ABOUT 1% OF THE MODE. LOCALLY PYRITE ACCOUNTS FOR 5-7% OF THE MODE, INTERSTITIAL TO CLASTS.	
	33525 33600	D4655 RHYOLITE LAPILLI TUFF WITH INTERSTITAL FINE GRAINED PYRITE. PYRITE ACCOUNTS FOR 5% OF THE MODE.	
	33600 33675	D4656 PYRITE AS FILLINGS TO INTERSTICES TO LAPILLI TUFF. PYRITE UP TO 3% OF MODE.	
	33675 33750	D4657 INCLUDES A 40 CM INTERVAL OF PYRITE MUD IN WHICH THERE ARE 60% RHYOLITE CLASTS, 6 CM IN DIAMETER	
	33750 33825	D4658 7% PYRITE AS INTERSTITIAL FILLINGS TO RHYOLITE CLASTS.	
	33825 33900	D4659 5% PYRITE AS INTERSTITAL FILLINGS TO RHYOLITE CLASTS.	
	33900 33975	D4660 3% INTERSTITIAL PYRITE	
	33975 34050	D4661 2% PY, BLEBS CPY, _1%	
	34050 34125	D4662 2% PY, BLEBS CPY, _1%	

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 R    34125 34200          D4663 3% PY, BLEBS CPY, _1%
 R    34200 34275          D4664 2% PY, BLEBS CPY __1%
 R    34275 34350          D4665 _3% EUHEDRAL PYRITE DISSEMINATIONS, __1% CPY AS
 R                              BLEBS.
 R    34350 34425          D4666 3-5% PY, BLEBS OF CPY, _1%
 R    34425 34500          D4667 5% PY, BLEBS OF CPY, _1%
 R    34500 34575          D4668 5% PY IN BANDS, BLEBS CPY, _1%
 R    34575 34650          D4669 1% PY, BLEBS OF CPY, _1%
 R    34650 34725          D4670 1% PY, 3% CPY IN STRINGERS AT 30 DEGREES TO CA.
 R    34725 34800          D4671 1% PY, BLEBS OF CPY, _1%
 R    34800 34875          D4672 _1% PY, BLEBS OF CPY, _1%
 R    34875 34950          D4673 EUHEDRAL PYRITE GRAINS, 5%, TALC STRINGERS
 R                              ISOLATING CLASTS.
 R    34950 35025          D4674 5% EUHEDRAL PYRITE GRAINS IN CHLORITE-RICH ALTE
 R                              TION,
 R    35025 35100          D4675 1% PYRITE, BLEBS OF CPY, _1%
 R    35100 35175          D4676 5-7% PYRITE, BLEBS OF CPY, _1%
 R    35175 35250          D4677 LOCAL BANDS OF PYRITE, 5% OF MODE.
 P    35325 38569    MSXTFLPMS  QZ=FRFO16=6       FO    45              P3
 L                          7A                                        D1
 R                          RHYOLITIC LAPILLI TUFF, CHARACTERISTIC "TWO QUARTZ
 R                          RHYOLITE UNIT", 10% QUARTZ CRYSTALS, BIMODAL
 R                          DISTRIBUTION, 4 TO 8 MM AND 1 TO 2 MM, 60 TO 80%
 R                          WHITE RHYOLITE FRAGMENTS, SILICEOUS CRYSTAL
 R                          BEARING, SUBROUNDED VERY DISTINCTIVE TO FLATTENED
 R                          AND SERICITIZED, HARD TO RECOGNIZE. 5 TO 10% VERY
 R                          SMALL WHITE GRAINS (0.2-1MM), IRREGULAR SHAPED,
 R                          PROBABLY LITHIC FRAGMENTS. SERICITIZATION PERVASIVE
 R                          AND CONCENTRATED IN SPACED FOLIATION PLANES,
 R                          FRAGMENTS UP TO 10 CM LONG, 5 TO 30% PY DISSEMINATED
 R                          AND CONCENTRATED IN BANDS ASSOCIATED WITH QUARTZ
 R                          CAUSED BY PRESSURE SOLUTION. THESE BANDS ARE
 R                          SUBPARALLEL TO CORE AXIS, DEFORMATION MODERATE
 R                          FOLIATION 360M 40, 370M 45, 380M 45 TO CORE AXIS
 R    35330 35419          D4679 5% PY DISSEMINATED AND CONCORDANT TO
 R                          DISCORDANT QZ-PY VEINLETS
 R    35419 35469          D4680 10% PY DISS AND IN QZ PY VEINLETS CONCORDANT
 R                          AND DISCORDANT
 R    35469 35569          D4681 10% PY, DISS AND STREAKS
 R    35569 35660          D4682 7% PY DISS AND QZ, PY VEINLETS
 R    35660 35760          D4683 7% PY DISS AND QZ PY VEINLETS
 R    37169 37269          D4684 20% PY IN STREAKS AND QZ PY VEINLETS
 R    37269 37369          D4685 20% PY DISS AND QZ PY VEINLETS
 R    37369 37469          D4686 15% PY DISS, QZ PY VEINLETS
 R    37469 37580          D4687 10% PY DISS AND IN STREAKS
 R    37580 37680          D4688 10% PY DISS
 R    37680 37730          D4689 20% PY DISS AND 3 CM WIDE PY QZ VEIN AT 20
 R                          DEGREES TO CORE AXIS
 R    37930 38030          D4690 10% PY DISS
 R    38030 38089          D4691 30% PY CONCENTRATED IN 20 CM WIDE QZ-PY-SER.
 R                          VEIN PARALLEL TO FOLIATION
 R    38089 38189          D4692 10% PY DISS
 R    38360 38460          D4693 10% PY IN STREAKS AND DISS
 R    38466 38560          D4694 10% PY CONCENTRATED IN FOLIATION PLANES
 P    38569 39735    FOXRY/F       BXBN1627       FO    40
 L                          7A
 R                          RHYOLITE FLOW, CONTACT WITH SUPERIOR UNIT IS
 R                          MARKED BY SHARP DECREASE IN QUARTZ PHENOCRYST
 R                          CONTENT (ABSENT TO 2%), MASSIVE TO FLOW BRECCIATED
 R                          10 TO 20% SMALL (0.2-2MM) WHITE IRREGULAR SHAPED
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R                                LITHIC FRAGMENTS, THIS UNIT IS CUT BY BANDS OF 40 TO
R                                80% PYRITE 10 TO 50 CM WIDE, PY FINE TO MEDIUM
R                                GRAINED IN A GROUNDMASS OF QZ AND SERICITE, SERICITE
R                                IS LIGHT BROWN, FOLIATION PLANES CAUSE PSEUDO-BEDDING
R                                IN THE PYRITIC BANDS, STRONG SERICITIZATION, 20 TO
R                                40% SERICITE CONCENTRATED IN FOLIATION PLANES,
R                                DEFORMATION MODERATE TO STRONG, FOLIATION 390 40
R                                DEGREES TO CORE AXIS, LOCALLY WELL DEVELOPED PRESSURE
R                                SHADOWS AROUND DISSEMINATED PY CRYSTALS.
N    38650 38900    SHXFALT      ¢¢BX1425      FO    10
L                                7A
R                                FAULT ZONE, SUB--PARALLEL TO CORE AXIS, CORE BROKEN
R                                QUARTZ CALCITE VEIN INJECTION IN SERICITE SCHIST,
R                                10% PY DISSEMINATED.
R    38960 39050                 D4695 10% PY CONCENTRATED IN FOLIATION PLANES
R    39050 39100                 D4696 15% PY, FINE TO MEDIUM GRAINED, DISSEMINATED
R    39100 39200                 D4697 15% PY DISSEMINATED
R    39200 39260                 D4698 25% FINE DISSEMINATED PY
R    39260 39360                 D4699 25% PY, BANDED, FINE TO MEDIUM GRAINED
R    39360 39410                 D4700 65% PY FINE TO MEDIUM, BANDED
R    39410 39500                 D4701 10% PY DISSEMINATED
R    39500 39600                 D4702 20% PY IN SERICITE RICH BANDS
R    39600 39700                 D4703 30% PY DISS IN SERICITE RICH BAND
P    39735 41019    MSXTFXT       FOXT2616      FO    35
L                                7A
R                                RHYOLITIC CRYSTAL TUFF, 10-15% QUARTZ CRYSTALS, UP TO
R                                8 MM, TYPICAL TWO QUARTZ RHYOLITE UNIT, ROCK IS LIGHT
R                                GREY, STRONGLY SERICITIZED, 20 TO 50% SERICITE
R                                CONCENTRATED IN FOLIATION PLANES, PRIMARY FEATURES
R                                OBLITERATED BY SERICITIZATION AND DEFORMATION,
R                                5 TO 25% PY DISSEMINATED, IN STREAKS OF 40% PY
R                                ASSOCIATED WITH QUARTZ AND SERICITE, AND IN QZ-PY
R                                VEINLETS DISCORDANT AND CONCORDANT TO FOLIATION
R                                DEFORMATION MODERATE TO STRONG FOLIATION 30 TO 40
R                                DEGREES TO CORE AXIS, CONTACTS OF THIS UNIT MARKED
R                                BY THE QUARTZ PORPHYROCLASTS PRESENCE.
R    39950 40050                 D4704 15% PY DISS AND CONCENTRATED IN STREAKS
R    40360 40460                 D4705 15% PY DISS AND CONCENTRATED IN STREAKS
R    40460 40560                 D4706 10% PY STREAKS AND VEINLETS MOSTLY PARALLEL
R                                TO FOLIATION AT 35 DEGREES TO CA
R    40560 40660                 D4707 10% DISSEMINATED PY
R    40660 40760                 D4708 10% PY DISS AND IN STREAKS
R    40760 40860                 D4709 20% PY IN NEAR MASSIVE STREAKS UP TO 3 CM WIDE
R    40860 40960                 D4710 20% PY IN STREAKS, DISCORDANT QZ-PY VEINLETS
R                                AND DISSEMINATED
R    40960 41060                 20% PY, IN QZ-PY VEINLETS STREAKS AND DISSEMINATED
R    41060 41110                 15% PY IN STREAKS AND DISSEMINATED
P    41019 41660    MSXTUFF       MXBX26)8      FO    40                    P3
L                                7A                                        D1
R                                THIS UNIT MARKS THE END OF THE "TWO QZ RHYOLITE" IT
R                                IS MARKED BY THE GENERAL ABSENCE OF QZ PHENOCRYSTS
R                                THIS UNIT IS A FINELY BEDDED CHERTY TUFF,
R                                SERICITIZATION STRONG, 10 TO 40% SERICITE,
R                                BEDDING OF HIGHLY SILICEOUS CHERT 5 TO 10 MM WIDE,
R                                ALSO BRECCIATED CHERT BANDS UP TO 30 CM WIDE,
R                                PY 5 TO 20% DISSEMINATED, CONCENTRATED ALONG BEDS AND
R                                INJECTED IN BRECCIA,
R                                UP TO 1% CHALCOPYRITE ASSOCIATED WITH BRECCIATED
R                                CHERT, DISSEMINATED. DEFORMATION
R                                MODERATE FOLIATION 35 TO 45 DEGREES.
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P    41660 41920    BX TFBR        BX  2688      FO    45                P2
                                   7A                                   D1
                    CONGLOMERATIC DEBRIS FLOW, 80% LIGHT GREY SILICEOUS
                    RHYOLITE TUFF FRAGMENTS (CONTAINING NO QZ EYES),
                    VERY ANGULAR, VARIABLE ORIENTATION OF LAMINATIONS
                    AND SLIGHTLY HETEROLITHIC NATURE OF FRAGMENTS
                    INDICATES PRIMARY NATURE OF BRECCIA, MATRIX OF
                    SERICITE AND PY, LOCAL SP ASSOCIATED WITH PY VEINS,
                    FRAGS 2 TO 6 CM IN SIZE, DEFORMATION MODERATE
R    41150 41250    D4713 25% PY IN BEDDING PLANES AND DISS
R    41250 41350    D4714 15% PY DISS AND CONCENTRATED IN STREAKS
R    41350 41405    D4715 1% CPY, 5% PY IN CHERT BRECCIA
R    41405 41425    D4716 10% PY DISS ANMD IN VEINLETS
R    41425 41450    D4717 2% CPY, 35% PY IN CHERT BRECCIA
R    41450 41550    D4718 25% PY CONCENTRATED IN NEAR MASSIVE STREAKS UP
                    TO 4 CM WIDE
R    41550 41650    D4719 TR CPY, 20% PY DISS AND IN BEDDING PLANES
R    41650 41689    C2326 10% PY DISS+VEINS, 0.5% SP IN PY VEINS
R    41689 41764    C2327 5% PY DISS+VLTS
R    41764 41814    C2328 10% PY DISS+VEINS 0.5% SP IN PY-QZ-SP VEINS
R    41814 41860    C2329 5% PY DISS
R    41860 41939    D4720 25% PY DISS AND IN CONGLOMERATE BRECCIA MATRIX
R    41939 42019    D4721 20% PY DISS AND CONCENTRATED IN STREAKS
R    42019 42119    D4722 10% DISS PY
R    42230 42330    D4723 15% DISS PY
R    42330 42400    D4724 10% PY DISS AND CONCENTRATED IN STREAKS
R    43260 43360    D4725 15% DISS PY
R    43360 43439    D4726 20% PY DISS IN MASSIVE GRAYWACKE
P    41920 43510    MXXTFLP        BD  2586      FO    40                P2
                                   7A                                   D2
                    RHYOLITIC LAPILLI TUFF, 20 TO 60% SMALL SUBROUNDED
                    ASH TO LAPILLI SIZE FRAGMENTS 2-20 MM, MOSTLY WHITE
                    LITHIC RHYOLITIC, SOME GREY SILICEOUS CHERTY,
                    MINOR ASH TUFF BEDS DARK GREY SILICEOUS, 5-10 MM WIDE
                    BEDS ARE COMMONLY BRECCIATED, STRONG SERICITIZATION
                    20% PERVASIVE SERICITE, 20% PY DISS AND IN VEINLETS
                    DEFORMATION IS MODERATE, FOLIATION 35 TO 50 DEGREES
                    TO CA, 1% QUARTZ CRYSTALS
P    43510 44580    BDXTUFF        BD  0344      FO    40                P2
                                   3A                  BD    40    P2      D1
                    LAPILLI TUFF, SAME AS PREVIOUS UNIT GRADING INTO A
                    THINLY BEDDED TUFF, CHLORITIZATION INCREASES
                    GRADUALLY FROM 10% TO 60% PERVASIVE CHLORITE AT
                    BOTTOM IN BEDDED TUFF, THIS TUFF INCLUDS PY BEDS UP
                    TO 6 CM WIDE, CHERTY BEDS ARE 5 TO 10 CM WIDE,
                    DISRUPTED BY DEFORMATION FORMING LOCAL BRECCIA
                    TEXTURE, 20% PY DISS AND IN STREAKS, 20% SERICITE
                    PERVASIVE, DEFORMATION IS MODERATE,
                    PROBABLE EXHALATIVE HORIZON
P    44580 45350    MXXTFLP        MXEM3566      FO    75                P2
                                   7A                                   D=
                    RHYOLITIC TUFF, 50% SMALL LITHIC FRAGMENTS 2-10 MM IN
                    SIZE, NO QUARTZ PHENOCRYSTS, 20% SERICITE PERVASIVE
                    MASSIVE, WEAKLY DEFORMED, 2-5% PY DISS
P    45350 47020    LMXMUDS        BD  0255      FO    50                P2
                                   5A                  BD    50    P1      D1
                    THINNLY BEDDED ARGILLITE, GREY SILTSTONE BEDS 5 TO 20
                    MM WIDE ALTERNATING WITH DARK GREY MUDSTONE AND
                    PYRITE BEDS 2 TO 8 MM WIDE, BEDDING NICELY PRESERVED
                    455.5-456 SMALL CONGLOMERATIC BED,
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R				457.5-457.8 CHERT BED, MASSIVE WHITE
R				SILTSTONE BEDS ARE POSSIBLY CHERT BEDS, MASSIVE WHITE
				APHANITIC SILICEOUS, THIS UNIT IS AN EXHALATIVE CHERT
R				HORIZON!, DEFORMATION WEAK, FOLN AND BEDDING 50
R				DEGREES TO CORE AXIS, 10% PY IN SMALL BEDS.
	43510	43569		D4727 30% PY CONCENTRATED IN 20 CM WIDE MASSIVE PY
				BAND
R	43569	43669		D4728 15% PY DISSEMINATED IN BEDDING
	43669	43739		C2330 25% PY DISS, 1% SP VEINLETS
	43739	43789		C2331 40% PY IN STREAKS, 1% SP VEINLETS
R	43900	43969		C2332 25% PY IN STREAKS, 1% SP VEINLETS
R	44239	442		C2333 15% PY IN STREAKS, 1% SP STR
	44469	445t		D4729 20% PY AS PY BEDS FINE TO COARSE GRAINED
R				RECRYSTALLIZED
R	45360	45460		D4730 20% PY AS BEDS OF PY AND PY-QZ VEINS
	45660	45760		D4731 10% PY IN BEDS FINE TO COARSE RECRYSTALLIZED
	46130	46230		D4732 10% PY IN STREAKS, 10 CM WIDE CHERT BAND
R	46919	47019		D4733 10% FINE TO MEDIUM GRAINED PY ALONG BEDDING
	47020	47469	MXXGWAC MX 2656 FO 45	
			5A	
R				MASSIVE GRAYWACKE MEDIUM GRAINED TO COARSE GRAINED
R				CLASTS UP TO 8 MM, SUBROUNDED SILICEOUS, 5 TO 20%
				PY DISSEMINATED AND CONCENTRATED IN STREAKS,
R				DEFORMATION IS WEAK FOLIATION AT 40 TO 50 DEGREES
R				TO CORE AXIS
	47469	47700	MXXGWAC CTMX2667 FO 50	
			7A	
R				CONGLOMERATE, 60% CONGLOMERATE SIZE CLASTS,
R				SUBROUNDED, UP TO 3 CM, MOSTLY WHITE SILICEOUS
				CLASTS, ALSO SOME BLACK MUDSTONE CLASTS SMALLER,
R				FRAGMENTS NOT STRETCHED, DEFORMATION WEAK, 5 TO 20%
R				PY DISSEMINATED IN MATRIX.
	47700	48800	MXXGWAC MX2656 FO 45	
			5A	
R				MASSIVE GRAYWACKE MEDIUM TO COARSE GRAINED, DARK GREY
R				LOCALLY ROUNDED SILICEOUS CLASTS UP TO 1 CM,
				DEFORMATION WEAK, FOLIATION 40 TO 45 DEGREES TO CORE
R				AXIS, LOCAL BEDDING ABOUT 1 CM WIDE GREY SILTSTONE
R				BEDS, 2 TO 5% PY CONCENTRATED IN SMALL STREAKS, ONE
				SMALL SPECK OF CPY.
R	47489	47569		D4734 20% PY DISS IN CONGLOMERATE MATRIX
R	47569	47669		D4735 20% PY IN CONGLOMERATE MATRIX AND STREAKS
R	47930	47960		D4736 5% PY DISS, TR CPY
	48800	49170	CHXCHER MX 1556 FO 50	
L			7A	
R				WHITE MASSIVE CHERT BANDS ALTERNATING WITH DARK GREY
R				MASSIVE FINE GRAINED GRAYWACKE, CHERT BANDS 10 TO 50
R				CM WIDE, BRECCIATED BY PY-SERICITE, 5 TO 20% PY
R				CONCENTRATED IN STREAKS, TR TO LOCALLY 5% CPY IN
R				PY-CPY STRINGERS, DISCORDANT TO FOLIATION,
R				DEFORMATION WEAK, FOLIATION 50 TO 45 DEGREES TO CA
R	48880	48980		D4737 10% PY CONCENTRATED IN STREAKS
R	48980	49080		D4738 20% PY CONCENTRATED IN STREAKS
R	49080	49100		D4739 5% CPY, 10% PY IN STRINGERS
R	49100	49169		D4740 0.5% CPY, 5% PY IN STRINGERS
R	49169	49230		D4741 TR CPY, 3% PY IN STRIONGERS
	49170	51450	MXXDC/F MX 2566 FO 50D1	
L			5A	D=
R				MASSIVE DACITE, MEDIUM GREY, FINE GRAINED,
R				SMALL QUARTZ GRAINS THROUGHOUT, LOCALLY 5% QUARTZ

R
R
R
R
R
R 49669 49769 D4742 10% PY IN STREAKS ASSOCIATED WITH QZ
R 50630 50730 D4743 10% PY IN STREAKS AND DISSEMINATED
R
R E.O.H
R
R

PHENOCRYSTS, PERVASIVE CHLORITIZATION INCREASING
TOWARDS END OF HOLE 5-20% CHLORITE, DEFORMATION WEAK
1-5% PY DISS AND IN STREAKS
SERICITIZATION AND PRESSURE SHADOWS OF QZ AROUND PY
CRYSTALS COMMON IN PY STREAKS.

- Whole rock samples -

A001	486	547	D4601
A001	1579	1615	D4602
A001	1615	1675	D4603

37	2083	D4604					
83	2140	D4605					
20	2491	D4606					
97	3666	D4607					
71	4430	D4608					
39	5173	D4609					
67	5507	D4610					
07	5937	D4611					
57	6096	D4612					
25	9183	D4613					
48	9500	D4614					
00	9550	D4615					
50	9685	D4616					
40	17400	D4620					
68	19920	D4623					
70	22504	D4625					
85	23246	D4627					
56	25604	D4629					
27	28075	D4633					
00	28850	D4641					
66	32840	D4654					
			Au	Ag	Cu	Zn	Mo
52	10634	D4617	.015	.85	.32	.005	0.0
50	12100	D4618	.015	.85	.02	.005	0.0
50	15020	D4619	.015	.85	.01	.005	0.0
00	17463	D4621	.015	.85	.01	.005	0.0
75	19400	D4622	.015	2.75	3.23	.005	0.0
50	20200	D4624	.015	.85	.29	.005	0.0
25	22789	D4626	.015	2.41	.89	.005	0.0
59	25215	D4628	.015	.85	.05	.005	0.0
04	25675	D4630	.015	.85	.02	.005	0.0
75	25750	D4631	.015	.85	.01	.005	0.0
50	25825	D4632	.015	.85	.01	.005	0.0
75	28150	D4634	.015	.85	.01	.005	0.0
50	28225	D4635	.015	.85	.005	.005	0.0
25	28300	D4636	.015	.85	.005	.005	0.0
00	28375	D4637	.015	2.41	.005	.01	.005
75	28450	D4638	.015	2.06	.005	.01	.03
50	28525	D4639	.015	.85	.005	.005	.005
25	28590	D4640	.015	.85	.005	.01	0.0
51	29112	D4642	.015	3.1	.01	.03	0.0
12	29162	D4643	.015	3.79	.01	.03	0.0
38	29256	D4644	.015	3.1	.01	.03	0.0
53	9723	D4645	.015	.85	.005	.01	0.0
70	30944	D4656	.015	1.72	.05	.005	0.0
53	31837	D4647	.015	.85	.1	.005	0.0
87	1914	D4648	.015	.85	.19	.03	0.0
.4	1992	D4649	.015	2.07	.43	.03	0.0
02	32069	D4650	.015	4.14	.64	.04	0.0
69	32143	D4651	.015	.85	.07	.01	0.0
03	2214	D4652	.015	2.75	.44	.01	0.0
.4	32284	D4653	.015	.85	.1	.005	0.0
05	33600	D4655	.015	.85	.01	.005	0.0
00	3675	D4656	.015	1.72	.05	.005	0.0
75	33750	D4657	.015	1.72	.02	.01	0.0
50	33825	D4658	.015	.85	.02	.01	0.0
25	3900	D4659	.015	.85	.07	.005	0.0
00	3975	D4660	.015	2.75	.27	.05	0.0
75	34050	D4661	.015	.85	.3	.005	0.0
00	34125	D4662	.015	4.83	.69	.04	0.0

A002	34125	34200	D4663	.09	5.17	.95	.02	0.0
A002	34200	34275	D4664	.015	2.07	.24	.005	0.0
A002	34275	34350	D4665	.015	1.72	.11	.005	0.0
A002	34350	34425	D4666	.015	2.41	.18	.005	0.0
A002	34425	34500	D4667	.015	5.17	.88	.01	0.0
A002	34500	34575	D4668	.015	2.75	.29	.005	0.0
A002	34575	34650	D4669	.015	2.07	.33	.005	0.0
A002	34650	34725	D4670	.015	13.4	2.58	.02	0.0
A002	34725	34800	D4671	.015	.85	.25	.005	0.0
A002	34800	34875	D4672	.015	4.14	.57	.03	0.0
A002	34875	34950	D4673	.015	.85	.03	.005	0.0
A002	34950	35025	D4674	.015	.85	.1	.005	0.0
A002	35025	35100	D4675	.015	.85	.1	.005	0.0
A002	35100	35175	D4676	.015	3.79	.63	.01	0.0
A002	35175	35250	D4677	.06	3.1	.26	.005	0.0
A002	35280	35325	D4678	.015	.85	.01	.01	0.0
A002	35330	35420	D4679	.015	.85	.005	.005	0.0
A002	35420	35470	D4680	.015	.85	.005	.005	0.0
A002	35470	35570	D4681	.015	.85	.005	.005	0.0
A002	35570	35660	D4682	.015	.85	.005	.01	0.0
A002	35660	35760	D4683	.015	.85	.005	.01	0.0
A002	37170	37270	D4684	.015	.85	.005	.005	0.0
A002	37270	37370	D4685	.015	.85	.005	.005	0.0
A002	37370	37470	D4686	.015	.85	.005	.005	0.0
A002	37470	37580	D4687	.015	.85	.005	.005	0.0
A002	37580	37680	D4688	.015	.85	.005	.005	0.0
A002	37680	37730	D4689	.03	.85	.005	.005	0.0
A002	37930	38030	D4690	.015	.85	.005	.005	0.0
A002	38030	38090	D4691	.015	.85	.005	.005	0.0
A002	38090	38190	D4692	.015	.85	.005	.005	0.0
A002	38360	38460	D4693	.015	.85	.005	.005	0.0
A002	38460	38560	D4694	.015	.85	.01	.005	0.0
A002	38960	39050	D4695	.015	1.72	.04	.005	0.0
A002	39050	39100	D4696	.015	.85	.02	.005	0.0
A002	39100	39200	D4697	.015	.85	.01	.005	0.0
A002	39200	39260	D4698	.015	.85	.005	.005	0.0
A002	39260	39360	D4699	.015	.85	.005	.005	0.0
A002	39360	39410	D4700	.015	2.41	.005	.005	0.0
A002	39410	39500	D4701	.015	.85	.005	.005	0.0
A002	39500	39600	D4702	.015	.85	.005	.005	0.0
A002	39600	39700	D4703	.015	.85	.005	.005	0.0
A002	39950	40050	D4704	.015	.85	.005	.005	0.0
A002	40360	40460	D4705	.015	.85	.01	.005	0.0
A002	40460	40560	D4706	.015	.85	.01	.005	0.0
A002	40560	40660	D4707	.015	.85	.01	.005	0.0
A002	40660	40760	D4708	.015	.85	.01	.005	0.0
A002	40760	40860	D4709	.015	1.72	.04	.01	0.0
A002	40860	40960	D4710	.015	1.72	.03	.005	0.0
A002	40960	41060	D4711	.015	2.41	.04	.005	0.0
A002	41060	41110	D4712	.015	2.07	.08	.005	0.0
A002	41150	41250	D4713	.015	.85	.01	.005	0.0
A002	41250	41350	D4714	.015	2.07	.05	.01	0.0
A002	41350	41405	D4715	.015	2.75	.31	.01	0.0
A002	41405	41425	D4716	.015	1.72	.18	.01	0.0
A002	41425	41450	D4717	.015	6.55	2.31	.03	0.0
A002	41450	41550	D4718	.015	4.48	.08	.01	0.0
A002	41550	41650	D4719	.06	3.1	.02	.51	0.0
A002	41650	41690	C2326	.08	2.0	.04	.01	0.0
A002	41690	41765	C2327	.015	.85	.02	.01	0.0
A002	41765	41815	C2328	.03	.85	.04	.005	0.0

A002	41815	41860	C2329	.015	.85	.12	.005	0.0
A002	41860	41940	D4720	.015	2.07	.04	.01	0.0
A002	41940	42020	D4721	.015	3.1	.09	.01	0.0
A002	42020	42120	D4722	.015	.85	.01	.005	0.0
A002	42230	42330	D4723	.015	1.72	.02	.005	0.0
A002	42330	42400	D4724	.015	2.07	.02	.005	0.0
A002	43260	43360	D4725	.015	2.07	.01	.74	0.0
A002	43360	43440	D4726	.015	2.07	.01	.06	0.0
A002	43510	43570	D4727	.015	4.14	.11	.6	0.0
A002	43570	43670	D4728	.015	4.14	.05	.35	0.0
A002	43670	43740	C2330	.03	2.5	.07	.11	0.0
A002	43740	43790	C2331	.015	4.7	.05	.45	0.0
A002	43900	43970	C2332	.03	3.5	.07	.21	0.0
A002	44240	44290	C2333	.015	4.9	.09	.21	0.0
A002	44470	44570	D4729	.015	2.07	.01	.13	0.0
A002	45360	45460	D4730	.015	2.75	.01	.13	0.0
A002	45660	45760	D4731	.015	2.07	.01	.01	0.0
A002	46130	46230	D4732	.015	2.07	.03	.01	0.0
A002	46920	47020	D4733	.015	2.07	.01	.02	0.0
A002	47490	47570	D4734	.03	.85	.01	.01	0.0
A002	47570	47670	D4735	.015	1.72	.01	.01	0.0
A002	47930	47960	D4736	.015	.85	.01	.01	0.0
A002	48880	48980	D4737	.015	.85	.005	.01	0.0
A002	48980	49080	D4738	.015	2.41	.01	.01	0.0
A002	49080	49100	D4739	.15	24.1	4.87	.1	0.0
A002	49100	49170	D4740	.015	4.82	.69	.02	0.0
A002	49170	49230	D4741	.015	3.1	.3	.01	0.0
A002	49670	49770	D4742	.015	.85	.05	.005	0.0
A002	50630	50730	D4743	.015	2.07	.03	.01	0.0

R			RQD
A004	107	547	65
A004	547	853	98
A004	853	1158	93
A004	1158	1463	100
A004	1463	1767	100
A004	1767	2082	100
A004	2082	2378	100
A004	2378	2682	91
A004	2682	2987	100
A004	2987	3292	100
A004	3292	3597	98
A004	3597	3901	92
A004	3901	4206	93
A004	4206	4371	94
A004	4371	4511	100
A004	4511	4816	96
A004	4816	5121	100
A004	5121	5425	100
A004	5425	5778	97
A004	5778	6055	94
A004	6055	6340	100
A004	6340	6645	88
A004	6645	6949	90
A004	6949	7254	94
A004	7254	7559	92
A004	7559	7863	100
A004	7863	8168	94
A004	8168	8473	93
A004	8473	8778	100
A004	8778	9083	98

A004	9083	9388	93
A004	9388	9434	100
A004	9434	9693	100
A004	9693	9997	98
A004	9997	10302	93
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A004	20665	20970	72
A004	20970	21275	98
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A004	23104	23407	92
A004	23407	23713	99
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A004	24018	24323	89
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A004	24628	24933	94
A004	24933	25237	100
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A004	25542	25863	92
A004	25863	26152	100
A004	26152	26457	100
A004	26457	26761	94

A004	26761	27066	100
A004	27066	27371	95
A004	27371	27676	100
A004	27676	28012	100
A004	28012	28286	94
A004	28286	28590	95
A004	28590	28686	100
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A004	28895	29200	95
A004	29200	29505	96
A004	29505	29809	100
A004	29809	30150	100
A004	30150	30419	93
A004	30419	30724	100
A004	30724	31029	100
A004	31029	31333	98
A004	31333	31638	87
A004	31638	31943	91
A004	31943	32248	100
A004	32248	32553	93
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A004	33467	33722	100
A004	33722	34077	98
A004	34077	34381	94
A004	34381	34686	100
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A004	35601	35905	96
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A004	36210	36515	89
A004	36515	36820	86
A004	36820	37125	100
A004	37125	37429	100
A004	37429	37734	89
A004	37734	38039	93
A004	38039	38343	91
A004	38343	38569	100
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A004	39258	39563	95
A004	39563	39735	78
A004	39735	39868	93
A004	39868	40173	100
A004	40173	40477	97
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A004	40782	41019	97
A004	41019	41392	80
A004	41392	41697	91
A004	41697	42001	94
A004	42001	42306	97
A004	42306	42611	94
A004	42611	42916	88
A004	42916	43221	86
A004	43221	43525	97
A004	43525	43830	99
A004	43830	44135	85

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A004 44135 44440    90
A004 44440 44745    93
A004 44745 45049    91
A004 45049 45354    88
A004 45354 45659    91
A004 45659 45964    80
A004 45964 46269    85
A004 46269 46573    88
A004 46573 46878    90
A004 46878 47183   100
A004 47183 47488    88
A004 47488 47793    92
A004 47793 48097    85
A004 48097 48402    90
A004 48402 48707    90
A004 48707 49012    83
A004 49012 49317    94
A004 49317 49621    92
A004 49621 49926    95
A004 49926 50231    89
A004 50231 50535    92
A004 50535 50841    90
A004 50841 51145    88
A004 51145 51450    96
/END
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 IDEN6B0201   284BP_2-92   NQ12AUG92LG    AMISAUG92          GRD000.00          0101
 IPRJPLACER DOME INC.                                BAKER PATTON GRAVITY ANOMALY DRILL TEST
 S000      0  1524     663.85295.00-65.00                    6071340.00 332820.00    320.04
 S001   1524  6096     663.85298.20-62.40
 S002   6096  9143     663.85300.66-60.00
 S003   9143 12192     663.85301.50-58.00
 S004  12192 15240     663.85305.20-52.00
 S005  15240 18287     663.85305.60-53.00
 S006  18287 22493     663.85305.66-51.00
 S007  22493 28894     663.85306.66-50.10
 S008  28894 35050     663.85308.16-48.10
 S009  35050 39320     663.85307.66-47.60
 S010  39320 44195     663.85307.46-44.60
 S011  44195 48190     663.85309.16-43.00
 S012  48190 54559     663.85309.16-40.00
 S013  54559 60960     663.85308.66-34.00
 S014  60960 66140     663.85310.66-30.00
 S015  66140 66385     663.85311.66-27.00
 /NAM                                                  QZPFKFEPACHBCZMSCAD:XXYY
 LNAM                                                  AKTACLLIHEMGPYPRCPSL
 /SCL         MT.2PC.0
 LSCL             PC.0        LCTM
 A001
 AUMM                    SAMP
 A002
 AUMM                    SAMP       AU     AG     CU     ZN     MO
 A003
 AUMM                    SAMP
 A004
 AUMM                    SAMP
 A005
 AUMM                    SAMP
 P          0   142       XCASE
 PMSV     142 10100     MXXXTDY        MX  2516      FO    40                  P1
 L                                 5M                                        D=
 R                                 DARK GREEN CRYSTAL DYKE, 15% QUARTZ PHENOCRYSTS
 R                                 SMALL (2-4 MM), WITH SOME LARGER ONES, MATRIX IS
 R                                 FINE GRAINED CHLORITIC TO APHYRIC
 R                                 DEFORMATION GENERALLY WEAK BUT THIS UNIT IS CUT BY
 R                                 SEVERAL SMALL FAULTS, FOLIATION AT 40 DEGREES TO CA
 R                                 2-5% PY FINELY DISSEMINATED THROUGHOUT UNIT,
 R                                 SMALL QUARTZ VEINS THROUGHOUT, CONCENTRATIONS OF QZ
 R                                 VEINING ASSOCIATED WITH FAULTS, GRANULOMETRY
 R                                 INCREASES AT END OF UNIT.
 R      1559  1610                 FAULT SUBPARALLEL TO CORE AXIS, INJECTED WITH QUARTZ
 N      1719  2200     PPXPPDY        PPFO1526      FO    35                  P2
 L                                 7A                 C/    15                  D1
 R                                 QUARTZ PORPHYRY DYKE, 15% LARGE (5-10 MM ) QUARTZ
 R                                 PHENOCRYSTS IN LIGHT GREY SERICITIZED AND SILICEOUS
 R                                 MATRIX, LOWER CONTACT SHARP AT 10 DEGREES TO CORE
 R                                 AXIS, QUARTZ VEIN AT UPPER CONTACT AT 20 DEGREES TO
 R                                 CORE AXIS. 5-10% PY THROUGHOUT, DISSEMINATED AND IN
 R                                 PY-CHL STRINGERS, DEFORMATION MODERATE, GOOD FOLIA-
 R                                 TION AT 35 DEGREES TO CORE AXIS, QUARTZ VEINING
 R                                 ASSOCIATED WITH FAULTS IN THE DYKE.
 R       440   490               D4744 4 QZ VEINS 1 TO 3 CM WIDE AT 60 DEGREES TO CA
 R      1689  1750               D4745 20 CM WIDE WHITE QZ VEIN AT 20 DEGREE TO CORE
 R                                 AXIS, 1% PY
 R      1750  1825               D4746 10% PY IN PY-CHL STRINGERS
 R      1825  1900               D4747 10% PY IN PY-CHL STRINGERS
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R       1900   1975        D4748 10% PY IN PY-CHL STRINGERS
R       1975   2050        D4749 5% PY IN STRINGERS 20 CM WIDE FAULT WITH QZ
R                          VEIN INJECTIONS
R       2050   2125        D4750 40 CM WIDE QZ VEIN IN FAULT AT 25 DEGREES TO
R                          CORE AXIS
R       2125   2175        D4751 10% PY DISS AND IN VEINLETS
R       2175   2214        D4752 5% PY, CONTACT DYKE/CRYSTAL TUFF
R       2214   2255        D4753 5% PY DISSEMINATED
R       2255   2314        D4754 5% PY DISS AND ASS WITH SMALL QZ VEINS
N       2200   4800   MXXXTDY       MX  2516      FO    40                P1
L                          3G                                            D=
R                          MASSIVE DARK GREEN APHYRIC, FINE GRAINED, LOCALLY
R                          5% QUARTZ PHENOCRYSTS, FROM 39 M GRANULOMETRY,
R                          INCREASES GRADUALLY TO MEDIUM GRAINED DIORITIC
R                          TEXTURE, DEFORMATION IS WEAK, FOLIATION AT 45
R                          DEGREES TO CORE AXIS, 5% PY FINELY DISSEMINATED
R                          SMALL QZ CAL VEINS THROUGHOUT,
R       2519   2610        QUARTZ PORPHYRITIC DYKE
R       2719   2750        QUARTZ PORPHYRITIC DYKE
R       2510   2560        D4755 10% PY INJECTED IN SMALL QZ PORPHYRY DYKE
R       2560   2610        D4756 5% PY INJECTED IN QZ PORPHYRY DYKE
R       2710   2760        D4757 5% PY DISS, SMALL QZ VEINLETS
R       3060   3110        D4758 SMALL QZ VEINS, 1% MO, 1% PY
R       4350   4410        D4759 4 QZ VEINS 1 TO 3 CM WIDE, 5% PY DISS.
N       4800   5200   SCXFALT       SH  2415      FO    40
L                          MR                                            D+
R                          FAULT ZONE, STRONGLY FOLIATED AT 20 TO 45 DEGREES
R                          TO CA, STRONGLY CARBONATIZED, BRICK RED COLOUR
R                          GIVEN BY HEMATIZATION CAUSED BY "WATER VEIN", CORE
R                          BROKEN, SMALL QZ CALCITE VEINLETS, 2% PY
N       5200   6850   MXXXTDY          2464      FO    45                P1
L                          5G                                            D+
R                          MASSIVE DIORITIC CLASTIC DYKE, MEDIUM GRAINED,
R                          5 TO 10% QUARTZ CRYSTALS, LOCALLY PORPHYRITIC
R                          TEXTURE, WEAKLY DEFORMED, FOLIATION AT 40 DEGREES
R                          TO CA, QUARTZ VEINING THROUGHOUT, 2% DISS PY
N       6850   7300   SHXFALT       PPSH1516      FO    30                P4
L                          7A                                            D+
R                          INTENSE FAULT ZONE, CORE VERY BROKEN, INTENSELY
R                          SERICITIZED, LOCALLY 10% QUARTZ PORPHYROCLASTS,
R                          PROBABLE QUARTZ PORPHYRY DYKE, THE RHEOLOGICAL
R                          CONTRAST WITH THE MASSIVE DIORITE PROMOTED THE FAULT
R                          -ING, THE INTENSE FOLIATION IS AT 25 TO 40 DEGREES
R                          TO CORE AXIS, QUARTZ VEIN INJECTION THROUGHOUT FAULT,
R                          2-5% PY DISS AND IN VEINLETS, UP TO 1% MOLYBDENITE
R                          COMMONLY AT BORDERS OF QZ VEINS
N       7300   7559   MXXXTDY       MX  2464      FO    25                P1
L                          5G                                            D)
R                          MASSIVE DIORITIC CLASTIC DYKE, FINE TO MEDIUM
R                          GRAINED, DARK GREEN, NO QUARTZ PHENOCRYSTS,
R                          GRADUALLY INCREASING GRANULOMETRY, WEAKLY DEFORMED,
R                          FOLIATION AT 35 TO 40 DEGREES
R                          TO CORE AXIS, 1% DISS PY, SMALL QZ VEINING.
R       4610   4650        D4760 2% PY ALONG 3 CM CHLORITE VEIN AT 45 DEGREES
R                          TO CORE AXIS
R       5275   5325        D4761 2% DISS PY
R       5325   5350        D4762 20 CM BARREN QZ VEIN AT 45 DEGREES TO CA
R       5350   5400        D4763 2% DISS PY
R       5860   5910        D4764 2% DISS PY, 1 CM WIDE QZ VEIN
R       5910   5979        D4765 70 CM QZ VEIN, WHITE QZ, 1% PY, TR MO, 40
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R                                DEGREES TO CORE AXIS
R       5979  6029               D4766 3% DISS PY, FOUR 1 CM WIDE QZ VEINS
R       6029  6104               D4767 1% DISS PY
R       6104  6135               D4768 6 CM WHITE QZ VEIN AT 50 DEGREES TO CORE AXIS
R       6559  6634               D4769 1% DISS PY
R       6634  6675               D4770 10 CM QZ VEIN 45 DEGREES TO CA, 1% PY, MO,
R                                TR CPY
R       6675  6725               D4771 TR PY
R       6829  6890               D4772 1% PY DISS, SMALL QZ VEINS
R       6890  6940               D4773 STRONG FAULTING, SMALL QZ VEIN, 1% MO, PY
R       6940  7009               D4774 FAULT, 5% PY IN VEINLETS, 20 CM QZ VEIN AT 20
R                                DEGREES TO CORE AXIS, 1% MO
R       7009  7084               D4775 5% PY IN STRINGERS, 40 CM QZ VEIN 10 DEGREES
R                                TO CORE AXIS, 1% MO
R       7084  7159               D4776 50 CM QZ VEIN, 5 DEGREES TO CORE AXIS, 1% MO
R                                1% PY, TR CPY
R       7159  7220               D4777 30 CM QZ VEIN, 1% PY
R       7220  7300               D4778 FAULT, 1% PY, SMALL QZ VEIN
R       7300  7350               D4779 1% PY DISS
N       7559  9600   PPXXTDY       PP  2516      FO    35                P1
L                                5A                                     D+
R                                GRADATION BETWEEN MEDIUM GRAINED EQUIGRANULAR
R                                DIORITIC TEXTURE AT BEGINNING OF UNIT TOWARDS
R                                PORPHYRITIC TEXTURE, DYKE CONTAINS 20% QUARTZ
R                                PHENOCRYSTS ROUNDED, AS A WHOLE THE CLASTIC DYKE
R                                UNIT IS CHARACTERIZED BY GRADUAL TEXTURAL CHANGES,
R                                DEFORMATION IS MODERATE TO WEAK,
R                                FOLIATION AT 25 TO 40 DEGREES TO CORE AXIS, 1-5%
R                                DISSEMINATED PY, QTZ VEINING THROUGHOUT WITH
R                                ASSOCIATED MO, ALSO LOCAL CPY.
R       7570  7620               D4780 1 CM QZ VEIN PARALLEL TO CA, 1% PY, TR MO
R       7620  7679               D4781 2 CM QZ VEIN PARALLEL TO CA, 2% MO, 1% PY
R       7679  7729               D4782 1 CM QZ VEIN 90 DEGREE TO CORE AXIS, TR MO
R       7975  8025               D4783 2% FINELY DISSEMINATED PY
R       8025  8045               D4784 1 CM QZ VEIN, 5% PY DISS, 1% MO, QV 45
R                                DEGREES TO CORE AXIS
R       8045  8100               D4785 2% DISSEMINATED PY
R       8100  8170               D4786 2% DISSEMINATED PY
R       8170  8220               D4787 3 CM QZ VEIN AT 30 DEGREES TO CORE AXIS, TR MO,
R                                3% DISS. PY
R       8220  8290               D4788 3% DISS PY
R       8290  8340               D4789 THREE 1 CM QZ VEINS AT 20 DEGREES TO CORE AXIS,
R                                1% MO, 3% DISS PY
R       8340  8400               D4790 20 CM QZ VEIN AT 45 DEGREES TO CORE AXIS, 2% PY
R                                DISS, TR MO, CPY
R       8400  8429               D4791 3% DISS PY
R       8429  8470               D4792 20 CM QZ VEIN AT 20 DEGREES TO CA, 1% MO
R                                1% PY DISS, TR CPY
R       8470  8520               D4793 3% PY DISS
R       8579  8629               D4794 1% PY DISS
R       8629  8700               D4795 1 CM QZ VEIN AT 5 DEGREES TO CORE AXIS, TR MO,
R                                1% PY DISS
R       8700  8750               D4796 SMALL CHLORITIC FAULT, 1% PY, MO
N       9600 10100   MXXXTDY       MX  2455      FO    25                P2
L                                5G                                     D+
R                                CHILL MARGIN OF DYKE, FINE GRAINED DARK GREEN
R                                CHLORITIC, UPPER CONTACT WITH CLASTIC DYKE IS
R                                GRADUAL, DEFORMATION IS MODERATE TO STRONG, FOLIATION
R                                AT 25 TO 40 DEGREES TO CA, QUARTZ VEIN
R                                INJECTIONS WITH ASSOCIATED MO, CPY AND 2-3% PY.
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P	10100	22319	MSXTFXT		FRFO2526	FO	40	P3
L				7A				D1
R				RHYOLITIC CRYSTAL TUFF, LIGHT GREY SILICEOUS, 10 TO				
R				20% QUARTZ PHENOCRYTS UP TO 8 MM, ROUNDED, BIMODAL				
I				DISTRIBUTION TYPICAL OF THE 2 QUARTZ RHYOLITE,				
R				MATRIX LIGHT GREY VERY SILICEOUS, STRONG				
R				SERICITIZATION, LOCAL BRECCIATION CAUSED BY SERICITE				
R				-PY INJECTION, 5-10% PY DISS AND CONCENTRATED IN				
R				FOLIATION PLANE, THIS UNIT IS DISTINCTIVE FROM				
R				CLASTIC DYKE BY BEING MORE SILICEOUS AND SERICITIZED,				
R				ALSO NO GRANULOMETRY VARIATIONS. DEFORMATION IS				
R				MODERATE TO STRONG FOLIATION AT 30 TO 40 DEGREES TO				
R				CA, VERY FEW QUARTZ VEINS AND FAULTS				
R				122.0-127 INTENSELY SERICITIZED 1-5% PY DISS AND				
R				IN VEINLETS, CHLORITE MEDIUM GREEN ASSOCIATED WITH				
R				PY VEINLETS				
R	8920	8979		D4797 TWO 1 CM QZ VEINS 45 DEGREES TO CA, 1% PY				
R				TR. MO				
R	8979	9020		D4798 1% PY DISS				
R	9020	9070		D4799 1% PY DISS				
R	9070	9120		D4800 TWO 1 CM QZ VEINS AT 20 AND 50 DEGREES TO CORE				
R				AXIS, 1% PY, MO				
R	9120	9159		D4801 1% PY DISS				
R	9159	9209		D4802 1% PY, TR MO				
R	9209	9259		D4803 1% PY DISS				
R	9259	9290		D4804 20 CM QZ VEIN AT 45 DEGREE TO CA, 2% PY, TR MO				
R	9290	9340		D4805 1% PY, SMALL FAULT PARALLEL TO CORE AXIS				
R	9550	9600		D4806 1% DISS PY				
R	9600	9670		D4807 15 AND 10 CM QZ VEINS AT 40 DEGREES TO CA				
R				TR MO, CPY AND PY				
R	9670	9740		D4808 SMALL QZ VEINS, TR PY				
R	9740	9775		D4809 8 AND 2 CM QZ VEINS 90 DEGREES TO CA,				
R				1% CPY, PY, TR MO				
R	9775	9840		D4810 FAULT 10 DEGREES TO CORE AXIS, TR CPY, PY IN				
R				FAULT PLANE				
R	9840	9900		D4811 1% PY DISS AND IN VEINLETS, TR CPY				
R	9900	9940		D4812 20 CM WIDE QZ VEIN NETWORK, 1% PY DISS				
R	9940	9990		D4813 THREE 1 CM QZ VEINS, 1% MO ASS., 1% DISS PY				
R	9990	10059		D4814 TWO 1 CM QZ VEINS 20 DEGREES TO CA, 1% MO				
R				2% PY DISS				
R	10059	10109		D4815 3% PY DISS				
R	10179	10229		D4816 10 CM QZ VEIN 40 DEGREES TO CA, 1% MO, PY				
R	10390	10440		D4817 TWO 1 CM QZ VEINS, 20 AND 40 DEGREES TO CORE				
R				AXIS, 1% MO, PY				
R	10440	10490		D4818 TWO 1 CM QZ VEINS 30 DEGREES TO CA, TR MO				
R				3% PY DISS				
R	10490	10540		D4819 1 CM QZ VEIN 20 DEGREES TO CA, 3% PY DISS				
R				AND IN STRINGERS				
R	10540	10609		D4820 5% PY DISS AND IN STRINGERS				
R	10609	10650		D4821 1 CM QZ VEIN 10 DEGREES TO CA, 2% MO, 5%				
R				PY IN STRINGERS AND DISS.				
R	10650	10700		D4822 7% PY DISS AND IN VEINLETS				
R	10840	10909		D4823 10% PY IN VEINLETS AND DISS				
R	10909	10940		D4824 10% PY, 1% CPY IN VEINLETS AND DISS				
R	10940	10990		D4825 10% PY DISS AND IN VEINLETS				
N	12740	14080	MSXTFLP		2516	FO	30	P3
L				7A				1
R				RHYOLITIC LAPILLI TUFF, LIGHT GREY, STRONGLY				
R				SERICITIZED, 20 TO 80% WHITE RHYOLITIC FRAGMENTS				
R				UP TO 10 CM LONG, FLATTENED IN FOLIATION, THEY ARE				

R						DISTINCT FROM MATRIX BY BEING LESS SERICITIZED AND
R						CONTAIN LESS QZ PHENOCRYTS (5-10%), MATRIX 10-15%
R						QZ PHENOCRYSTS UP TO 8 MM, 10% PY IN VEINLET NETWORK
R						AND DISSEMINATED, DEFORMATION MODERATE TO STRONG,
R						FOLIATION AT 30 DEGREES TO CORE AXIS, NO QZ VEINING.
R	12229	12300				D4826 7% PY DISS AND IN VEINETS
R	12470	12529				D4827 10% PY DISS AND IN STRINGERS
R	12909	12969				D4828 15% PY DISS AND IN VEINLETS
R	13709	13769				D4829 10% PY IN STRINGERS AND DISS
R	13769	13840				D4830 10% PY IN STRINGERS AND DISS
R	13840	13915				D4831 10% PY DISS AND IN STRINGERS
R	13915	13984				D4832 10% PY AND 1% CPY IN STRINGERS
R	13984	14059				D4833 10% PY DISS AND IN VEINLETS
N	14080	15190	MXXTFXT	1626	FO 35	P2
L				7A	S+	K1
R				RHYOLITIC CRYSTAL TUFF, 15-20% QUARTZ CRYSTALS, UP		
R				TO 10 MM, CRYSTALS ARE ROUND TO VERY ANGULAR, MATRIX		
R				IS WHITE SILICEOUS TO SERICITIC LOCAL CHLORITIZATION		
R				SERICITIZATION PERVASIVE, (20% SERICITE)		
R				LOCAL LITHIC LAPILLI, CONTACT WITH OVERLYING		
R				AND UNDERLYING LAPILLI TUFFS IS GRADUAL, 10% PY		
R				MAINLY IN VEINLET STOCKWORK VERY DISCORDANT TO		
R				FOLIATION, LOCAL BRICK RED HEMATITE ASSOCIATED WITH		
R				PY, DEFORMATION MODERATE, FOLIATION AT 30 TO 40		
R				DEGREES TO CORE AXIS,		
N	15190	18369	BXXTFLP	FR 2658	FO 35	P2
L				5A	P=	K1
R				RHYOLITIC LAPILLI TUFF TO TUFF BRECCIA, 20 TO 90% FRG		
R				MOSTLY RHYOLITIC, 10% QUARTZ PHENOCRYSTS, FRGS UP TO		
R				10 CM LONG, SUBROUNDED TO ANGULAR, STRETCHED IN		
R				FOLIATION, MATRIX OF SERICITE-CHLORITE (UP TO 10%		
R				CHLORITE), 10% SMALL QUARTZ PHENOCRYSTS IN MATRIX,		
R				SERICITE 20-40%, DEFORMATION MODERATE, FOLIATION AT		
R				30 TO 40 DEGREES TO CORE AXIS, 10-20% PY IN STRINGER		
R				STOCKWORK AND DISSEMINATED, CHLORITE CLOSELY		
R				ASSOCIATED WITH PY VEINLETS, LOCALLY CLOSELY PACKED		
R				BRECCIA WITH VERY ANGULAR CLASTS (DEBRIS FLOW?)		
R	14359	14430		D4834 15% PY IN STRINGER STOCKWORK		
R	14800	14884		D4835 15% PY IN STRINGER STOCKWORK, TR HEMATITE		
R	14884	14959		D4836 10% PY DISS AND IN VEINLETS, 20% PERVASIVE CHL.		
R	15409	15480		D4837 10% PY IN STRINGER STOCKWORK		
R	15830	15900		D4838 10% PY IN STRINGER STOCKWORK		
R	16025	16094		D4839 20% PY DISS AND IN VEINLETS, 10% PERVASIVE CHL.		
R	16430	16505		D4840 7% PY IN STRINGER AND DISSEMINATED		
R	16505	16575		D4841 15% PY DISS AND IN STOCKWORK		
R	16300	16350		D4842 5% PY IN STRINGERS, TR CPY, 10% CHL.		
N	18369	19980	MXXRY/F	BXMX15=6	FO 40	P1
L				5W	K= O(	
R				MASSIVE TO BRECCIATED RHYOLITE FLOW, WHITE, HIGHLY		
R				SILICEOUS RHYOLITE, 5% QUARTZ PHENOCRYSTS, BEGINNING		
R				OF UNIT IS BRECCIATED HYDROTHERMAL OR FLOW BRECCIA?		
R				MATRIX MATERIAL IS SERICITE-PYRITE, VERY CLOSELY		
R				PACKED BRECCIA, THIS BRECCIA GRADUALLY GRADES INTO A		
R				MASSIVE RHYOLITE, DEFORMATION MODERATE, FOLIATION AT		
R				35 TO 45 DEGREES TO CA, 2-10% PY CONCENTRATED		
R				IN BRECCIA, LOCAL CPY IN BRECCIA MATRIX.		
R	17159	17230		D4844 10% PY IN STRINGERS		
R	17690	17759		D4845 15% PY IN BRECCIA MATRIX		
R	17980	18055		D4846 15% PY IN STRINGERS		
R	18415	18484		D4847 10% PY IN BRECCIA MATRIX		

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R    18650 18700          D4848 5% PY DISS AND IN VEINLETS
R    18700 18719          D4849 2% CPY IN STRINGERS
R    18719 18769          D4850 5% PY DISS AND IN BRECCIA MATRIX
N    19980 20584  BXXTFBR      BX  2778      FO    40              P2
L                         7A                                    D5
R                         HETEROLITHIC ANGULAR BRECCIA, (DEBRIS FLOW), 70 TO
R                         90% FRAGMENTS ANGULAR, MOSTLY RHYOLITIC, MINOR
R                         HETEROLITHIC ONES (SERICITE SCHIST, DARK GREEN
R                         APHYRIC SILICEOUS), FRAGMENTS UP TO 15 CM LONG,
R                         MATRIX OF SERICITE AND PYRITE, DEFORMATION IS
R                         MODERATE, FRAGMENTS WEAKLY STRETCHED, FOLIATION 40
R                         DEGREES TO CA, 5% PY CONCENTRATED IN BRECCIA MATRIX
N    20584 20969  MXXRY/F      PPFO2516      FO    40              P2
L                         7A                                    D5
R                         PORPHYRITIC RHYOLITE, REPETITION OF PREVIOUS RHYOLITE
R                         FLOW UNIT, UPPER AND LOWER CONTACTS ARE FAULTS AT 45
R                         DEGREES TO CA, RHYOLITE IS STRONGLY DEFORMED AT
R                         BEGINNING OF UNIT FOLIATION AT 10 DEGREES TO CA
R                         GETTING GRADUALLY LESS DEFORMED, FOLIATION AT 45
R                         DEGREE, 10% QUARTZ PHENOCRYSTS IN WHITE SILICEOUS
R                         GROUNDMASS, 5% PY IN BLEBS AND DISSEMINATED
N    20968 22319  BXXTFBR      BX  2778      FO    45              P2
L                         7A                                    D5
R                         HETEROLITHIC ANGULAR BRECCIA, REPETITION OF UNIT
R                         199.80-205.84 CAUSED BY FAULTS, CLOSELY PACKED
R                         FRAGMENTS 3 TO 10 CM LONG (80% FRGS), MOSTLY
R                         RHYOLITIC, VERY ANGULAR, MATRIX OF SERICITE AND
R                         ABOUT 5% PY.
R    18955 18984          D4851 1% PY DISS, TR CPY
R    19380 19440          D4852 15% PY IN BRECCIA MATRIX
R    19665 19734          D4853 10% PY DISS, I CM QZ VEIN PARALLEL TO CORE
R                         AXIS
R    20519 20580          D4854 10% PY DISS
R    20580 20650          D4855 SMALL FAULT WITH QZ VEIN INJECTION, 10% PY DISS
R    20650 20730          D4856 10% PY DISS, SMALL QTZ VEINS
R    21350 21409          D4857 10% PY IN BRECCIA MATRIX
P    22319 23309  MXXXTDY       MX  2516      FO    40              P=
L                         3A                                    D1
R                         MASSIVE DARK GREY DIORITE DYKE, FINE GRAINED, 1-5%
R                         SMALL QZ PHENOCRYSTS, 5% SMALL LAPILLI SIZE RHYOLITIC
R                         FRAGMENTS, VERY DISTINCT FROM TWO QZ RHYOLITE BY
R                         ABSENCE OF LARGE QZ PHENOCRYSTS AND VERY WEAK
R                         SERICITIZATION, UPPER CONTACT FAULTED, ABOUT 20
R                         DEGREES TO CORE AXIS, 30 CM WIDE SEAM OF CPY
R                         CONCENTRATED IN THAT SMALL FAULT, 10-15% PY FINELY
R                         DISSEMINATED THROUGHOUT UNIT, DEFORMATION IS WEAK
R                         FOLIATION AT 40 DEGREES TO CORE AXIS, LOWER CONTACT
R                         IS GRADATIONNAL.
R    21290 21340          D4858 FAULT ZONE, 30 CM QZ VEIN 90 DEGREES TO CA
R    21340 21390          D4859 2% DISS PY
R    21750 21809          D4860 10% PY IN BRECCIA MATRIX
R    21809 21840          D4861 5% PY, TR CPY IN VEINLETS
R    21840 21909          D4862 10% PY DISS IN BRECCIA MATRIX
R    22209 22269          D4863 5% PY IN VEINLETS
R    22269 22309          D4864 10% CPY IN SMALL FAULT ASSOCIATED WITH QZ
R                         VEINING AND 1% MO
R    22309 22369          D4865 5% DISS PY
R    22930 23000          D4866 10% DISS PY
P    23309 27569  BXXTFBR       BX  2668      FO    40              P2
L                         7A                                    D1
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R			TUFF BRECCIA TO LAPILLI TUFF, 20 TO 90% FRAGMENTS 1 TO 15 CM WIDE, ROUNDED TO ANGULAR, STRETCHED IN FOLIATION, FRAGMENTS ARE WHITE RHYOLITIC 5 TO 10% QUARTZ PHENOCRYSTS, MATRIX MORE SERICITIC, 5 TO 10% PY DISS AND IN SMALL VEINLETS, QUARTZ VEINING THROUGHOUT WITH ASSOCIATED MO, DEFORMATION MODERATE FOLIATION AT 35 TO 45 DEGREES TO CA, LOCAL SMALL FAULTS ALONG FOLIATION
R	23480	23590	CLASTIC DYKE, 10 TO 50% PY DISS IN IT, SIMILAR TO 223.2 TO 233.1
R	26230	26389	FINE GRAINED MAFIC DYKE, DARK GREEN MASSIVE, SHARP CONTACTS AT 45 DEGREES TO CORE AXIS, 5% PY DISS AND IN SMALL VEINLETS, TR CPY
R	26689	26750	FAULT ZONE, SERICITE SCHIST WITH QZ INJECTION AT 45 DEGREES TO CORE AXIS
R	23515	23584	D4867 50% PY DISS IN CLASTIC DYKE
R	23818	23868	D4868 5% DISS PY
R	23868	23918	D4869 3 CM QZ VEIN AT 10 DEGREES TO CORE AXIS, 5% PY, 1% MO
R	23918	23968	D4870 10% PY DISS AND IN VEINLETS
R	24140	24200	D4871 5% PY DISS, 1 CM QZ VEIN 10 DEGREES TO CA 1% MO
R	24200	24250	D4872 3 CM QZ VEIN 10 DEGREES TO CA, 5% PY DISS 1% MO
R	24250	24300	D4873 20 CM QZ VEIN INJECTION, 2% PY, 1% MO
R	24300	24375	D4874 3 CM QZ VEIN 20 DEGREES TO CA, 5% PY DISS 1% MO
R	24375	24425	D4875 3 CM QZ VEIN 5 DEGREES TO CA, 10% PY DISS 1% MO
R	24425	24475	D4876 TWO 3 CM QZ VEINS 45 DEGREES TO CA, 5% DISS PY, 1% MO
R	24475	24550	D4877 10% DISS PY
R	24450	24500	D4878 5% PY DISS, 0.5 CM QZ VEIN, TR MO
R	25050	25119	D4879 5% PY DISS AND IN STRINGERS
R	25119	25159	D4880 4 CM QZ VEIN AT 20 DEGREES TO CA, 5% DISS PY, TR MO
R	25159	25219	D4881 5% DISS PY
R	25290	25365	D4882 5% PY DISS AND IN STRINGERS
R	25365	25415	D4883 3 AND 2 CM QZ VEINS AT 30 DEGREES TO CA, 5% PY DISS, 1% MO
R	25415	25490	D4884 5% PY DISS
R	25540	25590	D4885 5% PY DISS
R	25590	25639	D4886 4 CM QZ VEIN AT 20 DEGREES TO CA, 5% PY, 1% MO
R	25639	25714	D4887 5% PY DISS
R	25814	25889	D4888 10% PY DISS AND IN VEINLETS
R	25889	25919	D4889 2 CM QZ VEIN 10 DEGREES TO CA, 2% MO, 5% DISS PY
R	25919	25994	D4890 5% DISS PY
R	25994	26055	D4891 10% PY DISS AND IN VEINLETS
R	26230	26280	D4892 5% PY DISS, TR CPY IN SMALL STRINGER IN MAFIC DYKE
R	26394	26444	D4893 15% PY CONCENTRATED IN STREAKS
R	26610	26660	D4894 10% PY CONCENTRATED IN STREAKS
R	26980	27050	D4895 10% PY DISS AND IN VEINLETS
R	27230	27300	D4896 5% PY IN VEINLETS AND DISS
R	27300	27330	D4897 3 CM QZ VEIN 45 DEGREES TO CA, 1% MO, 5% PY DISS
R	27330	27405	D4898 5% DISS PY
P	27569	29419	LMXTUFF BDSH1518 FO 35 P4

L				5A	BD	35		D2
R				THINLY BEDDED FINE TUFF SEQUENCE, DARK MUDSTONE BEDS				
R				2 TO 8 MM THICK SERICITE AND PY RICH ALTERNATING WITH				
R				SILICEOUS BEDS WHITISH, 5 TO 10 MM THICK, IN THE				
R				LOCALLY WELL PRESERVED SEQUENCE 30% QZ-PY VEINLETS				
R				ARE INJECTED ALONG THE FOLIATION, THIS UNIT IS				
R				IN MOST OF ITS LENGHT HIGHLY SHEARED AND SERICITIZED,				
R				BEDDING BECOMES HIGHLY CONTORTED, AND SERICITE				
R				REPRESENT 40 TO 80% OF THE ROCK, THE THINLY BEDDED				
R				TUFF ALTERNATES WITH A TUFF BRECCIA CONTAINING				
R				20 TO 50% RHYOLITE FRAGMENTS INCLUDING QUARTZ				
R				CRYSTALS, FOLIATION IS AT 45 TO 35 DEGREES TO CA, 10				
R				TO 40% PY DISS				
N	27569	28580	LMXTUFF	BDSH1518	FO	40		P4
L				5A				D2
R				THINLY BEDDED TUFF, FROM 275.70 TO 278 RELATIVELY				
R				WELL PRESERVED, MODERATELY DEFORMED, 278 TO 285.80				
R				STRONGLY SHEARED AND SERICITIZED UP TO 80% SERICITE				
N	28580	28750	BXXTFBR	BXSH1758	FO	50		P2
L				7A				D2
R				TUFF BRECCIA, 50 TO 80% RHYOLITE FRAGMENTS, WHITE				
R				SILICEOUS, 2-5% QUARTZ PHENOCRYSTS, FRAGMENTS ARE				
R				SUBROUNDED, 0.5 TO 6 CM WIDE, STRETCHED IN				
R				FOLIATION PLANE, MATRIX SERICITIC, DEFORMATION				
R				MODERATE, FOLIATION 50 DEGREES TO CA, PY 10 TO 40%				
R				50 CM WIDE ZONE OF QZ-PY INJECTION				
N	28750	29419	LMXTUFF	SHBD1518	FO	40		P5
L				7A				D1
R				SAME UNIT AS 275,68 TO 285.80 BUT STRONGLY SHEARED				
R				ON ENTIRE LENGHT, FOLIATION 10 TO 80 DEGREES TO CA,				
R				SMALL QZ VEINS INJECTED THROUGHOUT, 10 TO 20%				
R				PY DISS, SERICITE 20 TO 50%				
R	27714	27764		D4899 20% PY IN QZ-PY VEINLETS ALONG BEDDING PLANES				
R	27764	27814		D4900 IDEM				
R	27814	27864		D4901 IDEM				
R	28480	28555		D4902 10% DISS PY				
R	28555	28594		D4903 20% PY DISS, TR CPY, SMALL QZ VEINS, TR MO				
R	28610	28660		D4904 20% PY DISS				
R	28660	28710		D4905 40% PY ASS. WITH QZ VEINING				
R	28710	28760		D4906 10% PY DISS				
R	28939	28980		D4907 20% PY, SMALL QZ VEINS, TR MO				
R	29200	29244		D4908 5 CM QZ VEIN 20 DEGREES TO CA, 10% PY				
R				DISS, TR MO				
R	29244	29285		D4909 5 CM QZ VEIN 45 DEGREES TO CA, 10% PY				
R				DISS, 1% MO				
R	29285	29335		D4910 10% PY DISS				
R	29335	29410		D4911 30% DISS PY				
P	29419	33555	SHXSRSH	SH	1536	FO	45	P4
L				5A				D3
R				SERICITE SCHIST, STRONGLY DEFORMED, ROCK COMPOSED OF				
R				SERICITE (20-50%), QUARTZ (20-40%) AND PY (20-80%),				
R				THE SERICITE SCHIST IS INJECTED BY QUARTZ VEINS				
R				THROUGHOUT, QUARTZ VEIN REPRESENT 20% OF UNIT, MO				
R				CLOSELY ASSOCIATED WITH QZ VEINS, THE PROTOLITH				
R				IS RHYOLITIC, A FEW WHITE MASSIVE SILICEOUS				
R				PORPHYROCLASTS SUBSIST, FOLIATION IS 0 TO 50				
R				DEGREES TO CORE AXIS				
R				FROM 325 TO 321 M ABOUT 10% OF THE SERICITE SCHIST				
R				CONSIST OF RHYOLITE "PORPHYROCLASTS" UP TO 10 CM				
R				WIDE, LIGHT GREY SILICEOUS APHYRIC.				

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R                          LOCAL CHLORITIZATION ASSOCIATED WITH QZ VEINING AND
R                          MASSIVE PY HORIZON
N    31069 31310    MXXMSPY       MX  3626                V=
L                          3Y                                    Q=      X9
R                          MASSIVE PYRITE HORIZON, TR CPY ASSOCIATED WITH SMALL
R                          QZ VEINS, 90% PY, 5% QZ VEINS, 5% CHLORITE, PY
R                          IS FINE TO COARSE, NO BANDING IN THE MASS. PY
R    29739 29794           D4912 10% DISS PY
R    29794 29864           D4913 4 CM QZ VEIN PARALLEL TO CORE AXIS, 20% DISS PY
R                          TR MO
R    29864 29919           D4914 20% DISS PY, SMALL QZ VEINS, TR MO
R    29919 29969           D4915 20% PY, SMALL QZ VEINS
R    29969 30019           D4916 25% DISS PY, 1% MO
R    30019 30069           D4917 30 CM QZ VEIN 70 DEGREES TO CORE AXIS, 10% PY
R                          CHLORITE ALTERATION, TR CPY, 1% MO
R    30069 30119           D4918 40 CM QZ VEIN 45 DEGREES TO CORE AXIS, 2% MO,
R                          5% PY, CHLORITE ALTERATION
R    30119 30169           D4919 10 CM QZ VEIN 90 DEGREES TO CORE AXIS, 2% MO,
R                          20% DISS PY
R    30169 30219           D4920 4 CM QZ VEIN 10 DEGREES TO CORE AXIS, 20% DISS
R                          PY, 2% MO
R    30219 30289           D4921 10 CM QZ VEIN 70 DEGREES TO CA, 2% MO, 40% PY
R    30289 30360           D4922 5 CM QZ VEIN 20 DEGREES TO CORE AXIS, 40% DISS
R                          PY, 1% MO
R    30360 30400           D4923 25 CM QZ VEIN 45 DEGREES TO CORE AXIS, 10% PY
R                          DISS, TR MO
R    30400 30469           D4924 30% DISS PY
R    30469 30544           D4925 25% DISS PY
R    30544 30619           D4926 20% DISS PY
R    30619 30694           D4927 30% PY DISS, SMALL QZ VEINS, TR MO
R    30694 30744           D4928 10 CM QZ VEIN 10 DEGREES TO CORE AXIS, 1% MO
R                          20% DISS PY
R    30744 30780           D4929 15 CM QZ VEIN 45 DEGREES TO CORE AXIS, 1% MO,
R                          20% DISS PY
R    30780 30855           D4930 40% DISS PY
R    30855 30930           D4931 20% DISS PY
R    30930 31005           D4932 30 CM QZ VEIN 50 DEGREES TO CORE AXIS, 20% PY
R                          DISS, TR MO
R    31005 31080           D4933 50 CM QZ VEINING, 10% DISS PY, TR MO
R    31080 31130           D4934 70% PY, TR CPY, MO
R    31130 31180           D4935 95% PY
R    31180 31230           D4936 95% PY
R    31230 31280           D4937 80% PY, TR CPY
R    31280 31319           D4938 60% PY, TR MO ASS. WITH SMALL QZ VEIN
R    31319 31380           D4939 20 CM QZ VEIN 80 DEG. TO CA, 20% PY DISS,
R                          2% MO
R    31380 31430           D4940 50 CM QZ VEIN 80 DEG. TO CA, 1% MO, 5% PY
R    31430 31505           D4941 15% PY DISS, SMALL QZ VEINS
R    31505 31580           D4942 20% DISS PY, TR MO, SMALL QZ VEINS
R    31580 31655           D4943 50 CM, QZ VEINING, 1% MO, 20% DISS PY
N    33269 33555    FOXCHSH       MXFO2455      FO    60V1
L                          5G                                    P2      X6
R                          ZONE OF SEMI-MASSIVE PYRITE, 40 TO 90% PY IN CHLORITE
R                          SCHIST, 10% QUARTZ VEINS, THE PY CONTENT HIGH
R                          THROUGHOUT THE SERICITE SCHIST UNIT (20-50% AVERAGE)
R                          DROPS ABRUPTLY PAST THIS SEMI-MASSIVE PY HORIZON,
R                          THIS HORIZON REPRESENTS POSSIBLY THE EXHALATIVE TOP
R                          OF THE BAKER PATTON MINE HORIZON
R    31655 31730           D4944 20% PY DISS, SMALL QZ VEINING
R    31730 31789           D4945 25% DISS PY, SMALL QZ VEINING
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R     31789 31864          D4946 20% DISS PY, SMALL QZ VEINING
R     31864 31939          D4947 25% PY DISS, SMALL QZ VEINING
R     31939 32014          D4948 30% DISS PY, 10 CM QZ VEIN 45 DEGREES TO CA
R     32014 32075          D4949 20% PY DISS, 30 CM QTZ VEINING 45 DEGREES TO CA
R     32075 32144          D4950 35 CM QTZ VEINING, 20% DISS PY
R     32144 32219          D4951 25% DISS PY, SMALL QZ VEINS
R     32219 32289          D4952 20% DISS PY, SMALL QZ VEINS
R     32289 32350          D4953 20% DISS PY, 5 CM QZ VEIN 20 DEGREES TO CA,
R                          TR MO
R     32350 32425          D4954 20% DISS PY
R     32425 32475          D4955 20% DISS PY, SMALL QZ VEINS
R     32475 32525          D4956 15% DISS PY
R     32525 32600          D4957 20% DISS PY
R     32600 32669          D4958 20% DISS PY
R     32669 32744          D4959 20% DISS PY
R     32744 32814          D4960 15% DISS PY
R     32814 32889          D4961 20% DISS PY
R     32889 32960          D4962 20% DISS PY
R     32960 33025          D4963 20% DISS PY
R     33035 33105          D4964 20% DISS PY
R     33105 33180          D4965 15% DISS PY
R     33180 33255          D4966 10% DISS PY, SMALL QZ VEINING, TR MO
R     33255 33305          D4967 30% PY IN CHLORITE SCHIST
R     33305 33344          D4968 70% PY
R     33343 33375          D4969 30 CM BARREN QZ VEIN, 80 DEGREES TO CORE AXIS
R     33375 33410          D4970 40% PY IN CHLORITE SCHIST
R     33410 33485          D4971 15% PY DISS, 25 CM BARREN QZ VEIN 80 DEGREES TO
R                          CORE AXIS
R     33485 33535          D4972 15% PY IN CHLORITE SCHIST, 20 CM QZ VEINING 70
R                          DEGREES TO CORE AXIS
R     33535 33610          D4973 5% PY IN SMALL STRINGERS, TR CPY ASSOCIATED
R                          WITH QZ VEINLETS
P     33555 36030    MSXTFLP       FR  1637      FO    45              P2
L                          7A                                        D=
R                          RHYOLITIC LAPILLI TUFF, 10% QUARTZ PHENOCRYSTS
R                          ROUNDED, 2-8 MM, APPROXIMATELY 20% LITHIC FRAGMENTS
R                          HARD TO DISTINGUISH BECAUSE OF SERICITIZATION AND
R                          DEFORMATION, THE MOST RECOGNIZABLE ARE SMALL
R                          BROWNISH APHYRIC FRAGMENTS STRETCHED IN FOLIATION,
R                          1-3 CM LONG, UNIT IS PERVASIVELY SERICITIZED 20%
R                          SERICITE, 5% PY IN VEINLETS AND DISS, CONTACT WITH
R                          THE STRATIGRAPHICALLY UNDERLYING (PREVIOUS UNIT)
R                          ALTERATION ZONE IS SHARP, DEFORMATION
R                          MODERATE, GOOD FOLIATION AT 35 TO 50 DEGREES TO CORE
R                          AXIS. (BIMODAL QUARTZ CRYSTALS, TWO QUARTZ RHYOLITE)
N     34364 35155    MXXXTDY       PPSH2516      FO    35              P1
L                          5G                                        D=
R                          MASSIVE CLASTIC DYKE, MEDIUM GREEN, APHYRIC AT
R                          CONTACTS TO 10% QUARTZ CRYSTALS 2-8 MM, DYKE IS
R                          LESS SERICITIZED THAN LAPILLI TUFF, DYKE IS FAULTED,
R                          FAULT ZONE 345 TO 347M, FOLIATION 20 DEGREES TO CORE
R                          AXIS, FAULT AT 351 TO 351.5M, FOLIATION 20 DEGREES
R                          TO CORE AXIS, QZ VEINING ASSOCIATED WITH FAULTING,
R                          2 TO 5% PY DISSEMINATED
R     33610 33685          D4974 5% PY IN VEINLETS, 2 CM QZ VEIN 45 DEGREES TO
R                          CORE AXIS
R     33685 33760          D4975 5% PY DISS, 4 CM QZ VEIN 80 DEGREES TO CORE AXI
R     33760 33835          D4976 5% PY IN SMALL STRINGERS, SMALL QZ VEINING
R     34539 34600          D4977 BROKEN UP FAULT ZONE, QTZ VEINING, TR MO, 2% PY
R     34769 34844          D4978 SEVERAL SMALL QZ VEINS, TR MO, 1% PY DISS
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R     34844 34919          D4979 SEVERAL SMALL QZ VEINS, TR MO, CPY, 1% PY
R     34919 34955          D4980 35 CM QZ VEIN 50 DEGREES TO CORE AXIS, 2% PY
R     34955 35030          D4981 1% PY DISS, SMALL QZ VEINING
R     35389 35430          D4982 3 CM QZ CAL VEIN 30 DEGREES TO CA, 1% PY DISS
P     36030 39600    MXXXTDY       PPSH2526      FO    45                P1
L                          5G                                           D+
R                          MASSIVE CLASTIC DYKE, MEDIUM GREEN FINE GRAINED, 10
R                          TO 15% QUARTZ PHENOCRYSTS 2 TO 8 MM, PORPHYRITIC TO
R                          MEDIUM GRAINED UP TO 20% QUARTZ CRYSTALS TOWARD
R                          BOTTOM, ALSO CHLORITIC, MORE MAFIC THAN TWO QZ
R                          RHYOLITE, DEFORMATION GENERALLY WEAK TO MODERATE,
R                          LOCALLY INTENSE FAULT ZONES,
R                          CUT THIS UNIT, QUARTZ VEINING ABUNDANT, 1 TO 5%
R                          PY IN SMALL STRINGERS AND DISS. TR CPY LOCALLY,
R                          FOLIATION AT 40 TO 50 DEGREES TO CORE AXIS.
R     36600 37300          FAULT ZONE, CORE BROKEN UP, GRINDED, FOLIATION
R                          PARALLEL TO CORE AXIS, QUARTZ VEINING
R     39100 39400          FAULT ZONE, INTENSE FOLIATION AT 35 DEGREES TO
R                          PARALELL TO CORE AXIS, QZ VEINING
R     35885 35944          D4983 2% PY DISS
R     35944 35985          D4984 2% PY STRINGERS, TR CPY, 5 CM QZ VEIN 80 DEGREE
R                          TO CORE AXIS
R     36510 36585          D4985 SMALL QZ VEINING, 5% PY STRINGERS
R     36585 36625          D4986 15% DISS PY, TR CPY, 5 CM QZ VEIN 25 DEGREES TO
R                          CORE AXIS
R     37125 37200          D4987 70 CM QZ VEIN 30 DEGREES TO CORE AXIS, 1% PY
R                          DISS
R     37469 37519          D4988 1% CPY IN SMALL STRINGER, 2% DISS PY
R     37880 37939          D4989 20 CM QZ VEIN 60 DEGREES TO CA, 5% PY STR
R     38855 38905          D4990 SMALL QZ VEIN INJECTION, 5% PY VEINLETS
R     39039 39114          D4991 5% PY VEINLETS, BEGINING OF FAULT ZONE
R     39139 39189          D4992 SMALL QZ VEIN INJECTION, 2% DISS PY
R     39189 39260          D4993 5 CM QZ-CAL VEIN INJECTION PARALLEL TO CORE
R                          AXIS, BRECCIATED, 2% PY DISS
R     39360 39430          D4994 25 CM QZ VEIN 20 DEGREES TO CORE AXIS, 1% PY
R     39430 39439          D4995 2% PY IN STRINGERS
R     39489 39510          D4996 2% CPY, 1% PY IN STRINGERS
R     39510 39569          D4997 5% PY DISS AND IN STRINGERS
P     39600 39910    LMXCHTF       BDCT2627      FO    40                P1
L                          7A                                           D=
R                          LIGHT GREY RHYOLITE TUFF BRECCIA TO FINELY BEDDED
R                          RHYOLITE TUFF, BEGINING OF UNIT IS 80% RHYOLITE
R                          CLASTS, VERY SILICEOUS 1-5% QUARTZ PHENOCRYSTS,
R                          IN SERICITIC MATRIX, THIS UNIT IS INCREASINGLY
R                          INTERBEDDED WITH THIN (1-5 MM) BLACK MUDSTONE BEDS.
R                          QUARTZ PHENOCRYSTS ARE STILL COMMON IN FELSIC BEDS,
R                          RHYOLITIC FRAGMENTS ARE UP TO 4 CM, DEFORMATION IS
R                          MODERATE, GOOD FOLIATION AT 40 DEGREES TO CORE AXIS
R                          PARALLEL TO BEDDING, SERICITIZATION STRONG AT
R                          BEGINNING OF UNIT, DECREASING GRADUALLY, UPPER
R                          CONTACT SHARP, GRINDED CORE AT CONTACT, 2-5% PY DISS,
R                          LOWER CONTACT IS GRADUAL. THIS UNIT MARKS THE END OF
R                          THE TWO QUARTZ RHYOLITE UNIT
P     39910 40219    LMXMUDS       BD  0354      FO    40
L                          3A                    BD    40                D=
R                          THINLY BEDDED ARGILLITE TO FINE GRAINED GRAYWACKE,
R                          DARK GREY SILTSTONE TO FINE GRAINED WACKE BEDS 1 TO
R                          5 CM WIDE ALTERNATING WITH BROWN MUDSTONE BEDS
R                          COMMONLY PYRITIC, 5 TO 10 MM WIDE, DEFORMATION WEAK,
R                          BEDDING WELL PRESERVED, FOLIATION PARALLEL TO
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R                       BEDDING AT 40 DEGREE, 1 TO 5% PY DISS, IN VEINLETS
R                       AND IN BEDDING, CONTACTS ARE GRADUAL, POSSIBLY
R                       EXHALATIVE IN ORIGIN
P    40219 42300    MXXTFLP       MX  1377      FO    45
L                       3A                                              D1
R                       LAPILLI TUFF TO TUFF BRECCIA, LIGHT GREY, NO QUARTZ
R                       PHENOCRYSTS, 20 TO 60% RHYOLITIC FRAGMENTS, 3-50 MM
R                       IN SIZE, FRAGMENTS SUBROUNDED, 20% PERVASIVE
R                       SERICITIZATION, 10 TO 20% PY FINELY DISS THROUGHOUT
R                       LOCALLY IN VEINLETS, DEFORMATION IS MODERATE, 30 CM
R                       FAULT ZONE AT 415
R    40630 40730        CHERTY TUFF BED, LIGHT GREY, SILICEOUS APHYRIC,
R                       BRECCIATED, 5% PY IN VEINLETS, SHARP CONTACTS AT
R                       30 DEGREES TO CORE AXIS
R    40950 41130        CHERTY TUFF BED, DARK GREY SILICEOUS, MASSIVE APHYRIC
R                       10% SERICITE CONCENTRATED IN FOLIATION PLANES, 5% PY
R                       IN BLEBS AND DISS
R    41450 41500        FAULT, 20 DEGREES TO CORE AXIS, BROKEN UP CORE
P    42300 43789    LMXTUFF       BD  1455      FO    50                L1
L                       5A                      BD    50              D1
R                       FINELY BEDDED TUFF, DARK GREY TO LIGHT GREY
R                       SILICEOUS BEDS 2 TO 10 MM WIDE IN GENERAL FINE
R                       GRAINED, ALTERNATE WITH THIN MUDSTONE BEDS 2-5 MM
R                       WIDE, SILICEOUS BEDS ARE RHYOLITIC BEDDED TUFF
R                       LAYERS, LOCALLY LARGE ROUND RHYOLITE PEBBLES
R                       (UP TO 5 CM), 20% SERICITE PERVASIVE AND CONCENTRATED
R                       IN FOLIATION, DEFORMATION IS MODERATE TO STRONG,
R                       MYLONITIC FOLIATION PARALLEL TO BEDDING AT 20 TO 80
R                       DEGREES TO CA, 5 TO 15% PY DISS AND CONCENTRATED
R                       ALONG BEDDING PLANES, QUARTZ VEINING ASSOCIATED WITH
R                       FAULTING
R    42330 42450        FAULT ZONE, BROKEN UP CORE, SERICITIZED, STRONG
R                       FOLIATION AT 60 DEGREES TO CORE AXIS
R    42839 42960        FAULT ZONE, BROKEN CORE, FOLIATION AT 20 DEGREES
R                       TO CORE AXIS, QUARTZ VEINING
R    40650 40700        D4998 5% PY IN SMALL VEINLETS
R    41400 41450        D4999 10% PY DISS
R    41669 41700        D5000 5% DISS PY, TR CPY
R    43480 43530        D5001 3 CM QZ VEIN AT 80 DEGREES TO CA, 10% PY
R                       ALONG BEDDING PLANE, TR CPY
P    43789 44519    BXXRHYL       BXBD2465      FO    45
L                       3A                                              +1
R                       MASSIVE FINE GRAINED RHYOLITE, STRONGLY ALTERED
R                       AND DEFORMED THROUGHOUT, PERVASIVE SERICITIZATION
R                       AND CHLORITIZATION, LOCAL MASSIVE CHLORITE ALTERATION
R                       UNIT BRECCIATED THROUGHOUT, QUARTZ CALCITE VEINING,
R                       STRONG DEFORMATION CAUSES BRECCIA TEXTURE, 10-15%
R                       PY+PO IN BRECCIA MATRIX, FOLIATION AT 10 TO 50
R                       DEGREES TO CA, QTZ VEIN 5 TO 10 CM WIDE CROSS CUTTING
R                       AND ALSO BRECCIATED, LOCAL CPY ASSOCIATED
R    44200 44269        FAULT ZONE, CORE BROKEN UP, QZ VEIN INJECTION
R    44439 44519        FAULT ZONE, CHLORITE SCHIST, FOLIATION PARALLEL TO CA
P    44519 45700    BDXCHTF       BDBX2526      FO    50                S=
L                       5A                                          L1  _(
R                       BEDDED CHERTY TUFF INTERBEDDED WITH GRAYWACKE, CHERTY
R                       TUFF THINLY BEDDED (2.0 TO 10 MM BEDS) TO COARSLY
R                       BEDDED (BEDS UP TO 10 CM THICK), CHERT BEDS ARE
R                       LIGHT GREY, HIGHLY SILICEOUS APHYRIC INTERBEDDED WITH
R                       FINE GRAINED CHLORITIC MUDSTONE OR SERICITE-PYRITE
R                       RICH BEDS, CHERT IS COMMONLY BRECCIATED, 10 TO 20%
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R			PY ALONG BEDDING, IN BRECCIA MATRIX AND DISS, LOCAL
R			CPY IN VEINLETS ASSOCIATED WITH QZ VEINS,
R			DEFORMATION IS MODERATE, FOLIATION AT 45 TO 60
R			DEGREES TO CORE AXIS.
R	43069	43119	D5002 15 CM QZ VEIN 80 DEGREES TO CA, 15% DISS PY
R	43480	43530	D5003 3 CM QZ VEIN 80 DEGREES TO CORE AXIS, 10% PY
R			ALONG BEDDING, TR CPY
R	43914	43985	D5004 10% PY IN BRECCIA MATRIX
R	43985	44010	D5005 3 CM QZ VEIN 10 DEGREES TO CORE AXIS, 0.5% CPY,
R			2% PY
R	44010	44080	D5006 15% PY IN BRECCIA MATRIX, 8 CM QZ VEIN 90
R			DEGREES TO CORE AXIS
R	44530	44600	D5007 20% PY CONCENTRATED IN BEDDING PLANES, 3 CM QZ
R			VEIN 80 DEGREES TO CORE AXIS, TR CPY
R	44600	44635	D5008 35 CM QZ VEIN AND CHERT BED AT 90 DEGREES TO
R			CORE AXIS, 1% CPY IN A VEINLET, TR PY
R	44635	44705	D5009 10% PY DISS
R	44785	44844	D5010 5% PY DISS, 5 CM QZ VEIN
R	44844	44875	D5011 BRECCIATED QZ VEIN, TR CPY, 1% PY
R	44875	44900	D5012 BRECCIATED QZ VEIN, 1% PY DISS
R	44900	44950	D5013 2% PY DISS
R	44950	44980	D5014 1% CPY, 5% PY IN BRECCIATED CHERT
R	44980	45055	D5015 5% DISS PY
R	45055	45085	D5016 0.5% CPY, 10% PY IN STRINGERS
R	45085	45160	D5017 15% PY IN STRINGERS
R	45160	45235	D5018 15% PY IN STRINGERS
R	45235	45305	D5019 15% PY IN STRINGERS
R	45356	45380	D5020 15% PY IN STRINGERS
R	45380	45455	D5021 10% DISS AND IN STRINGERS
R	45455	45530	D5022 20% PY IN CHERT BRECCIA
P	45700	46430	BDXRHYL BD 2546 FO 55
L			7A D=
R			LIGHT GREY RHYOLITE WITH LOCAL CHERTY TUFF BEDS,
R			RHYOLITE IS FINE GRAINED APHYRIC LOCALLY BRECCIATED
R			CLASTS SUBROUNDED TO ANGULAR, BRECCIATED, CHERTY BEDS
R			ARE UP TO 30 CM WIDE, WHITE SILICEOUS, SERICITIZED, 5
R			TO 10% PY IN STRINGERS AND FOLIATION PLANES, TR CPY,
R			DEFORMATION IS WEAK, FOLIATION 60 DEGREES TO CA
R			MINOR QZ VEINING
R	45850	45925	D5023 5% PY DISS
R	45925	45955	D5024 2% CPY, 1% PY IN BRECCIATED CHERT
R	45955	46030	D5025 3% DISS PY
R	46030	46125	D5026 2% DISS PY, TR CPY
R	46125	46164	D5027 10% PY STREAKS, 0.5% CPY
R	46125	46230	D5028 2% PY STREAKS
R	46230	46280	D5029 20 CM QZ VEIN 80 DEGREES TO CORE AXIS, 10% PY
R			IN STREAK, TR CPY
P	46430	46850	MXXDC/F MX 2354 FO 45
L			3G D)
R			MASSIVE DARK GREEN FINE GRAINED DACITIC FLOW, WEAKLY
R			DEFORMED FOLIATION 45 DEGREES TO CORE AXIS, 1% PY
R			DISS, CONTACTS SHARP AND SHEARED
P	46850	48014	BXXTFBR CT 3778 FO 50 P1
L			5A P1 D=
R			CONGLOMERATIC DEBRIS FLOW TO TUFF BRECCIA, 60 TO 80%
R			FRAGMENTS STRETCHED INTO
R			FOLIATION, FRAGS ARE ROUNDED TO ANGULAR, HETEROLITHIC
R			BUT MOSTLY LIGHT GREY APHYRIC RHYOLITIC AND LIGHT
R			GREY FINE GRAINED DACITE, MATRIX IS FINE GRAINED
R			CHLORITIC AND SERICITIC 1 TO 10% PY IN MATRIX AND

LOCALLY AS PY VEINLETS, TR CPY AS LOCAL STRINGERS
DEFORMATION IS MODERATE TO STRONG IN FAULT ZONE,
FOLIATION AT 50 DEGREES TO CORE AXIS, 10% CHLORITE
474.5 TO 478 AND 477 TO 478 FAULT ZONES, CORE BROKEN
QZ VEINING, FOLIATION 40 DEGREES TO CORE AXIS

48014 48816 BXXDC/F BDBX2577 FO 45
5A D=
FINE GRAINED MASSIVE MEDIUM GHREEN DACITE STRONGLY
DEFORMED, BRECCIATION TROUGHOUT, CHLORITIZATION
IN STREAKS, SMALL QZ CAL VEINLETS INJECTED,
THIS UNIT IS A FAULT ZONE, FOLIATION INTENSE
45 DEGREES TO CORE AXIS, 1 TO 10% PY
46850 46925 D5030 50% QZ VEINING, 2% PY
46960 47030 D5031 1% PY DISS
47030 47060 D5032 0.5% CPY, 1% PY DISS
47060 47110 D5033 2% PY DISS AND IN VEINLETS
47389 47450 D5C34 10% PY
47819 47894 D5035 10% DISS PY, 30 CM QZ VEIN 40 DEGREES TO CORE
AXIS
47894 47964 D5036 40 CM QZ VEIN 50 DEGREES TO CORE AXIS

BP_2-EXT, TO REACH THE CABIN ZONE HORIZON

48816 49239 MXXTUFF BX 2415 FO 55
5G P2 D=
DACITE, DARK GREEN, STRONGLY DEFORMED, BRECCIATED,
FINE GRAINED NO PHENOCRYSTS, LOCALLY FRAGMENTAL,
UP TO 60% HETEROLITHIC FRAGMENTS, MOSTLY WHITE
SILICEOUS APHYRIC, (4 TO 20 MM), ABOUT 40% BROKEN
CORE, MINOR QZ VEIN INJECTION, STRONG FOLIATION AT
55 DEGREES TO CA, 1 TO 5% PY DISS AND IN VEINLETS

49239 49714 BXXTUFF FR 2526 FO 60D= P1
5A D=
RHYOLITE TUFF, LIGHT GREY, 10-20% SILICEOUS APHYRIC
FRAGMENTS ROUNDED, 2% SMALL BLACKISH QUARTZ
PHENOCRYSTS, MATRIX IS FINE GRAINED SILICEOUS, 10%
SERICITE CONCENTRATED IN FOLIATION PLANES AND
PERVASIVE, DEFORMATION IS MODERATE, FOLIATION AT 60
DEGREES TO CA, 5% PY DISS,

49714 50482 MXXDC/F MX 2415 FO 60
5G D+
MASSIVE DACITE DARK GREEN, FINE GRAINED, NO
PHENOCRYSTS, DEFORMATION IS MODERATE TO STRONG,
FOLIATION AT 60 DEGREES TO CA, MODERATE DEFORMATION,
1-3% PY DISS,
50069 50100 FAULT ZONE, INTENSE FOLIATION AT 60 DEGREES TO
PARALLEL TO CA, QZ VEINING

50482 51779 BXXTFLP FR 2647 FO 60D= P1
5A D=
DACITIC LAPILLI TUFF, 10 TO 60% HETEROLITHIC ROUNDED
FRAGMENTS, 5 TO 20 MM IN SIZE, MOSTLY APHANITIC
MEDIUM GREY DACITIC, ALSO SOME WHITE SILICEOUS
RHYOLITIC, 1% BLACKISH SMALL QZ CRYSTALS
10% SERICITE PERVASIVE AND IN FOLIATION PLANES,
LOCAL CHLORITIZATION IN VEINS, 5% DISS PY, ONE
SPHALERITE STRINGER ASSOCIATED WITH CHLORITIZATION
DEFORMATION IS MODERATE, FOLIATION AT 60 DEGREES TO
CA

51779 52329 MXXDC/F MX 2525 FO 65D2 P1
5A D+

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R                              MASSIVE MEDIUM GREY DACITE, 5-10% VERY SMALL QUARTZ
R                              GRAINS IN A FINE GRAINED HOMOGENEOUS ROCK,
R                              DEFORMATION WEAK, FOLIATION 65 DEGREES TO CA, 5% PY
R                              DISS, LOCAL SERICITIZATION, 10% SERICITE IN FOLIATION
R                              PLANES
P    52329 53000    BXXTFLP        FR  2647       FO    65D2              P1
L                              5G                                         D=
R                              DACITIC LAPILLI TUFF, 5-20% QUARTZ CRYSTALS, 2-6 MM
R                              IN SIZE, ROUNDED, 10% WHITE APHYRIC RHYOLITIC
R                              FRAGMENTS IN LIGHT GREY FINE GRAINED MATRIX,
R                              10% SERICITE PERVASIVE AND CONCENTRATED IN FOLIATION
R                              PLANES, 5-10% DISS PY+PO LOCAL CHLORITIZATION IN
R                              FOLIATION PLANES, DEFORMATION IS MODERATE
P    53000 55300    MXXDC/F        MX  2525       FO    65                P=
L                              3G                                         D+
R                              MASSIVE DARK GREEN DACITE, 20% VERY SMALL QUARTZ
R                              GRAINS (0.5-2 MM) IN FINE GRAINED HOMOGENEOUS ROCK,
R                              1% QUARTZ PHENOCRYSTS DISS, DEFORMATION WEAK,
R                              FOLIATION AT 65 DEGREES TO CA, LOCAL SERICTIZATION
R                              IN FOLIATION PLANES (5%), 2% DISS PY
R                              LOWER CONTACT FAULTED, 30 CM QZ VEIN+LOST CORE
P    55300 58460    BXXTFLP        FR  2647       FO    60                P1
L                              3G                                  P2     D=
R                              DACITIC LAPILLI TUFF, DARK GREEN PERVASIVE
R                              CHLORITIZATION AND CHLORITE CONCENTRATED IN STREAKS
R                              2% QUARTZ CRYSTALS ROUNDED, 20-50% LAPILLI SIZE
R                              FRAGMENTS DACITIC APHYRIC, STRETCHED INTO FOLIATION,
R                              LOCAL SERICITIZATION CONCENTRATED IN FOLIATION,
R                              DEFORMATION IS MODERATE, FOLIATION AT 60 DEGREES
R                              TO CORE AXIS
R                              5-10% PY DISS AND IN VEINLETS, INCREASING AT BOTTOM
R    57000 57150               FAULT ZONE, FOLIATION PARALLEL TO CORE AXIS, BROKEN
R                              CORE
P    58460 60775    CLXTFLP        BNFR2527       FO    70D=              P1
L                              7G                                  P2     D=D1
R                              CABIN ZONE HORIZON:
R                              DACITIC LAPILLI TUFF, PERVASIVELY CHLORITIZED, 20-
R                              40% LIGHT GREEN CHLORITE WITH SERICITE IN FOLIATION
R                              AND STRINGERS, 10-20% PO, 5% PY IN VEINLETS AND DISS
R                              5-20% DACITIC FRAGMENTS, ROUNDED
R                              5-40 MM IN SIZE, ALSO LOCALLY QUARTZ GRAINS, 1-10%
R                              DEFORMATION IS MODERATE, FOLIATION AT 70 DEGREES TO
R                              CA, LOCAL SPHALERITE IN STRINGERS AND DISS
R    58700 58750               C2353 10% PY DISS, TR SP
R    58750 58825               C2354 5% PY, 5% PO DISS
R    58825 58885               C2355 10% PY+PO DISS+STR, TR CPY
R    58885 58935               C2356 10% PY+PO VEINLETS+DISS, TR SP
R    58935 58995               C2357 5% PO STR, 1% SP STR
R    58995 59070               C2358 20% PO, 2% PY
R    59070 59145               C2359 20% PO+PY
R    59145 59220               C2360 25% PO+PY
R    59220 59295               C2361 25% PY+PO
R    59295 59345               C2362 15% PO+PY
R    59345 59385               C2363 10% PY+PO
P    60775 62000    MXXDC/F        MX  2516       FO    70                P1
L                              7A                                  P2     D+
R                              MEDIUM GREY MASSIVE DACITE, APHYRIC TO FINE GRAINED,
R                              10 TO 20% SMALL QZ GRAINS IN GREY SILICEOUS APHYRIC
R                              MATRIX (QZ GRAINS 0.5-2MM), CHLORITIZATION WEAK TO
R                              MODERATE, 5-20% CHLORITE LIGHT GREEN CONCENTRATED IN
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R
R
R
P 62000 62390 MXXXTDY PP 2526 FO 75D2
L 5A P2
R FOLIATION PLANES, 1-5% PO IN VEINLETS LOCALLY,
R SEVERAL SMALL QZ STRINGERS, DEFORMATION IS WEAK,
R FOLIATION AT 70 DEGREES TO CA
R CLASTIC DYKE. 20% BLUISH QUARTZ CRYSTALS, ROUNDED
R 3-6MM IN SIZE, 10% WHITE PLAGIOCLASE GRAINS, BROKEN,
R STRETCHED INTO FOLIATION, IN LIGHT GREEN FINE GRAINED
R CHLORITIC MATRIX, 20% CHLORITE, TR PY, DEFORMATION
R IS MODERATE
P 62390 66385 MXXDC/F MX 2516 FO 70
L 3G P1 D=
R MASSIVE DACITE, DARK GREEN APHYRIC TO FINE GRAINED,
R LOCALLY AMYGDULES 5-20% SILICEOUS ROUNDED, 5 TO 20%
R CHLORITE ALTERATION PERVASIVE AND CONCENTRATED IN
R STREAKS AND FOLIATION PLANES, 1 TO 5% PO LOCALLY
R CONCENTRATED IN VEINLETS, DEFORMATION IS WEAK TO
R MODERATE, FOLIATION AT 70 DEGREES TO CA
R
R -- WHOLE ROCK SAMPLES

A001	920	970	D4526						
A001	3760	3810	D4527						
A001	6280	6330	D4528						
A001	8780	8830	D4529						
A001	10320	10370	D4530						
A001	11330	11380	D4531						
A001	13290	13340	D4532						
A001	14700	14750	D4533						
A001	16650	16700	D4534						
A001	19050	19100	D4535						
A001	21440	21490	D4536						
A001	22180	22230	D4537						
A001	24950	25000	D4538						
A001	27450	27500	D4538						
A001	28200	28250	D4541						
A001	29520	29570	D4542						
A001	33950	34000	D4543						
A001	35450	35500	D4544						
A001	37590	37640	D4545						
A001	38950	38990	D4546						
A001	39660	39700	D4547						
A001	41790	41840	D4548						
A001	45560	45610	D4549						
A001	46570	46620	D4550						
R				Au	Ag	Cu	Zn	Mo	
A002	440	490	D4744	.015	.85	.01	.01	0.0	
A002	1690	1750	D4745	.015	.85	.01	.005	0.0	
A002	1750	1825	D4746	.015	.85	.005	.005	0.0	
A002	1825	1900	D4747	.015	.85	.01	.005	0.0	
A002	1900	1975	D4748	.015	.85	.005	.005	0.0	
A002	1975	2050	D4749	.015	.85	.005	.005	0.0	
A002	2050	2125	D4750	.015	.85	.005	.005	.02	
A002	2125	2175	D4751	.1	.85	.005	.005	0.0	
A002	2175	2215	D4752	.015	.85	.005	.01	0.0	
A002	2215	2255	D4753	.03	.85	.005	.01	0.0	
A002	2255	2315	D4754	.015	.85	.005	.01	.07	
A002	2510	2560	D4755	.05	.85	.005	.01	.005	
A002	2560	2610	D4756	.015	.85	.005	.005	0.0	
A002	2710	2760	D4757	.015	.85	.005	.01	.005	
A002	3060	3110	D4758	.015	.85	.005	.01	.005	

A002	4350	4410	D4759	.015	.85	.005	.01	0.0
A002	4610	4650	D4760	.015	.85	.01	.01	0.0
A002	5275	5325	D4761	.015	.85	.005	.01	0.0
A002	5325	5350	D4762	.015	.85	.005	.005	0.0
A002	5350	5400	D4763	.015	.85	.005	.01	0.0
A002	5860	5910	D4764	.015	.85	.005	.01	0.0
A002	5910	5980	D4764	.015	.85	.005	.01	0.0
A002	5980	6030	D4766	.015	.85	.01	.01	0.0
A002	6030	6105	D4767	.015	.85	.01	.01	0.0
A002	6105	6135	D4768	.015	.85	.005	.01	.005
A002	6560	6635	D4769	.015	.85	.01	.01	0.0
A002	6635	6675	D4770	.015	.85	.01	.01	0.0
A002	6675	6725	D4771	.015	.85	.01	.01	0.0
A002	6830	6890	D4772	.015	.85	.005	.01	.005
A002	6890	6940	D4773	.015	.85	.005	.01	.01
A002	6940	7010	D4774	.015	.85	.005	.005	.005
A002	7010	7085	D4775	.015	.85	.005	.005	.005
A002	7085	7160	D4776	.015	.85	.01	.005	.02
A002	7160	7220	D4777	.015	.85	.005	.005	.01
A002	7220	7300	D4778	.015	.85	.005	.01	.005
A002	7300	7350	D4779	.015	.85	.005	.01	.005
A002	7570	7620	D4780	.015	.85	.01	.005	.005
A002	7620	7680	D4781	.015	.85	.03	.005	.15
A002	7680	7730	D4782	.015	.85	.02	.005	.35
A002	7975	8025	D4783	.015	.85	.005	.005	.005
A002	8025	8045	D4784	.015	.85	.02	.005	.1
A002	8045	8100	D4785	.015	.85	.01	.005	.01
A002	8100	8170	D4786	.015	.85	.005	.005	.005
A002	8170	8220	D4787	.015	.85	.005	.005	.005
A002	8220	8290	D4788	.04	.85	.005	.005	.005
A002	8290	8340	D4789	.015	.85	.02	.005	.05
A002	8340	8400	D4790	.015	.85	.01	.005	.01
A002	8400	8430	D4791	.015	.85	.01	.005	.01
A002	8430	8470	D4792	.015	.85	.02	.005	.06
A002	8470	8520	D4793	.015	.85	.005	.005	.005
A002	8580	8630	D4794	.015	.85	.005	.01	.005
A002	8630	8700	D4795	.015	.85	.01	.01	.04
A002	8700	8750	D4796	.015	.85	.005	.01	.05
A002	8920	8980	D4797	.015	.85	.005	.01	.03
A002	8980	9020	D4798	.015	.85	.005	.01	.005
A002	9020	9070	D4799	.015	.85	.005	.005	.005
A002	9070	9120	D4800	.015	.85	.01	.01	.02
A002	9120	9160	D4801	.015	.85	.005	.01	.005
A002	9160	9210	D4802	.015	.85	.005	.01	.005
A002	9210	9260	D4803	.015	.85	.005	.01	.005
A002	9260	9290	D4804	.015	.85	.005	.01	.01
A002	9290	9340	D4805	.015	.85	.005	.01	.03
A002	9550	9600	D4806	.015	.85	.01	.01	.03
A002	9600	9670	D4807	.015	.85	.01	.01	.08
A002	9670	9740	D4808	.015	.85	.005	.03	.005
A002	9740	9775	D4809	.015	.85	.57	.01	.005
A002	9775	9840	D4810	.015	.85	.22	.04	.02
A002	9840	9900	D4811	.03	.85	.25	.03	.01
A002	9900	9940	D4812	.015	.85	.01	.01	.005
A002	9940	9990	D4813	.015	.85	.01	.01	.07
A002	9990	10060	D4814	.015	.85	.02	.01	.02
A002	10060	10110	D4815	.015	.85	.01	.01	.005
A002	10180	10230	D4816	.015	.85	.005	.005	.005
A002	10390	10440	D4817	.015	.85	.01	.005	.01
A002	10440	10490	D4818	.015	.85	.01	.01	.01

A002	10490	10540	D4819	.015	.85	.01	.01	.02
A002	10540	10610	D4820	.015	.85	.005	.01	.005
A002	10610	10650	D4821	.015	.85	.01	.01	.03
A002	10650	10700	D4822	.015	.85	.01	.005	.005
A002	10840	10910	D4823	.015	.85	.005	.01	.005
A002	10910	10940	D4824	.015	.85	.05	.01	.005
A002	10940	10990	D4825	.015	.85	.01	.01	.005
A002	12230	12300	D4826	.015	.85	.005	.005	0.0
A002	12470	12530	D4827	.015	.85	.005	.01	0.0
A002	12910	12970	D4828	.015	.85	.005	.005	0.0
A002	13710	13770	D4829	.015	.85	.005	.005	0.0
A002	13770	13840	D4830	.015	.85	.005	.005	0.0
A002	13840	13915	D4831	.015	.85	.005	.005	0.0
A002	13915	13985	D4832	.03	.85	.5	.01	0.0
A002	13985	14060	D4833	.015	.85	.01	.01	0.0
A002	14360	14430	D4834	.015	.85	.005	.01	0.0
A002	14800	14885	D4835	.015	.85	.005	.005	0.0
A002	14885	14960	D4836	.015	2.4	.005	.02	0.0
A002	15410	15480	D4837	.015	.85	.005	.03	0.0
A002	15830	15900	D4838	.015	.85	.005	.005	0.0
A002	16025	16095	D4839	.015	.85	.005	.01	0.0
A002	16430	16505	D4840	.06	.85	.005	.01	0.0
A002	16505	16575	D4841	.03	.85	.005	.005	0.0
A002	16300	16350	D4842	.015	.85	.06	.01	0.0
A002	17110	17160	D4843	.03	.85	.05	.005	0.0
A002	17160	17230	D4844	.015	.85	.005	.01	0.0
A002	17690	17760	D4845	.015	.85	.005	.005	0.0
A002	17980	18055	D4846	.015	.85	.005	.005	0.0
A002	18415	18485	D4847	.015	.85	.02	.01	0.0
A002	18650	18700	D4848	.015	.85	.005	.005	0.0
A002	18700	18720	D4849	.015	2.4	.6	.005	0.0
A002	18720	18770	D4850	.015	.85	.02	.005	0.0
A002	18955	18985	D4851	.015	.85	.01	.005	0.0
A002	19380	19440	D4852	.09	.85	.005	.005	0.0
A002	19665	19735	D4853	.03	.85	.01	.005	0.0
A002	20520	20580	D4854	.015	.85	.02	.005	0.0
A002	20580	20650	D4855	.015	.85	.01	.005	0.0
A002	20650	20730	D4856	.015	1.7	.005	.005	0.0
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PMSV     182   8509     MXXXTDY       PPMX2526       FO    25D2
L                                        5G                                  D)
R                                        MASSIVE CLASTIC DYKE, DARK GREEN CHLORITIC, 10 TO 25%
R                                        QUARTZ PHENOCRYSTS, MOSTLY SMALL BLACKISH BUT ALSO
R                                        LARGE WHITISH TO TRANSLUSCENT (2-8 MM) CRYSTALS ARE
R                                        ANGULAR TO ROUND, MATRIX IS FINE GRAINED GRANULAR TO
R                                        LOCALLY MEDIUM GRAINED GIVING THE UNIT A DIORITIC
R                                        TEXTURE, LOCAL RHYOLITIC FRAGMENTS, LIGHT GREY
R                                        FOUNDED, APHYRIC TO QUARTZ PHYRIC, NO SERICITIZATION,
R                                        UNIT IS HOMOGENEOUSLY CHLORITIC, DEFORMATION IS WEAK
R                                        FOLIATION AT 25 DEGREES TO CORE AXIS, 1% PY
R                                        DISSEMINATED, AND LOCALLY IN DISCORDANT STRINGERS,
R                                        TR. CPY DISSEMINATED AND IN DISCORDANT STRINGERS
R                                        NO QUARTZ VEINING. NO FAULTING, RHYOLITIC FRAGMENTS
R                                        UP TO 30 CM WIDE.
R        350    400                      D5037 TR PY DISS
R        400    429                      D5038 TR CPY DISS ASSOCIATED WITH 2% DISS PY
R        429    479                      D5039 TR PY, CPY DISS
R       1030   1080                      D5040 TR PY DISS
R       1080   1109                      D5041 0.5% CPY, 2% PY DISS
R       1109   1159                      D5042 TR PY DISS
R       1209   1259                      D5043 TR PY DISS
R       1259   1290                      D5044 TR CPY, 1% PY DISS
R       1290   1340                      D5045 TR PY, CPY DISS
R       2075   2110                      D5046 3% PY IN STRINGERS CPY ASSOCIATED
R       2110   2160                      D5047 TR PY DISS
R       2160   2219                      D5048 TR PY DISS
R       2219   2250                      D5049 TR CPY IN SMALL STRINGERS, 1% PY DISS
R       2250   2300                      D5050 1% PY DISS
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N     3989  5260    PPY'.          PPMX3526       FO     30D2D1
L                                                                D)
R     CLASTIC DYKE PORPHYRITIC TO EQUIGRANULAR, UPPER
R     CONTACT CHILL MARGIN 30 CM WIDE FINE GRAINED
R     CHLORITIC, 20 TO 30% QUARTZ CRYSTALS MOSTLY SMALL
R     (4 MM) ANGULAR, IN FINE GRAINED TO MEDIUM GRAINED
R     CHLORITIC GROUNDMASS, DIORITIC TEXTURE, WEAKLY
R     DEFORMED, 5 TO 10% WHITE PLAGIOCLASE CRYSTALS
R     (2 TO 4 MM) FOL. AT 30 DEGREES TO CA, TR. TO 2% PY
R     DISSEMINATED, NO QUARTZ VEINING, NO FAULTING,
R     LOWER CONTACT 30 CM CHILL MARGIN, THIS
R     UNIT IS CONSISTANT WITH MULTIPLE INJECTION WITHIN
R     THE CLASTIC DYKE UNIT
R     3189  3220      D5051 1% PY, TR CPY IN     LL VEINLET
R     3329  3360      D5052 TR CPY+PY ALONG S.   ' VEINLET
R     3360  3420      D5053 0.5% CPY, 1% PY DI.  .
N     5260  5460  CLXTFLP        FR  2728       FO     30D2
L                                                                D=
R     5G
R     LAPILLI TUFF, POSSIBLY FRAGMENT RICH PORTION OF
R     CLASTIC DYKE, MEDIUM GREEN CHLORITIC, 10 TO 20%
R     QUARTZ CRYSTALS MOSTLY SMALL (2-4 MM), 20% LAPILLI
R     SIZE FRAGMENTS HETEROLITHIC, WHITE RHYOLITIC QUARTZ
R     PHYRIC, ALSO BLACK FRAGMENTS MORE MAFIC AND LIGHT
R     GREEN RHYOLITIC FRAGMENTS, THESE ARE SUBROUNDED AND
R     UP TO 6 CM LONG, MATRIX IS CHLORITIC, DEFORMATION IS
R     WEAK FRAGMENTS ARE WEAKLY STRETCHED IN FOLIATION,
R     AT 30 TO 35 DEGREES TO CA, 1 TO 5% PY DISS
N     5460  6804  PPXXTDY          PPMX2516       FO     40D1
L                                                                D)
R     5G
R     CLASTIC DYKE, FINE GRAINED MASSIVE TO PORPHYRITIC,
R     20% SMALL QUARTZ PHENOCRYSTS, MOSTLY SMALL (2-4 MM)
R     MATRIX MEDIUM GREEN CHLORITIC, FIRST 3 M OF UNIT
R     VERY FINE GRAINED, GETTING INCREASINGLY MORE
R     PORPHYRITIC, DEFORMATION WEAK FOLIATION AT 40 TO 45
R     DEGREES TO CA, 1-5% PY DISSEMINATED
N     6804  8509  MXXXTDY          MX2414         FO     40
L                                                                D+
R     3A
R     FINE GRAINED CLASTIC DYKE (FINE GRAINED DIORITE),
R     MEDIUM GREEN, 1 TO 5% VERY SMALL QUARTZ CRYSTALS,
R     1 TO 10% SMALL MAFIC FRAGMENTS, BLACK APHYRIC
R     STRETCHED INTO FOLIATION, 5 TO 30 MM LONG, ABUNDANT
R     AT BEGINNING OF UNIT, UPPER CONTACT SHARP AT 35
R     DEGREES TO CA, FROM 81 TO 85 M 5% LARGE QUARTZ
R     PHENOCRYSTS, DEFORMATION IS WEAK, FOLIATION AT 40
R     DEGREES TO CORE AXIS, 1 TO 3% PY DISS, TR CPY, NO
R     FAULTING, VERY LITTLE QUARTZ VEINING
R     4835  491C      D5054 2% PY DISS
R     5329  5400      D5055 1% PY DISS
R     6035  6104      D5056 5 CM QZ VEIN 10 DEGREE TO CORE AXIS, 1% PY DISS
R     6479  6540      D5057 20 CM QZ VEINING 20 DEGREES TO CA, 5% PY
R     7009  7059      D5058 TR CPY DISS, 1% PY IN VEINLETS
R     7120  7170      D5059 2% PY IN VEINLETS AND DISS, SILICIFIED
R     7865  7940      D5060 3% PY DISS
R     8284  8334      D5061 1% PY IN VEINLETS, TR CPY
P     8509 14625  CLXTFLP        FRFO2658       FO     40D1
L                                                                D+
R     3G
R     LAPILLI TUFF, 10 TO 60% LAPILLI SIZE FRAGMENTS
R     HETEROLITHIC: LIGHT GREY SILICEOUS RHYOLITIC
R     FRAGMENTS AND DARK GREY MORE MAFIC FRAGMENTS MOSTLY,
R     FRAGMENTS ARE SUBROUNDED, 5 TO 50 MM LONG STRETCHED
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R				INTO FOLIATION, FRAGMENTS ARE MOSTLY CONCENTRATED AT
R				BEGINNING OF UNIT, 5 TO 15% QUARTZ CRYSTALS 2-8 MM,
R				SMALL BLACKISH AND LARGE BLUISH CRYSTALS, MATRIX IS
R				DARK GREEN, CHLORITIC, FINE GRAINED, DEFORMATION
R				MODERATE FOLIATION AT 40 DEGREES TO CA, 1 TO 5% PY
R				DISS AND IN VEINLETS TR CPY, 93.2 TO 94 M AND 94.8
R				TO 96.3 BRITTLE FAULTS 2 CM WIDE AT 5 DEGREES TO CA,
R				BROKEN CORE, MINOR SERICITE RICH FOLIATION PLANES
R				THROUGHOUT, LOCAL FINE GRAINED INTERVALS WITHIN
R				THIS UNIT
R	9240	9290		D5062 TR CPY, 1% PY DISS
R	9770	9820		D5063 2% PY IN VEINLETS AND DISS
R	10620	10670		D5064 2% PY IN VEINLETS AND DISS
R	11604	11654		D5065 3% PY IN VEINLETS, TR CPY
R	11990	12040		D5066 TR PY, CPY DISS
R	12145	12215		D5067 2% PY DISS, TR CPY
R	12215	12265		D5068 1% PY DISS AND IN VEINLETS, TR CPY
R	12740	12790		D5069 1% PY IN VEINLETS, TR CPY
R	12884	12959		D5070 5% PY DISS
R	13355	13405		D5071 TR CPY IN SMALL VEINLET
R	14205	14315		D5072 1% PY, TR CPY IN SMALL VEINLET
R	14450	14480		D5073 TR PY, CPY IN SMALL VEINLET
R	14480	14530		D5074 TR PY
R	14530	14559		D5075 TR PY, CPY IN QTZ VEINLET
P	14625	15745	MXXXTDY	MXEM2556 FO 40D2
L				5G D=
R				MASSIVE DIORITIC "CLASTIC DYKE", FINE GRAINED TO
R				MEDIUM GRAINED, 20% SMALL QUARTZ CRYSTALS IN
R				MEDIUM GREEN CHLORITIC GROUNDMASS, GRAINS ARE 1 TO
R				5 MM, UPPER CONTACT SHARP, 30 CM WIDE CHILL MARGIN,
R				VERY FINE GRAINED CHLORITIC GRADUALLY INCREASING
R				GRANULOMETRY, DEFORMATION VERY WEAK, FOLIATION AT
R				40 DEGREES TO CA, 1 TO 5% PY DISS, SEVERAL SMALL
R				QUARTZ VEINLETS 2 TO 10 MM WIDE, TR TO LOCALLY
R				1% CPY ASSOCIATED WITH VEINLETS
R	14644	14694		C18226 TR PY, CPY
R	14694	14719		C18227 4% CPY IN QTZ-CPY VEINLET
R	14719	14769		C18228 TR PY DISS
R	14900	14969		C18229 1% PY DISS, SMALL QUARTZ STRINGERS, TR CPY
R	14969	15000		C18230 1% PY DISS, 2 CM QUARTZ VEIN AT 90 DEGREE
R				TO CORE AXIS, TR CPY
R	15000	15050		C18231 3 SMALL QUARTZ VEINS, TR CPY
R	15240	15305		C18232 2% PY DISS, TR CPY, SMALL QUARTZ VEINLETS
R	15305	15365		C18233 2% PY DISS, SMALL QUARTZ VEINLETS, TR CPY
R	15365	15440		C18234 3% PY DISS, TR CPY
R	15440	15480		C18235 SMALL QUARTZ VEINLETS, 2% PY DISS, TR CPY
P	15745	18480	MXXRY/F	PPMX2516 FO 40D1
L				5G D)
R				MASSIVE RHYOLITIC TO DACITIC FLOW, MEDIUM GREEN,
R				5 TO 10% LARGE (4-8 MM) QUARTZ PHENOCRYSTS IN DARK
R				GREEN TO LIGHT GREEN APHYRIC SILICEOUS MATRIX, LOCAL
R				FLOW BRECCIA, LIGHT GREEN ROUDED SILICEOUS RHYOLITE
R				FRAGMENTS, DEFORMATION IS WEAK, FOLIATION AT 40
R				DEGREES TO CA, 1 TO 3% DISSEMINATED PY, VERY
R				LITTLE QUARTZ VEINING
R				LOCAL SERICITIZATION IN FOLIATION PLANES
R	15759	15809		C18236 TR PY, CPY DISS, SMALL QZ VEINLETS
R	15900	15940		C18237 1% PY, TR CPY IN SMALL STRINGERS
R	16490	16540		C18238 3% PY, TR CPY DISS, 5 CM QZ VEIN 90 DEGREE TO
R				CORE AXIS

R	16540	16590		C18239 3% PY DISS, 20 CM QZ VEIN AT 60 DEGREE TO CA
R	16909	16959		C18240 1% PY DISS, TR CPY
R	17640	17690		C18241 2% PY DISS
P	18480	22219	MXXTFLP	FR 2627 FO 45D2 P1
L				5A D=
R				RHYOLITIC LAPILLI TUFF, MEDIUM GREY, 10 TO 30%
R				LAPILLI SIZE RHYOLITIC FRAGMENTS 5 TO 20 MM, ROUNDED,
R				10 TO 20% QUARTZ CRYSTALS, 2 TO 8 MM ROUNDED, MATRIX
R				IS CHLORITIC TO SERICITIC FINE GRAINED, 10% SERICITE
R				CONCENTRATED IN FOLIATION PLANES, DEFORMATION IS
R				WEAK, FOLIATION AT 45 DEGREES TO CA, QUARTZ CALCITE
R				STRINGERS THROUGHOUT, 5% PY DISSEMINATED AND
R				IN SMALL VEINLETS
R	19980	20200		5 TO 50% VERY FINE PY IN LAPILLI TUFF MATRIX AND IN
R				MASSIVE STREAKS UP TO 10 CM WIDE DISCORDANT TO FOL.
R				SMALL FAULTS AT 212.6, 217.0 AND 221.0 WITH
R				ASSOCIATED QUARTZ VEINING
R	19330	19380		C18242 5% PY IN VEINLETS, TR CPY
R	19380	19430		C18243 2% PY DISS
R	19719	19769		C18244 2% PY DISS
N	20700	20900	BXXTFLP	FR 2627 FO 40D1
L				7A D=
R				RHYOLITIC LAPILLI TUFF, 50% RHYOLITIC FRAGMENTS,
R				WHITE SILICEOUS ROUNDED, 10% QUARTZ CRYSTALS,
R				MATRIX SERICITIZED, 5% PY IN VEINLETS AND DISS,
R	20069	20130		C18245 20% PY IN FINE GRAINED MASSIVE STREAK 20 CM
R				WIDE AT 30 DEGREE TO CORE AXIS
R	20130	20169		C18246 20 CM MASSIVE PY STREAK, 20 DEGREE TO CORE
R				AXIS, 40% PY
R	20169	20219		C18247 10% PY DISS
R	20550	20600		C18248 3% PY IN STRINGERS, 0.5% CPY
R	20819	20880		C18249 5% PY DISS
R	20959	21034		C18250 10% PY IN STRINGERS, 5 CM QZ VEIN 60 DEGREE
R				TO CORE AXIS
R	21034	21084		C18251 10% PY DISS
R	21684	21734		C18252 1% PY DISS, TR CPY
R	21830	21880		C18253 5% DISS PY
R	21880	21909		C18254 2% CPY, 2% PY IN VEINLETS
R	21909	21975		C18255 5% PY DISS, 2 CM QZ VEIN 60 DEGREES TO CA
R	21990	22050		C18256 2% PY DISS, SMALL QZ VEINS
R	22050	22090		C18257 2% CPY IN VEINLETS ASSOCIATED WITH SMALL QZ
R				VEINLETS
R	22090	22140		C18258 2% DISS PY
P	22219	28687	BXXRY/F	BX 2627 FO 45D1
L				3A D=
R				DARK GREY RHYOLITIC TO DACITIC RHYOLITE FLOW, 5%
R				QUARTZ PHENOCRYSTS DISSEMINATED, MASSIVE TO FLOW
R				BRECCIATED, LOCALLY LIGHT GREY RHYOLITIC FRAGMENTS,
R				ROUNDED, MONOLITHIC, STRETCHED IN FOLIATION, MATRIX
R				IS FINE GRAINED DARK GREY, WEAKLY CHLORITIC, WEAK
R				SERICITIZATION, 1-5% SERICITE CONCENTRATED IN
R				FOLIATION PLANES, DEFORMATION IS WEAK, FOLIATION AT
R				45 DEGREES TO CA, 1 TO 5% PY DISSEMINATED AND IN
R				SMALL STRINGERS.
R	22300	22400		FAULT ZONE, CORE BROKEN, QUARTZ VEINING
R	22219	22269		C18259 5% PY DISS, 3 CM QZ-CAL VEIN AT 60 DEGREE TO
R				CORE AXIS
R	22444	22494		C18260 1% PY, 0.5% CPY IN SMALL STRINGERS
R	22494	22569		C18261 3% PY DISS
R	23630	23680		C18262 2% PY IN VEINLETS

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R     25575 25650            C18263 1% PY IN VEINLETS AND DISS
R     26189 26264            C18264 1% PY IN VEINLETS
R     26264 26314            C18265 1% CPY, 1% PY IN SMALL VEINLETS
R     26314 26364            C18266 1% PY, TR CPY IN VEINLETS, 5 CM QZ VEIN
R                            AT 60 DEGREES TO CORE AXIS
R     26364 26414            C18267 0.5% CPY, TR PY, 5 CM QZ VEIN 15 DEGREES
R                            TO CORE AXIS
R     26414 26455            C18268 3% CPY, 1% PY IN VEINLETS WITHIN 10 CM WIDE
R                            QZ VEIN AT 90 DEGREES TO CORE AXIS
R     26464 26535            C18269 1% CPY IN SMALL STRINGERS
R     26535 26575            C18270 2% CPY IN VEINLETS, 2 CM QZ VEIN 70 DEGREES
R                            TO CORE AXIS
N     26160 26530    BXXRY/F       BX  2515      FO    45D=              P=
L                            5A                                        V+  V)
R                            RHYOLITIC FLOW BRECCIA, WHITE HIGHLY SILICEOUS,
R                            CHERTY RHYOLITE FRAGMENTS (1% QUARTZ CRYSTALS) AND
R                            YELLOWISH SERICITIZED RHYOLITE FRAGMENTS WITHIN DARK
R                            GREY DACITIC FLOW, POSSIBLE EXHALATIVE HORIZON,
R                            QUARTZ VEINING THROUGHOUT, TR TO 5% CPY IN VEINLETS
R                            ASSOCIATED WITH QUARTZ VEINS AND HIGHLY SILICEOUS
R                            BRECCIATED RHYOLITE FRAGMENTS, ALSO 1% PY,
R                            DEFORMATION WEAK, FOLIATION 45 DEGREES TO CA
R     26575 26650            C18271 1% PY DISS
R     27175 27250            C18272 2% PY DISS
N     28439 28687    BXXRY/F       BX  2515      FO    60D=
L                            5A                                        D+
R                            RHYOLITIC FLOW BRECCIA, MEDIUM TO LIGHT GREY,
R                            1 TO 3% QUARTZ CRYSTALS, 80% ROUNDED MONOLITHIC
R                            RHYOLITE FRAGMENTS IN MORE CHLORITIC MATRIX, LOCAL
R                            MORE SERICITIZED AND SILICIFIED BANDS (YELLOWISH)
R                            WITH 5% PY STRINGERS, ALSO QUARTZ VEINING IN THE
R                            LAST 30 CM OF UNIT, DEFORMATION WEAK, FOLIATION 60
R                            DEGREES TO CA, 1 TO 5% PY, TR CPY, SHARP CONTACT
R                            WITH LAPILLI TUFF AT 286.87 M, 35 DEGREES TO CA
P     28687 35860    PPXTFLP       FR  2657      FO    50D1              P1
L                            7A                                        D=
R                            RHYOLITIC LAPILLI TUFF, MEDIUM TO LIGHT GREY, 10%
R                            LARGE QUARTZ CRYSTALS (4-8MM) ROUNDED, 40 TO 60%
R                            LAPILLI SIZE RHYOLITIC FRAGMENTS, 5 TO 60 MM LONG,
R                            STRETCHED IN FOLIATION, IN A MORE SERICITIC AND
R                            DARKER MATRIX, 10 TO 20% SERICITE PERVASIVE,
R                            CONCENTRATED IN MATRIX AND FOLIATION PLANES,
R                            LOCALLY STRONGLY SERICITIZED AND SILICIFIED BANDS
R                            (YELLOWISH) WITH SMALL CHLORITE-PYRITE STRINGERS,
R                            DEFORMATION MODERATE, GOOD FOLIATION AT 50 DEGREES
R                            TO CA, 5% PY DISS. AND IN VEINLETS, NO QUARTZ
R                            VEINING, NO FAULTING.
R     28539 28589            C18273 5% PY DISS, TR CPY
R     28589 28639            C18274 5% PY DISS AND IN STRINGERS
R     28639 28689            C18275 NSMALL QZ VEINS, TR CPY
R     28689 28739            C18276 3% PY DISS, TR CPY
R     29019 29094            C18277 5% PY IN LAPILLI TUFF MATRIX
R     29830 29900            C18278 5% PY IN LAPILLI TUFF MATRIX
N     30980 32894    MSXTFLP       FR  2668      FO    45D1              P2
L                            7A                                        D1
R                            RHYOLITIC LAPILLI TUFF, LIGHT GREY, SIMILAR TO
R                            PREVIOUS UNIT MAIN DIFFERENCE IS INTENSE
R                            SERICITIZATION, 20 TO 80% FRAGMENTS 5 TO 80 MM LONG,
R                            SUBROUNDED TO ANGULAR, RHYOLITIC, 10 TO 20% QUARTZ
R                            CRYSTALS -8 MM SUBROUNDED, 20 TO 30% SERICITE
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R                                PERVASIVE, CONCENTRATED IN MATRIX AND IN FOLIATION,
R                                5 TO 10% PY DISS AND CONCENTRATED IN MATRIX,
R                                DEFORMATION IS WEAK, FOLIATION AT 40 DEGREES TO CA
N    31201 31512    MXXDIOR      MX  2455      FO    50
L                                5A                                          D)  R
R                                MASSIVE DIORITE DYKE, FINE GRAINED EQUIGRANULAR, 20%
R                                SMALL QUARTZ CRYSTALS IN MEDIUM GREY SILICEOUS
R                                GROUNDMASS, NO SERICITIZATION, DEFORMATION VERY
R                                WEAK, 1% PY DISS
R    30469 30519                 C18279 2% PY IN VEINLETS
R    31030 31100                 C18280 10% PY DISS AND IN VEINLETS
R    31539 31614                 C18281 10% PY DISS
R    31614 31685                 C18282 10% PY DISS AND IN STRINGERS
N    32894 34080    CLXTFLP      FR  2658      FO    45                      P1
L                                5G                                  P2      D5  D)
R                                RHYOLITIC LAPILLI TUFF, SIMILAR TO PREVIOUS UNIT,
R                                MAJOR DISTINCTION IS PERVASIVE CHLORITIZATION, 10 TO
R                                50% RHYOLITIC LAPILLIS, 5 TO 50 MM LONG ROUNDED
R                                SERICITIC, 10% QUARTZ EYES BLUISH, ROUNDED, 2 TO 6 MM
R                                MATRIX IS PERVASIVELY CHLORITIZED (20% CHL),
R                                ALSO LOCAL CHLORITE VEINLETS, DEFORMATION IS WEAK TO
R                                MODERATE, FOLIATION AT 45 DEGREES TO CORE AXIS,
R                                1 TO 5% PY DISS AND IN BLEBS, 1 TO 2% DISS CPY
R                                THROUGHOUT, LOCAL QUARTZ VEINING.
R                                UPPER CONTACT WITH INTENSELY SERICITIZED LAPILLI TUFF
R                                IS SHARP
R    32150 32219                 C18283 10% PY DISS
R    32460 32530                 C18284 15% PY DISS
R    32730 32780                 C18285 20% DISS PY
R    32900 32950                 C18286 15% PY DISS, TR CPY
R    32950 33000                 C18287 2% PY DISS, TR CPY
R    33000 33050                 C18288 1% PY DISS, TR CPY
R    33050 33100                 C18289 0.5% CPY, 1% PY DISS
R    33100 33160                 C18290 1% CPY, 2% PY DISS
R    33160 33210                 C18291 1% CPY, PY CONCENTRATED IN CHLORITE VEINLET
R    33210 33260                 C18292 1% CPY, PY DISS
R    33260 33319                 C18293 5% PY, 1% CPY DISS
R    33319 33380                 C18294 2% CPY, 1% PY DISS
R    33380 33455                 C18295 1% PY DISS
R    33550 33619                 C18296 1% PY, TR CPY DISS, 2 CM QZ VEIN AT 30 DEGREE
R                                TO CORE AXIS
R    33630 33689                 C18297 1% PY, TR CPY DISS
R    33689 33739                 C18298 1% CPY, 3% PY DISS
R    33739 33800                 C18299 30% PY IN STRINGERS, TR CPY
R    33800 33860                 C18300 10% PY, TR CPY DISS
R    33860 33930                 C18301 0.5% CPY, 1% PY DISS
R    33930 33960                 C18302 10 CM QZ VEIN 60 DEGREES TO CA, 1% DISS
R                                PY, TR CPY
R    33989 34039                 C18303 2% PY DISS
R    34039 34080                 C18304 3% PY DISS, TR CPY
N    34080 35260    MSXTFLP      FR  2657      FO    50D1                    P2
L                                7A                                          D2
R                                SERCITIZED RHYOLITIC LAPILLI TUFF, 30 TO 70%
R                                RHYOLITIC LAPILLIS STRETCHED INTO FOLIATION, MATRIX
R                                STRONGLY SERICITIC, 10% QUARTZ CRYSTALS DISSEMINATED
R                                DEFORMATION MODERATE, FOLIATION 50 DEGREES TO CA,
R                                5 TO 20% PY DISS.
N    35280 35860    CLXTFLP      FR  2657      FO    60D1                    P1
L                                5G                                  P2      D5  D*
R                                CHLORITIZED RHYOLITE LAPILLI TUFF, 10 TO 20%
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R                                  CHLORITE IN TUFF MATRIX AND IN FOLIATION PLANES,
R                                  10% SERICITE, 5% PY DISS, 1% CPY DISS, LOWER CONTACT
R                                  IS SHARP WITH FOLLOWING UNIT.
R     34405 34480                  C18305 20% DISS PY
R     34860 34919                  C18306 20% DISS PY
R     34919 34980                  C18307 20% DISS PY
R     35155 35239                  C18308 20% DISS PY
R     35239 35280                  C18309 5% DISS PY, 1% CPY
R     35280 35330                  C18310 5% DISS PY, 1% CPY
R     35330 35380                  C18311 2% PY, 0.5% CPY DISS
R     35380 35430                  C18312 1% PY, TR CPY DISS
R     35430 35500                  C18313 TR PY DISS
R     35500 35560                  C18314 0.5% CPY DISS, TR PY DISS
R     35619 35680                  C18315 5% PY DISS, TR CPY
R     35680 35730                  C18316 TR PY
R     35730 35780                  C18317 1% CPY, 2% PY DISS
R     35780 35830                  C18318 TR PY DISS
P     35860 39539    MXXRY/F       MX  25=6       FO    50D+
L                                  5A                                        D+
R                                  MASSIVE RHYOLITIC FLOW MEDIUM GREEN TO LIGHT GREY,
R                                  APHYRIC TO 2% DISSEMINATED QUARTZ PHENOCRYTS,
R                                  LOCALLY VERY SILICEOUS AND BRECCIATED, TO VERY
R                                  MASSIVE MORE DACITIC, WEAKLY DEFORMED FOLIATION AT
R                                  50 DEGREES TO CA, 1% TO 5% PY DISS, RARE CPY, LITTLE
R                                  QUARTZ VEINING
N     35860 36698    BXXRY/F       BX  25=6       FO    50D+
L                                  5A                                        D+  D)
R                                  RHYOLITE FLOW BRECCIA, VERY SILICEOUS, 5 TO 10%
R                                  QUARTZ PHENOCRYSTS IN SILICEOUS ROUNDED RHYOLITE
R                                  CLASTS WITHIN DARKER MORE CHLORITIC MATRIX,
R                                  DEFORMATION WEAK, 1 TO 5% DISS PY,
R     36513 36613                  1 TO 5% CPY IN BRECCIATED RHYOLITE ASSOCIATED WITH
R                                  SMALL QZ VEINS AND MASSIVE CHLORITE VEINS, CPY DISS
R                                  AND IN DISCORDANT VEINLETS
N     36698 36910    MXXDYKE       MX  2414
L                                  5A                                        =   )
R                                  MASSIVE RHYOLITIC DYKE, DARK GREY SILICEOUS, 2%
R                                  VERY SMALL QUARTZ PHENOCRYSTS IN VERY MASSIVE
R                                  APHANITIC ROCK, WEAKLY FOLIATED, SULPHIDE VEINLETS
R                                  THROUGHOUT, 2% PY, 1% CPY IN VEINLETS, ALSO A 5 MM
R                                  WIDE APY+CPY VEINLET, QUARTZ VEIN AT UPPER CONTACT,
R                                  LOWER CONTACT SHARP AT 50 DEGREES TO CA
N     36910 37119    MSXTFLP       FR  2647       FO    55D1                P2
L                                  7A                                        +   ) )
R                                  RHYOLITIC LAPILLI TUFF, 20 TO 40% RHYOLITIC FRAGS
R                                  STRONGLY STRETCHED, MATRIX SERICITIC, 10% SMALL TO
R                                  LARGE QUARTZ CRYSTALS, COMMONLY BROKEN AND WITH
R                                  PRESSURE SHADOWS, 20% SERICITE IN FOLIATION PLANES,
R                                  5% PY IN VEINLETS, 1-2% PO, TR DISS CPY, AT END OF
R                                  UNIT, 35 CM WIDE MASSIVE CHLORITE VEIN.
R     35935 35985                  C18319 TR PY
R     35985 36025                  C18320 1% CPY IN STRINGERS
R     36025 36075                  C18321 3% PY STRINGERS
R     36464 36514                  C18322 SMALL QZ VEINS, TR PY
R     36514 36564                  C18323 4% CPY, 5% PY IN STRINGERS
R     36564 36605                  C18324 1% CPY STRINGERS, 1% PY
R     36605 36644                  C18325 1% CPY DISS AND IN VEINLETS
R     36644 36700                  C18326 TR CPY DISS, 20 CM QZ VEIN 90 DEGREES TO CA
R     36700 36744                  C18327 1% PY STRINGERS
R     36744 36794                  C18328 1% CPY IN VEINLETS, 2% PY, TR APY
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R     36794 36864          C18329 1% CPY IN STRINGERS
R     36864 36914          C18330 TR PY, CPY DISS
R     36914 36964          C18331 5% PY IN STRINGERS, 2% SPHALERITE
R     36964 37014          C18332 5% PY, 1% SP IN SRINGERS
R     37014 37075          C18333 1% PY, 0.5% CPY DISS
R     37075 37125          C18334 1% CPY IN QZ VEINLETS
R     37125 37180          C18335 1% PY VEINLETS
N     37119 39539    MXXRY/F       MXBX25=5      FO    50D=              P=
                                                                        D+
                     5A
L
R                    MASSIVE TO FLOW BRECCIATED RHYOLITE, MEDIUM GREY,
R                    SILICEOUS, 1 TO 5% SMALL (2-5 MM) QUARTZ PHENOCRYSTS,
R                    WEAKLY SERICITIZED, 5% SERICITE IN FOLIATION PLANES,
R                    WEAKLY DEFORMED, FOLIATION AT 50 DEGREES TO CA, 1 TO
R                    5% PY DISS AND IN STREAKS, 1% DISS CPY IN LAST 1 M
R                    OF UNIT, LOWER CONTACT SHARP AT 55 DEGREES TO CA
R     37719 37769    C18336 1% PY DISS, TR CPY IN SMALL QZ VEINLET
R     37950 38000    C18337 5% PY DISS, TR CPY, 10 CM QZ VEINING, 60
R                    DEGREES TO CA
R     39160 39230    C18338 5% PY DISS AND IN VEINLETS
R     39389 39439    C18339 1% PY DISS
R     39439 39489    C18340 5% PY DISS, 1% CPY
R     39489 39539    C18341 5% PY DISS, TR CPY, QZ-CAL VEINING CONTORTED
P     39539 40439    MXXDC/F       MX  2434      FO    50
                                                                        D+
L                    3A
R                    VERY MASSIVE DARK GREY APHYRIC DACITIC FLOW, 20%
R                    SMALL (0.5-1 MM) WHITE FELDSPATHIC MICROLITES,
R                    WEAKLY DEFORMED, FOLIATION AT 50 DEGREES TO CA
R                    1 TO 3% DISS PY, UPPER CONTACT SHARP AT 60 DEGREES
R                    TO CORE AXIS, LOWER CONTACT IS GRADUAL DACITE
R                    BECOMING INCREASINGLY MORE SILICEOUS
P     40439 42380    BXXRY/F       BX  2515      FO    50D=              P1
                                                         P=       D==
L                    5A
R                    RHYOLITE FLOW BRECCIA, 60 TO 80% MONOLITHIC ROUNDED
R                    LIGHT GREY SILICEOUS APHYRIC RHYOLITIC FRAGMENTS,
R                    GENERALLY 5 TO 60 MM IN DIAMETER IN DARK GREEN
R                    CHLORITIC MATRIX, DEFORMATION MODERATE, FRAGMENTS
R                    WEAKLY STRETCHED INTO FOLIATION AT 50 DEGREES TO
R                    CORE AXIS, 1 TO 5% PY DISS, LOCALLY 1-5% QUARTZ
R                    PHENOCRYSTS
R                    LOWER CONTACT GRADUAL WITH FOLLOWING UNIT
R     40039 40080    C18342 5% PY STRINGERS, 2% SP STRINGERS?
R     40475 40525    C18343 10% PY DISS, TR CPY
R     40860 40935    C18344 5% DISS PY
R     41330 41380    C18345 3% DISS PY
R     41380 41419    C18346 2% CPY IN VEINLETS, 3% DISS PY
R     41419 41469    C18347 2% DISS PY
P     42380 44725    MSXTFLP       FR  2637      FO    60D1              P1
                                                                        D+
L                    7A
R                    RHYOLITIC LAPILLI TUFF, 10 TO 40% LAPILLI SIZE
R                    RHYOLITIC CLASTS, STRETCHED IN FOLIATION, MATRIX
R                    MORE SERICITIC, 10% QUARTZ CRYSTALS THROUGHOUT,
R                    (2-8 MM) BROKEN UP, SERICITIZATION PERVASIVE
R                    THROUGHOUT, SERICITE CONCENTRATED IN FOLIATION PLANE:
R                    10 TO 20% SERICITE, 1 TO 5% PY DISS AND IN STRINGERS
R                    UPPER CONTACT WITH CHLORITIZED FLOW BRECCIA IS
R                    GRADUAL, DEFORMATION MODERATE, FOLIATION AT 60
R                    DEGREES TO CORE AXIS,
R     42735 42805    C18348 5% PY DISS, 1% SP IN VEINLET
R     42805 42875    C18349 5% PY IN VEINLETS AND DISS
R     42875 42950    C18350 3% PY IN VEINLETS AND DISS, 1% SP
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R     43460 43525          C18351 5% PY, 2% SP IN VEINLETS
R     43860 43910          C18352 5% PY DISS AND IN VEINLETS, TR CPY
P     44725 47280  MXXRY/F       MX  2425      FO    60
L                                5A                                  D+      D+  D*D*
R                              MASSIVE RHYOLITE FLOW, MEDIUM GREY, APHYRIC,
R                              LOCALLY TR. QZ CRYSTALS, LOCAL FLOW BRECCIA, LOCAL
R                              CHLORITE VEINLETS AND SERICITIZATION, DEFORMATION
R                              WEAK, FOLIATION AT 60 DEGREES TO CA, 1% PY STRINGERS,
R                              TR-2% PO IN STRINGERS AND DISSEMINATED,
R                              TR-2% CPY IN STRINGERS,
R     44280 44330              C18353 5% PY STRINGERS, 1% PO  IN STRINGERS
R     44435 44485              C18354 5% PY IN STRINGERS
R     44485 44535              C18355 1% CPY, 3% PY IN STRINGERS
R     44535 44585              C18356 1% CPY, 1% PY IN STRINGERS
R     44585 44635              C18357 1% CPY, 1% PY IN STRINGERS
R     44635 44685              C18358 2% CPY, 2% PY IN STRINGERS
R     44685 44735              C18359 1% CPY, 2% PY IN STRINGERS AND DISS
R     44735 44805              C18360 0.5% CPY IN QZ VEINLETS
R     45025 45100              C18361 0.5% CPY, 0.5% PO, 1% PY IN STRINGERS
R     45100 45169              C18362 0.5% CPY, 1% SP, 2% PY IN STRINGERS
R     45169 45244              C18363 1% PO, 2% PY IN STRINGERS
R     45244 45319              C18364 TR PY
R     45319 45394              C18365 1% PY, 1% PO IN STRINGERS
R     45394 45469              C18366 0.5% PO STRINGERS, 2% DISS PY
R     45469 45544              C18367 1% PO, 2% PY STRINGERS
R     45544 45619              C18368 2% PO, 2% PY IN STRINGERS
R     45619 45669              C18369 2% PO, 1% PY IN STRINGERS
R     45939 45989              C18370 TR PY, PO DISS
R     45989 46039              C18371 2% CPY, 2% PO IN STRINGERS
R     46039 46089              C18372 1% PO, TR CPY IN STRINGERS
R     46119 46193              C18373 TR CPY DISS
R     46194 46269              C18374 1% PY, TR PO, CPY DISS
R     46269 46319              C18375 3% CPY, 1% PO IN STRINGERS
R     46319 46389              C18376 0.5% PO STRINGERS, 2% DISS PY
R     46389 46464              C18377 1% PY, TR PO IN STRINGERS
R     46464 46539              C18378 1% PO, 5% PY STRINGERS
P     47280 49621  MSXTFLP       BXCT2678      FO    65                    P2
L                                7A                                      D)      )
R                              RHYOLITE LAPILLI TUFF TO DEBRIS FLOW, 60 TO 90%
R                              FRAGMENTS OF HIGHLY SILICEOUS APHYRIC RHYOLITE, 10 TO
R                              100 MM LONG, STRETCHED IN FOLIATION, MATRIX IS
R                              SERICITIC, 1 TO 5% CHLORITE STRINGERS AT BEGINNING
R                              OF UNIT, 1% PY AND TR TO 2% PO IN STRINGERS
R                              THROUGHOUT, 10 TO 20% SERICITE, DEFORMATION IS
R                              MODERATE FOLIATION AT 65 DEGREES TO FOLIATION
R     47360 47410              C18380 2% PY, 1% PO, TR CPY IN STRINGERS
R     47889 47955              C18381 1% PO STRINGERS, 2% DISS PY
R     47955 48030              C18382 1% DISS PY
R     48030 48105              C18383 1% PO STRINGERS
R     48235 48310              C18384 1% PO STRINGERS
R     48460 48535              C18385 0.5% PO STRINGERS
R     48535 48610              C18386 1% PO STRINGERS
R     48610 48685              C18387 4% PY DISS AND IN STRINGERS
R     48935 49010              C18388 2% PO STRINGERS, TR PY
R     49230 49305              C18339 1% PO STRINGERS, TR PY
R
R                              - Whole rock samples-
A001    775   825    D4551
A001   2850  2900    D4552
A001   4930  4980    D4553
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A001	7425	7475	D4554						
A001	9945	9995	D4555						
A001	12305	12355	D4556						
A001	16325	16375	D4557						
A001	19040	19090	D4558						
A001	21385	21435	D4559						
A001	22930	22980	D4560						
A001	24850	24900	D4561						
A001	26870	26920	D4562						
A001	29100	29150	D4563						
A001	31100	31150	D4564						
A001	32350	32400	D4565						
A001	33337	33387	D4566						
A001	34700	34750	D4567						
A001	35575	35625	D4568						
A001	36265	36310	D4569						
A001	37850	37900	D4570						
A001	39770	39820	D4571						
A001	41950	42000	D4572						
A001	44160	44210	D4573						
A001	45845	45895	D4574						
A001	48160	48210	D4575						
R				Au	Ag	Cu	Zn	Mo	
A002	3190	3220	D5051	.015	.85	.02	.005	0.0	
A002	3330	3360	D5052	.015	.85	.11	.005	0.0	
A002	3350	3420	D5053	.015	.85	.15	.005	0.0	
AC02	4835	4910	D5054	.03	.85	.06	.005	0.0	
A002	5330	5400	D5055	.015	.85	.03	.005	0.0	
A002	6035	6105	D5056	.015	.85	.03	.005	0.0	
A002	6480	6540	D5057	.015	1.9	.02	.005	0.0	
A002	7010	7060	D5058	.015	1.9	.03	.03	0.0	
A002	7120	7170	D5059	.015	.85	.005	.01	0.0	
A002	7865	7940	D5060	.015	1.8	.06	.005	0.0	
A002	8285	8335	D5061	.015	1.7	.02	.005	0.0	
A002	9240	9290	D5062	.015	.85	.01	.005	0.0	
A002	9770	9823	D5063	.015	.85	.005	.005	0.0	
A002	10620	10670	D5064	.015	.85	.005	.005	0.0	
A002	11605	11655	D5065	.015	.85	.03	.005	0.0	
A002	11990	12040	D5066	.015	.85	.13	.005	0.0	
A002	12145	12215	D5067	.015	.85	.05	.005	0.0	
A002	12215	12265	D5068	.015	.85	.01	.005	0.0	
A002	12740	12790	D5069	.015	.85	.01	.005	0.0	
A002	12885	12960	D5070	.015	.85	.01	.005	0.0	
A002	13355	13405	D5071	.015	.85	.01	.005	0.0	
A002	14265	14315	D5072	.015	.85	.005	.005	0.0	
A002	14450	14480	D5073	.015	.85	.005	.005	0.0	
A002	14480	14530	D5074	.015	.85	.005	.005	0.0	
A002	14530	14560	D5074	.015	.85	.005	.005	0.0	
A002	14645	14695	C18226	.015	2.2	.06	.005	0.0	
A002	14695	14720	C18227	.03	5.2	2.01	.005	0.0	
A002	14720	14770	C18228	.015	1.9	.06	.005	0.0	
A002	14900	14970	C18229	.015	.85	.02	.005	0.0	
A002	14970	15000	C18230	.015	1.9	.13	.005	0.0	
A002	15000	15050	C18231	.015	.85	.04	.005	0.0	
A002	15240	15305	C18232	.015	.85	.01	.005	0.0	
A002	15305	15365	C18233	.015	.85	.03	.005	0.0	
A002	15365	15440	C18234	.015	.85	.03	.005	0.0	
A002	15440	15480	C18235	.015	2.5	.17	.005	0.0	
A002	15760	15810	C18236	.015	.85	.03	.005	0.0	
A002	15900	15940	C18237	.015	.85	.04	.005	0.0	

A002	16490	16540	C18238	.015	.85	.02	.005	0.0
A002	16540	16590	C18239	.015	.85	.02	.005	0.0
A002	16910	16960	C18240	.015	.85	.06	.005	0.0
A002	17640	17690	C18241	.015	.85	.01	.005	0.0
A002	19330	19380	C18242	.05	2.1	.06	.005	0.0
A002	19380	19430	C18243	.015	1.8	.02	.005	0.0
A002	19720	19770	C18244	.015	1.8	.01	.005	0.0
A002	20070	20130	C18245	.06	2.2	.06	.005	0.0
A002	20130	20170	C18246	.06	1.9	.06	.005	0.0
A002	20170	20220	C18247	.06	2.6	.07	.005	0.0
A002	20550	20600	C18248	.015	2.6	.59	.005	0.0
A002	20820	20880	C18249	.015	2.2	.03	.005	0.0
A002	20960	21035	C18250	.015	3.8	.03	.005	0.0
A002	21035	21085	C18251	.05	2.7	.005	.005	0.0
A002	21685	21735	C18252	.015	.85	.06	.01	0.0
A002	21830	21880	C18253	.015	1.7	.02	.005	0.0
A002	21880	21910	C18254	.015	3.5	.67	.005	0.0
A002	21910	21975	C18255	.015	.85	.03	.005	0.0
A002	21990	22050	C18256	.015	.85	.01	.005	0.0
A002	22050	22090	C18257	.015	2.8	.97	.005	0.0
A002	22090	22140	C18258	.015	.85	.04	.005	0.0
A002	22220	22270	C18259	.015	.85	.01	.005	0.0
A002	22445	22495	C18260	.015	1.8	.08	.005	0.0
A002	22495	22570	C18261	.015	.85	.01	.005	0.0
A002	23630	23680	C18262	.015	1.9	.02	.01	0.0
A002	25575	25650	C18263	.015	.85	.005	.005	0.0
A002	26190	26265	C18264	.015	1.8	.01	.01	0.0
A002	26265	26315	C18265	.015	1.9	.41	.01	0.0
A002	26315	26365	C18266	.015	1.7	.1	.01	0.0
A002	26365	26415	C18267	.015	.85	.02	.005	0.0
A002	26415	26455	C18268	.04	10.0	2.39	.02	0.0
A002	26465	26535	C18269	.015	4.8	.08	.17	0.0
A002	26535	26575	C18270	.05	7.5	2.24	.01	0.0
A002	26575	26650	C18271	.015	1.7	.03	.01	0.0
A002	27173	27248	C18272	.05	.85	.01	.005	0.0
A002	28540	28590	C18273	.015	.85	.005	.005	0.0
A002	28590	28640	C18274	.015	.85	.01	.005	0.0
A002	28640	28690	C18275	.015	.85	.03	.005	0.0
A002	28690	28740	C18276	.015	.85	.05	.005	0.0
A002	29020	29095	C18277	.015	.85	.005	.005	0.0
A002	29830	29900	C18278	.015	.85	.02	.2	0.0
A002	30470	30520	C18279	.015	.85	.01	.02	0.0
A002	31030	31100	C18280	.015	.85	.005	.005	0.0
A002	31540	31615	C18281	.015	.85	.005	.005	0.0
A002	31615	31685	C18282	.015	.85	.005	.005	0.0
A002	32150	32220	C18283	.015	.85	.005	.005	0.0
A002	32460	32530	C18284	.015	.85	.005	.005	0.0
A002	32730	32780	C18285	.015	.85	.005	.005	0.0
A002	32900	32950	C18286	.04	3.0	.25	.005	0.0
A002	32950	33000	C18287	.015	2.6	.45	.005	0.0
A002	33000	33050	C18288	.015	1.8	.16	.005	0.0
A002	33050	33100	C18289	.015	2.5	.29	.005	0.0
A002	33100	33160	C18290	.015	4.4	1.01	.005	0.0
A002	33160	33210	C18291	.015	2.0	.24	.005	0.0
A002	33210	33260	C18292	.015	2.1	.28	.005	0.0
A002	33260	33320	C18293	.015	3.0	.26	.005	0.0
A002	33320	33380	C18294	.03	2.7	.47	.005	0.0
A002	33380	33455	C18295	.015	.85	.01	.005	0.0
A002	33550	33620	C18296	.015	.85	.01	.005	0.0
A002	33630	33690	C18297	.015	3.0	.03	.005	0.0

A002	33690	33740	C18298	.04	3.6	.26	.005	0.0
A002	33740	33800	C18299	.06	4.1	.45	.005	0.0
A002	33800	33860	C18300	.09	4.5	.35	.005	0.0
A002	33860	33930	C18301	.015	2.3	.15	.005	0.0
A002	33930	33960	C18302	.015	3.3	.21	.005	0.0
A002	33990	34040	C18303	.04	2.8	.09	.005	0.0
A002	34040	34080	C18304	.04	2.6	.07	.005	0.0
A002	34405	34470	C18305	.03	.85	.01	.005	0.0
A002	34870	34920	C18306	.015	.85	.02	.005	0.0
A002	34920	34980	C18307	.015	.85	.005	.005	0.0
A002	35155	35240	C18308	.015	1.7	.07	.005	0.0
A002	35240	35280	C18309	.015	2.4	.51	.005	0.0
A002	35280	35330	C18310	.015	2.8	.59	.005	0.0
A002	35330	35380	C18311	.015	1.7	.07	.005	0.0
A002	35380	35430	C18312	.015	.85	.04	.005	0.0
A002	35430	35500	C18313	.015	.85	.005	.005	0.0
A002	35500	35560	C18314	.015	2.8	.22	.005	0.0
A002	35620	35680	C18315	.03	2.9	.21	.005	0.0
A002	35680	35730	C18316	.015	.85	.01	.005	0.0
A002	35730	35780	C18317	.015	2.5	.44	.005	0.0
A002	35780	35830	C18318	.015	2.0	.01	.005	0.0
A002	35935	35985	C18319	.015	1.8	.005	.005	0.0
A002	35985	36025	C18320	.015	2.4	.07	.005	0.0
A002	36025	36075	C18321	.015	2.7	.12	.005	0.0
A002	36465	36515	C18322	.015	5.1	.04	.05	0.0
A002	36515	36565	C18323	.31	6.3	1.47	2.82	0.0
A002	36565	36605	C18324	.16	3.5	.27	.26	0.0
A002	36605	36645	C18325	.015	1.7	.04	.03	0.0
A002	36645	36700	C18326	.015	1.8	.13	.02	0.0
A002	36700	36745	C18327	.015	1.8	.04	.01	0.0
A002	36745	36795	C18328	.12	3.1	.14	.08	0.0
A002	36795	36865	C18329	.015	2.1	.02	.03	0.0
A002	36865	36915	C18330	.015	.85	.02	.01	0.0
A002	36915	36965	C18331	.03	.85	.09	.01	0.0
A002	36965	37015	C18332	.015	.85	.05	.005	0.0
A002	37015	37075	C18333	.015	.85	.07	.01	0.0
A002	37075	37125	C18334	.015	3.8	.07	.05	0.0
A002	37125	37180	C18335	.015	2.1	.01	.02	0.0
A002	37720	37770	C18336	.015	2.0	.12	.005	0.0
A002	37950	38000	C18337	.015	.85	.01	.005	0.0
A002	39160	39230	C18338	.09	.85	.02	.005	0.0
A002	39390	39440	C18339	.03	.85	.01	.005	0.0
A002	39440	39490	C18340	.015	2.2	.35	.005	0.0
A002	39490	39540	C18341	.015	2.6	.07	.005	0.0
A002	40040	40080	C18342	.04	3.4	.1	.005	0.0
A002	40475	40525	C18343	.05	3.1	.07	.005	0.0
A002	40860	40935	C18344	.03	1.8	.04	.005	0.0
A002	41330	41380	C18345	.015	.85	.005	.005	0.0
A002	41380	41420	C18346	.015	2.1	.17	.005	0.0
A002	41420	41470	C18347	.015	.85	.04	.005	0.0
A002	42735	42805	C18348	.015	.85	.02	.01	0.0
A002	42805	42875	C18349	.015	.85	.01	.04	0.0
A002	42875	42950	C18350	.015	.85	.01	.01	0.0
A002	43460	43525	C18351	.015	.85	.01	.03	0.0
A002	43860	43910	C18352	.015	1.7	.03	.01	0.0
A002	44280	44330	C18353	.015	.85	.01	.01	0.0
A002	44435	44485	C18354	.015	.85	.01	.03	0.0
A002	44485	44535	C18355	.015	.85	.22	.005	0.0
A002	44535	44585	C18356	.015	2.2	.23	.01	0.0
A002	44585	44635	C18357	.015	.85	.23	.005	0.0

A002	44635	44685	C18358	.015	2.5	.23	.005	0.0
A002	44685	44735	C18359	.015	1.9	.26	.005	0.0
A002	44735	44805	C18360	.015	3.3	.07	.01	0.0
A002	45025	45100	C18361	.015	1.9	.09	.01	0.0
A002	45100	45170	C18362	.015	3.0	.21	.03	0.0
A002	45170	45245	C18363	.015	.85	.03	.01	0.0
A002	45245	45320	C18364	.015	1.7	.01	.01	0.0
A002	45320	45395	C18365	.015	.85	.02	.005	0.0
A002	45395	45470	C18366	.015	.85	.03	.005	0.0
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A002	45545	45620	C18368	.015	.85	.02	.01	0.0
A002	45620	45670	C18369	.04	.85	.01	.01	0.0
A002	45940	45990	C18370	.015	.85	.005	.01	0.0
A002	45990	46040	C18371	.015	3.2	.25	.02	0.0
A002	46040	46090	C18372	.07	.85	.05	.17	0.0
A002	46120	46195	C18373	.015	1.7	.03	.02	0.0
A002	46195	46270	C18374	.015	1.9	.01	.01	0.0
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A002	49230	49305	C18389	.015	.85	.005	.005	0.0
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A003	10004	10309	C18959
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IPRJPLACER DOME INC.                    BAKER PATTON GRAVITY ANOMALY DRILL TEST
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S003  12192 15240    613.87301.66-60.00
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S010  42672 48768    613.87308.66-34.00
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LNAM                                                AKTACLLIHEMGPYPRCPSL
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LSCL             PC.0        LCTM
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AUMM                    SAMP
A002
AUMM                    SAMP       AU     AG     CU     ZN     MO
A003
AUMM                    SAMP
A004
AUMM                    SAMP
A005
AUMM                    SAMP
P          0    180       XCASE
PMSV     180 22119    MSXTFLP              2526      FO     30D2              P2
L                                 7G                                        D1
R                                 RHYOLITIC LAPILLI TUFF, 10 TO 20% QUARTZ CRYSTALS,
R                                 2 TO 10 MM IN SIZE, BIMODAL DISTRIBUTION OF SIZE
R                                 TYPICAL OF "TWO QUARTZ RHYOLITE", LIGHT GREY TO
R                                 LIGHT GREEN, 20 TO 30% SERICITE PERVASIVE THROUGHOUT
R                                 UNIT, TR TO 10% CHLORITE, DEFORMATION IS
R                                 MODERATE TO STRONG, QUARTZ CRYSTALS BROKEN UP,
R                                 PRESSURE SHADOWS AROUD QZ CRYSTALS ARE COMMON,
R                                 10% PY DISS AND IN QZ-PY VEINLETS COMMONLY
R                                 DISCORDANT TO FOLIATION
R                                 LOCAL PYRRHOTITE IN VEINLETS, RED OXYDATION
R                                 IN VEINLETS AND FRACTURES IS COMMON AT BEGINNING OF
R                                 UNIT, LOCALLY UP TO 60% LITHIC RHYOLITIC LAPILLIS
R                                 SIZE FRAGMENTS, VARIATIONS IN FRAGMENTS QUANTITY,
R                                 SIZE AND ALTERATION TYPE, MAKES THE VARIOUS SUBUNITS
R       670   745                 C1826 10% PY IN 1 CM VEINLET PARA. TO CA
R      1630  1689                 C1827 5% PY, 1% PO IN VEINLETS
R      2189  2250                 C1828 10% PY VEINLETS, TR PO
R      2250  2300                 C1829 5% PO, 2% PY IN VEINLETS
R      2330  2400                 C1830 2% PO, 2% PY DISS
R      2400  2475                 C1831 2% PO IN VEINLETS, 5% DISS PY
R      2560  2630                 C1832 1% PO, 3% PY IN VEINLETS
N      3270  5000    MSXTFLP        FR  2678      FO     30D1              P2
L                                 7A                                        1
R                                 RHYOLITE LAPILLI TUFF, 40 TO 90% WHITE SILICEOUS
R                                 RHYOLITIC FRAGMENTS, IN GENERAL 2-10 CM IN DIAMETER,
R                                 ANGULAR TO ROUNDED, STRETCHED INTO FOLIATION, 5-10%
R                                 QUARTZ CRYSTALS IN FRAGMENTS AND MATRIX, MATRIX IS
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R				SERICITIC AND DARKER THAN FRAGMENTS, PINKISH
R				HEMATIZATION THROUGHOUT, 20% SERICITE PERVASIVE, 10%
R				PY IN VEINLETS DISCORDANT TO FOLIATION, TR PO,
R				QUARTZ-CALCITE VEINING, PARTICULARLY AT BEGINNING OF
R				UNIT, DEFORMATION MODERATE, FOLIATION AT 30 DEGREES
R				TO CORE AXIS
R	3019	3069		C1833 5% PY VEINLETS, 1% PO
R	3229	3270		C1834 3% PO, 2% PY IN VEINLETS
R	3295	3370		C1835 5% PY, 2% PO IN VEINLETS
R	3370	3445		C1836 5% PY, 2% PO IN VEINLETS
R	4520	4589		C1837 10% PY DISS AND IN VEINLETS, 1% PO
R	4589	4664		C1838 10% PY VEINLETS AND DISS, 1% PO
N	5000	9400	MSXTFLP FR 2556 FO 30D1 P2	
L			7G D1	
R				RHYOLITIC LAPILLI TUFF, 30 TO 50% RHYOLITIC FRAGMENTS
R				5 TO 20 MM IN DIAMETER, IN SERICITIZED MATRIX,
R				20% PERVASIVE SERICITIZATION AND 5% CHLORITE, ROCK
R				IS LIGHT GREEN, 10 TO 15% QUARTZ CRYSTALS, 2 TO 8 MM
R				TYPICAL OF THE "TWO QUARTZ RHYOLITE", 10% PY IN
R				STRINGERS AND DISSEMINATED, DEFORMATION IS MODERATE,
R				FOLIATION AT 30 DEGREES TO CORE AXIS, NO QUARTZ
R				VEINING
R	5335	5404		C1839 10% PY STRINGERS
R	5729	5804		C1840 10% PY DISS AND IN STRINGERS
R	6684	6759		C1841 10% PY DISS AND IN STRINGERS
R	6759	6829		C1842 10% PY+PO IN VEINLETS
R	6912	6981		C1843 10% PY DISS AND IN VEINLETS
N	9400	11529	CLXTFLP FR 2547 FO 35D1 P=	
L			5G P2 D=	
R				RHYOLITIC LAPILLI TUFF, SAME AS PREVIOUS UNIT
R				EXCEPT 20% CHLORITE PERVASIVE THROUGHOUT, 5 TO 20%
R				QUARTZ PHENOCRYSTS 2-8 MM, 5% PY IN STRINGERS AND
R				DISS, LOCAL PO UP TO 5% IN STRINGERS, DEFORMATION IS
R				WEAK, FOLIATION AT 35 DEGREES TO CORE AXIS, CONTACT
R				WITH PREVIOUS UNIT IS GRADUAL OVER 5 METERS
R	7429	7504		C1844 5% PY STRINGERS
R	8654	8729		C1845 5% PY STRINGERS
R	8845	9015		C1846 5% PY+PO VEINLETS
R	9129	9200		C1847 5% PY+PO VEINLETS
R	9479	9554		C1848 5% PY, 1% PO IN VEINLETS
R	9554	9604		C1849 2% PO, 5% PY IN STRINGERS
R	9604	9659		C1850 5% PY, 1% PO IN STRINGERS
R	9659	9734		C1851 5% PY STRINGERS, TR PO
R	9734	9804		C1852 5% PY STRINGERS, 1% PO
R	9804	9875		C1853 5% PO, 2% PY IN STRINGERS
R	9875	9950		C1854 2% PY, 1% PO IN STRINGERS
R	9950	10025		C1855 2% PY, TR PO DISS
R	10025	10095		C1856 3% PO, 1% PY STRINGERS
R	10429	10500		C1857 10% PY, 1% PO IN STRINGERS
R	10500	10575		C1858 5% PY STRINGERS, TR PO
R	10575	10650		C1859 1% PO, 2% PY STRINGERS
N	11529	13700	CLXTFLP FR 2738 FO 35D1	
L			3G P2 D=	
R				RHYOLITIC LAPILLI TUFF TO DEBRIS FLOW, 10 TO 50%
R				WHITE SILICEOUS RHYOLITIC FRAGMENTS, ANGULAR TO
R				ROUNDED 0.5 TO 10 CM IN DIAMETER, STRETCHED INTO
R				FOLIATION, 5-10% QUARTZ CRYSTALS (2-8 MM) IN
R				FRAGMENTS AND MATRIX, MATRIX DARK GREEN CHLORITIC,
R				MORE CRYSTAL RICH THAN FRAGMENTS, DEFORMATION
R				MODERATE, FOLIATION AT 35 DEGREES TO CORE AXIS, 5%

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R                    PY IN VEINLETS AND DISSEMINATED THROUGHOUT
R                    AT 134.50, 30 CM WIDE FAULT AT 20 DEGREES TO
R                    CORE AXIS
R    11840 11890     C1860 2% PO STRINGERS, TR PY
R    12969 13044     C1861 10% PY, 1% PO IN STRINGERS
R    13044 13119     C1862 1% PO IN STRINGERS
R    13119 13169     C1863 2% PO, 2% PY IN STRINGERS
R    13169 13240     C1864 5% PY, 2% PO IN STRINGERS
R    13350 13400     C1865 2% PO, 1% PY IN STRINGERS
N    13700 18112 CLXTFLP      FR  2546      FO    35D2
                     5G                                    P2       D=
L                    CHLORITIZED RHYOLITE LAPILLI TUFF, 10 TO 40%
R                    RHYOLITIC FRAGMENTS, 0.5 TO 4 CM IN DIAMETER, 10 TO
R                    20% QUARTZ CRYSTALS TROUGHOUT, PERVASIVE
R                    CHLORITIZATION, 20% CHLORITE, LOCALLY SERICITIZED,
R                    DEFORMATION IS WEAK, FOLIATION AT 35 DEGREES TO
R                    CORE AXIS, 5% PY AND 1% PO DISS. THROUGHOUT,
R                    UNIT IS VERY HOMOGENEOUS, RARE QUARTZ VEINING,
R                    AT 178.0, 20 CM FAULT AT 45 DEGREES TO CA
R    14009 14084     C1866 2% PO STRINGERS
R    15605 15680     C1867 5% PO+PY STRINGERS
R    16225 16300     C1868 5% PO, 1% PY ASS. WITH SMALL QZ VEINS
R    16528 16578     C1869 5% PO VEINLETS
R    16578 16647     C1870 10% PO, 1% CPY IN VEINLETS ASS. WITH QZ VEINS
R    16647 16697     C1871 1% PO DISS
R    17830 17880     C1872 10% PO, 1% PY IN VEINLETS
N    18112 22119 CLXTFLP      FR  2658      FO    40D1
L                    3G                                    P3       D+D+
R                    RHYOLITIC LAPILLI TUFF, 20 TO 60% RHYOLITIC FRAGMENTS
R                    LIGHT GREEN, 5% QUARTZ PHENOCRYSTS, ANGULAR TO
R                    ROUNDED, STRETCHED INTO FOLIATION, 0.5 TO 10 CM IN
R                    DIAMETER, MATRIX IS DARK GREEN, CHLORITIZED, 10%
R                    QUARTZ CRYSTALS, 1-10 MM IN SIZE, VERY EVIDENT
R                    BIMODAL DISTRIBUTION OF QUARTZ CRYSTALS,
R                    CHLORITIZATION IS PERVASIVE THROUGHOUT UNIT,
R                    DEFORMATION MODERATE, FOLIATION AT 40 DEGREES TO CA,
R                    5% PY DISS THROUGHOUT AND 2% PO IN VEINLETS MOSTLY
R                    UPPER CONTACT IS GRADUAL, LOWER CONTACT IS SHARP AT
R                    40 DEGREES TO CORE AXIS
R    19600 19880     MASSIVE DIORITIC DYKE, DARK GREEN, FINE GRAINED,
R                    SHARP UPPER AND LOWER CONTACT WITH CHLORITIC CHILL
R                    MARGINS
R    18259 18334     C1873 5% PY DISS, TR CPY
R    18334 18409     C1874 5% PY DISS, TR CPY
R    19519 19569     C1875 1% PY, 1% PO DISS, TR CPY IN A SMALL QZ VEINLET
R    19644 19694     C1876 5% PY DISS AND IN VEINLETS, 0.5% CPY IN A SMALL
R                    QZ VEIN
R    19925 19994     C1877 10 CM QZ VEIN IN SMALL FAULT AT 45 DEGREES TO
R                    CA, 5% PO, 2% PY VEINLETS
P    22119 24550 MXXTFLP      FR  2647      FO    45D1          P1
L                    7A                                       D+D+
R                    RHYOLITIC LAPILLI TUFF, LIGHT GREY SILICEOUS, STILL
R                    THE TWO QUARTZ RHYOLITE TYPE LAPILLI TUFF, MORE
R                    SILICEOUS, LESS ALTERED THEN PREVIOUS UNITS, 10 TO
R                    40% RHYOLITIC LAPILLIS, 5 TO 30 MM IN DIAMETER,
R                    10 TO 20% QUARTZ CRYSTALS, 2 TO 8 MM IN SIZE,
R                    CRYSTALS ARE ROUNDED TO ANGULAR, WEAKLY SERICITIZED
R                    AND CHLORITIZED THROUGHOUT, DEFORMATION MODERATE,
R                    FRAGMENTS STRETCHED INTO FOLIATION AT 45 DEGREES
R                    TO CA, 1 TO 5% PY AND PO DISS THROUGHOUT,
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R				VERY HOMOGENEOUS UNIT, NO QUARTZ VEINING, NO FAULTING	
P	24550	26300	CLXTFBR FR 2798 FO 50D=		
L			5G		D=
R			TUFF BRECCIA, 80 TO 90% RHYOLITIC FRAGMENTS CLOSELY		
R			PACKED, 1 TO 10 CM IN DIAMETER, ROUNDED TO ANGULAR,		
R			5 TO 15% QUARTZ CRYSTALS UP TO 1 CM IN SIZE, MATRIX		
R			IS SERICITIC TO CHLORITIC, SOME HIGHLY SERICITIC		
R			FRAGMENTS, DEFORMATION IS MODERATE, FRAGMENTS		
R			STRETCHED INTO FOLIATION AT 50 DEGREES TO CA, 5-10%		
R			PY FINELY DISS THROUGHOUT, UPPER CONTACT GRADUAL,		
R			LOWER CONTACT SHARP		
R	20709	20780	C1878 5% PO VEINLETS		
R	22300	22359	C1879 5% PY+PO VEINLETS		
R	23134	23205	C1880 SMALL FAULT ZONE BRECCIATED, QZ-CAL VEINING,		
R			45 DEG TO CA, 1% PY+PO		
R	24780	24830	C1881 1% PY DISS, TR CPY		
R	25409	25459	C1882 3% PY, 1% PO DISS, 0.5% CPY IN VEINLET		
R	25619	25669	C1883 10% PY-PO DISS, TR CPY		
P	26300	29675	BXXEPIC FR 2758 FO 60		
L			3G		D=
R			VOLCANICLASTIC SEDIMENTS, DOMINATED BY CONGLOMERATIC		
R			BRECCIAS COMPOSED OF HETEROLITHIC CLASTS ANGULAR TO		
R			ROUNDED IN A DARK CHLORITIC MATRIX, ALSO MASSIVE		
R			COARSE GRAINED GRAYWACKE AND THINLY BEDDED ARGILLITES		
R			DEFORMATION IS MODERATE THROUGHOUT, 5 TO 10% DISS		
R			PY+PO THROUGHOUT		
N	26300	28043	BXXCONG FR 3758 FO 60		
L			5G		D=D=
R			HETEROLITHIC CONGLOMERATIC BRECCIA, 50 TO 90%		
R			CLASTS ANGULAR TO ROUNDED, CLASTS ARE DOMINANTLY		
R			RHYOLITIC BUT BLACK CHLORITIC FRAGMENTS AND BEDDED		
R			PYRITIC FRAGMENTS ALSO OCCUR, RHYOLITIC FRAGMENTS		
R			CONTAIN 5 TO 10% QUARTZ CRYSTAL, SOME ARE ALSO WHITE		
R			APHYRIC SILICEOUS CHERTY, CLASTS ARE 0.5 TO 10 CM		
R			IN SIZE, MATRIX IS FINE GRAINED DARK GREEN CHLORITIC,		
R			5% PY AND 5% PO IN MATRIX, VEINLETS, DISS AND SOME		
R			PYRITIC CLASTS		
R	26310	26385	C1884 15% PO, 2% PY IN CONGLOMERATE MATRIX		
R	26564	26635	C1885 10% PO, 2% PY IN VEINLETS AND DISS		
R	26864	26935	C1886 10% PO VEINLETS, 1% PY, TR CPY		
R	27889	27960	C1887 5% PO, 2% PY IN STREAKS AND DISS		
N	28043	29675	CGXGWAC CTBD2558 FO 45		
L			3G		D=D=
R			COARSE GRAINED GRAYWACKE, MASSIVE TO LOCALLY BEDDED,		
R			COARSER CLASTS DOMINANTLY RHYOLITIC WITH SOME		
R			BLACK MUDSTONE ROUNDED TO ANGULAR, CLASTS UP TO		
R			3 CM IN SIZE, MEDIUM GRAINED GRAYWACKE COARSELY		
R			BEDDED TO LOCALLY THINLY BEDDED ARGILLITES: BLACK		
R			MUDSTONE ALTERNATING WITH GREY SILTSTONE, ALSO		
R			THIN CHERTY BEDS AND PYRITIC BEDS (MINOR),		
R			DEFORMATION IS WEAK TO MODERATE THROUGHOUT, BEDDING		
R			SUBPARALLEL TO FOLIATION AT 45 DEGREES TO CA,		
R			5 TO 20% PO+PY CONCENTRATED IN BEDDING PLANES,		
R			VEINLETS AND DISS, SMALL QZ VEINS THROUGHOUT AND		
R			LARGER ONES ASSOCIATED WITH SMALL FAULTS		
R	28400	28550	MASSIVE APHYRIC LIGHT GREY RHYOLITE, BRECCIATION		
R			INCREASING TOWARDS BOTTOM, MEGA FRAGMENT OR DYKE?		
R	28225	28285	C1888 5% PY DISS AND IN BEDDING PLANES		
R	28544	28605	C1889 10% PY+PO IN VEINLETS, TWO 10 CM QZ-CAL VEINS		
R			45 DEGREES TO CA		

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R     28605 28644          C1890 5% PO+PY, 10 CM QZ VEIN AT 65 DEGREES TO CA
R     28644 28719          C1891 10% PO, 2% PY IN VEINLETS AND BEDS, QTZ
R                          VEINING
R     28880 28950          C1892 20% PO+PY DISS+VEINLETS
R     28950 29025          C1893 20% PY+PO DISS
R     29169 29239          C1894 10% PY+PO VEINLET+DISS, TR CPY
P     29675 30483  MXXRY/F       MX  2516       FO    55D1              P=
L                                7A                                     D=
R                          MASSIVE LIGHT GREY RHYOLITE, APHYRIC TO 10% SMALL
R                          QUARTZ CRYSTALS, 5% SERICITE CONCENTRATED IN
R                          FOLIATION PLANES, GETTING INCREASINGLY MORE
R                          BRECCIATED TOWARDS BOTTOM, 2-5% PY IN CROSS-CUTTING
R                          VEINLETS, DEFORMATION IS WEAK, FOLIATION AT 55
R                          DEGREES TO CA
P     30483 30789  BXXBRPC       BXBD1414       FO    35
L                                7A                                     D3
R                          BRECCIATED HIGHLY SILICEOUS CHERTY TUFF, POSSIBLY
R                          THINNLY BEDDED, 60% FRAGMENTS OF THIS APHYRIC
R                          LIGHT GREY CHERTY TUFF IN PYRITE MATRIX, FRAGS ARE
R                          ANGULAR AND FLATTENED IN STRONG FOLIATION,
R                          DEFORMATION STRONG, FOLIATION AT 40 DEGREES TO
R                          PARALLEL WITH CORE AXIS, DIAGNOSTIC OF A FAULT ZONE,
R                          THIS UNIT GRADES INTO A CONGLOMERATIC DEBRIS FLOW
R                          WHICH CONTAINS FRAGMENTS OF THE CHERTY TUFF UNIT
P     30789 31930  BXXCONG        CT  2788       FO    50
L                                3A                                     D)D=
R                          CONGLOMERATIC DEBRIS FLOW, 50 TO 95% CLASTS 0.5 TO
R                          10 CM IN SIZE, ANGULAR TO ROUNDED, HETEROLITHIC,
R                          MOSTLY LIGHT GREY HETEROLITHIC RHYOLITE, ALSO
R                          BLACK MUDSTONE AND PYRITIZED CHERTY FRAGMENTS
R                          CONCENTRATED CLOSE TO CONTACT WITH CHERTY TUFF,
R                          CONGLOMERATE IS MATRIX SUPPORTED TO CLAST SUPPORTED,
R                          MATRIX IS DARK GREY FINE GRAINED SANDSTONE, SOME
R                          FRAGMENTS DISPLAY A ZONATION (CHILL MARGIN?),
R                          DEFORMATION MODERATE, FRAGMENTS STRETCHED IN
R                          FOLIATION, TYPICAL LS FABRIC, 1% PY AND 1-5% PO
R                          DISS AND IN VEINLETS
R     30585 30660          C1895 25% PY IN BRECCIATED CHERT MATRIX
R     30660 30725          C1896 20% PY, 10% PO IN BRECCIATED CHERT MATRIX
R     30725 30789          C1897 15% PY, 10% PO IN BRECCIATED CHERT
R     30789 30864          C1898 5% PY, 5% PO IN STREAKS
R     31525 31600          C1899 10% PO VEINLETS SP?
P     31930 34344  MXXDC/F       A*BX24=5       FO    55
L                                5A                                     D+
R                          DARK GREY VERY MASSIVE DACITIC FLOW, 1-5% AMYGDULES
R                          AT BEGINNING OF UNIT 0.4 TO 2 CM IN SIZE, 1% SMALL
R                          BLACKISH QUARTZ CRYSTALS (2-4 MM), LOCAL FLOW
R                          BRECCIATION, LOCAL CONCENTRATION OF AMYGDULES (UP
R                          TO 40% SMALL ROUNDED AMYGDULES), VERY WEAKLY DEFORME
R                          1% PY DISSEMINATED, VERY LITTLE QUARTZ VEINING
P     34344 34900  BXXEPIC       BXBD2657       FO    55                P=
L                                5A                                     D1D2
R                          CONGLOMERATIC DEBRIS FLOW, 50% ROUNDED RHYOLITIC
R                          FRAGMENTS IN A CHLORITIC MATRIX, TO BEDDED CHERTY
R                          TUFF, LIGHT GREY APHYRIC SILICEOUS CHERTY BEDS,
R                          0.5 TO 1 CM THICK ALTERNATING WITH SERICITE PYRITE
R                          BEDS, DEFORMATION IS STRONG AS INDICATED BY
R                          PTYGMATITIC FOLDING OF SMALL QZ VEINS AND FLATTENING
R                          OF FRAGMENTS, 5% PY AND 10-20% PO IN STRINGERS,
R                          BEDDING PLANES AND DISS
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P 34900 45892 MXXDC/F MXEF2555 FO 55
L 5A D+
R MASSIVE DACITIC FLOW, FINE GRAINED EQUIGRANULAR,
R LOCALLY 1% QUARTZ PHENOCRYSTS, BUT GENERALLY NO
R PHENOCRYSTS, MEDIUM GREY, LOCAL AMYGDULES,
R DEFORMATION IS VERY WEAK, 1-2% PY+PO DISS
R LOCAL FLOW BRECCIATION, VERY LITTLE QZ VEINING
R NO FAULTING, FINE GRAINED PORTION CONTAINS UP TO 20%
R VERY SMALL QUARTZ CRYSTALS, VERY HOMOGENEOUS UNIT
R NOT NOTICEABLY ALTERED, GETTING GRADUALLY MORE
R CHLORITIC (ANDESITIC?) TOWARDS BOTTOM, RARE PY VLETS
R FOLIATION 55 TO 80 DEGREES TO CA GETTING STEEPER
R TOWARDS BOTTOM
R 34569 34639 C1900 15% PO VEINLETS, QZ VEINS THROUGHOUT
R 34639 34700 C1901 10% PO, 5% PY DISS
R 34700 34775 C1902 15% PO, 2% PY IN VEINLETS AND DISS
R 34775 34850 C1903 15% PO, 5% PY IN VEINLETS AND DISS
R 41214 41389 C1904 5% PO VEINLETS
P 45892 47000 BXXTFLP FR 2657 FO 60
L 5G D=D+
R DACITIC LAPILLI TUFF, 20 TO 40% SMALL LAPILLI SIZE
R WHITISH RHYOLITIC FRAGMENTS (5-30 MM IN SIZE),
R FRAGMENTS ANGULAR TO ROUNDED, 1 TO 10% SMALL QTZ
R CRYSTALS, IN DARK GREEN CHLORITIC MATRIX, LOCAL
R SERICITIZATION CONCENTRATED IN BANDS ASSOCIATED
R WITH SILICIFICATION AND QUARTZ VEINING, 5-10% PY
R AND 1-5% PO DISS AND IN VEINLETS, DEFORMATION WEAK
R FOLIATION AT 60 TO 65 DEGREES TO CA,
P 47000 47392 MXXRHYL MX 2515 FO 65D1
L 7G D=
R MASSIVE RHYOLITE, MEDIUM TO LIGHT GREEN, SILICEOUS,
R 10% SMALL ANGULAR QUARTZ CRYSTALS THROUGHOUT,
R LOCAL PERVASIVE SERICITIZATION GIVES LIGHT GREEN
R COLOR TO THIS UNIT, 5% PY DISS AND IN VEINLETS,
R DEFORMATION VERY WEAK
P 47392 50875 BXXTUFF FR 2626 FO 60
L 5G D=
R DACITIC TUFF, 5 TO 20% LAPILLI SIZE WHITE FELSIC
R FRAGMENTS (5 TO 20 MM IN SIZE), MATRIX MEDIUM GREEN
R CHLORITIC TO LOCALLY LIGHT GREEN SERICITIZED, 1 TO
R 20% SMALL QUARTZ GRAINS (2-4 MM), DEFORMATION IS
R WEAK, 1 TO 10% PY+PO DISS AND IN STRINGERS, NO
R QUARTZ VEINING, NO FAULTING
R 48025 48200 MASSIVE FINE GRAINED DARK GREEN MAFIC DYKE
P 50875 51420 BXXTFLP FR 2667 FO 60
L 5G D+D+
R DACITIC LAPILLI TUFF, 40 TO 60% LAPILLI SIZE LIGHT
R GREY SILICEOUS LITHIC FRAGMENTS, 6 TO 25 MM IN SIZE
R IN DARK GREEN CHLORITIC MATRIX, LOCALLY LIGHT GREEN
R SILICIFIED, 5% PO IN VEINLETS THROUGHOUT, 2% PY DISS
R DEFORMATION WEAK, FOLIATION AT 60 DEGREES TO CA, NO
R QZ VEINING OR FAULTING
P 51420 51725 MXXDC/F MX 2525 FO 60
L 5A D)D+
R MASSIVE DACITE, MEDIUM TO LIGHT GREY, 10% QUARTZ
R GRAINS ANGULAR DISS THROUGHOUT (2-5 MM IN SIZE) AND
R 5% SMALL WHITE PLAGIOCLASE CRYSTALS DISS IN
R SILICEOUS APHANITIC MATRIX, DEFORMATION VERY WEAK,
R 3% PY+PO DISS
R 46344 46414 C1905 10% PY+PO DISS AND IN VEINLETS

R	46900	46950		C1906 25 CM QZ VEIN 70 DEGREES TO CA, 10% PY
R	46950	47005		C1907 15% PY+PO DISS+VEINLETS
R	49856	49925		C1908 10% PO VEINLETS
R	50939	51010		C1909 5% PO+PY DISS
R	51155	51214		C1910 5% PY+PO DISS
P	51725	53045	MXXDC/F MX 2526 FO 65D1	
L			5A	D'D=
R			MASSIVE DACITE, MEDIUM GREY, 10-20% SMALL QUARTZ	
R			GRAINS (2-4 MM), THIS UNIT IS AFFECTED BY	
R			CHLORITIZATION, SERICITIZATION AND SILICIFICATION:	
R			CHLORITE IS CONCENTRATED IN SMALL MASSIVE CHLORITE	
R			VEINS, 5 TO 20 MM WIDE GENERALLY, SILICIFICATION AND	
R			SERICITIZATION ARE ASSOCIATED, IT IS PATCHY, UP TO 50	
R			CM WIDE, ZONES COMPLETELY BLEACHED (WHITE SILICEOUS),	
R			1-10% PO ASSOCIATED WITH CHLORITE ALTERATION, 1% PY	
R			DISS, SMALL QUARTZ VEINLETS THROUGHOUT, DEFORMATION	
R			IS WEAK, FOLIATION AT 65 DEGREES TO CORE AXIS	
R			ALTERATION IS PATCHY THROUGHOUT UNIT BUT	
R			CHLORITIZATION IS MORE INTENSE TOWARDS BOTTOM	
R	52720	52789		C1911 5% PO DISS AND IN VEINLETS
R	52789	52850		C1912 10% PO VEINLETS
R	52850	52925		C1913 5% PO IN VEINLETS
R	52925	52995		C1914 5% PO VEINLETS
R	52995	53045		C1915 20% PO VEINLETS
P	53045	54120	MXXDC/F MX 2526 FO 65	
L			5G	D+
R			MASSIVE DACITE, MEDIUM GREEN, FINE GRAINED, 5%	
R			CARBONATE AMYGDULES DISS THROUGHOUT, PATCHY	
R			SILICIFICATION, BEIGE SILICEOUS INTERVALES, 10-30 CM	
R			WIDE, DEFORMATION WEAK, SMALL QZ-CAL VEINLETS	
R			THROUGHOUT, 1-3% PY DISS AND IN VEINLETS	
P	54120	55889	CLXCSSZ BN 2424 FO 75	
L			3G	P5 D1V2D(V)
R			CABIN ZONE HORIZON:	
R			CHLORITE SULPHIDE STRINGER ZONE, DARK GREEN, 30 TO	
R			90% PERVASIVE DARK CHLORITE, 5 TO 50% PO+PY	
R			IN STRINGERS, TR TO 5% SPHALERITE IN SMALL STRINGERS	
R			1 TO 2% ZN OVER WHOLE SULPHIDE STRINGER ZONE INTERVAL	
R			AND TR TO 1% CPY IN SMALL SPECKS, BANDS OF NEAR	
R			MASSIVE PY-PO UP TO 10 CM WIDE LOCALLY BANDED,	
R			LOCALLY UP TO 10% SMALL QUARTZ GRAINS, CHARACTERISTIC	
R			OF THE DACITIC UNIT, ARE STILL VISIBLE, LOCAL	
R			BRECCIA TEXTURE CAUSED BY STRINGERS, THE MOST INTENSE	
R			PORTION OF THE ALTERATION ZONE IS FROM 543 TO 553 M	
R			WHERE COMPLETE REPLACEMENT BY CHLORITE AND SULPHIDES	
R			OCCURED, SMALL QUARTZ VEINLETS THROUGHOUT,	
R			DEFORMATION IS MODERATE, SULPHIDE VEINLETS COMMONLY	
R			FOLDED	
R	54120	54189		C1916 10% PO STR
R	54189	54260		C1917 15% PO STR, 1% PY
R	54260	54320		C1918 10% PO STR, 5% PY DISS, 1% SP STR
R	54320	54389		C1919 10% PY, 5% PO STR, 2% SP STR
R	54389	54460		C1920 30% PO, 10% PY TR SP
R	54460	54510		C1921 25% PO+PY BANDED, 1% SP
R	54510	54570		C1922 30% PO+PY STREAKS+VEINS
R	54570	54625		C1923 50% PY, 3% SP STRINGERS
R	54625	54675		C1924 35% PY, 1% SP STR
R	54675	54729		C1925 35% PO, 25% PY, 1% CPY
R	54729	54779		C2276 20% PO, 10% PY, 1% SP
R	54779	54854		C2277 15% PO, 10% PY

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R     54854 54929          C2278 15% PY, 10% PO
R     54929 54979          C2279 30% PO, 10% PY
R     54979 55020          C2280 50% BANDED PY+PO, TR CPY
R     55020 55095          C2281 20% PY+PO, 1% SP STR
R     55095 55170          C2282 20% PO, 5% PY, TR SP
R     55170 55245          C2283 15% PO, 5% PY TR SP
R     55245 55295          C2284 5% PO, 1% SP VLT
R     55295 55370          C2285 10% PO+PY
R     55370 55420          C2286 10% PY+PO, TR SP
R     55420 55475          C2287 10% PO+PY, TR SP
R     55475 55525          C2288 10% PY+PO
R     55525 55585          C2289 30% PY+PO, TR CPY, 2% SP
R     55585 55660          C2290 10% PY+PO
R     55660 55735          C2291 15% PY+PO
R     55735 55810          C2292 15% PY+PO
R     55810 55860          C2293 20% PO+PY, TR CPY
R     55860 55914          C2294 20% PO+PY
R     56200 56239          C2295 2% PO STR, INTENSE CHLORITE
R     56239 56289          C2296 20% PO STR, 1% PY
R     56289 56350          C2297 1% PO
R     56350 56425          C2298 INTENSE CHLORITE, 1% PO
R     56500 56560          C2299 30 CM QZ-CAL INJECTION, 2% PO+PY
R     56560 56629          C2300 INTENSE CHLORITE, 5% PY+PO
P     55889 56039    BXXXTDY       FR  2526      FO    80D2
L                          5A                                    D+
R                          CLASTIC DYKE, MEDIUM GREY, 15% SMALL TO
R                          MEDIUM SIZE ANGULAR AND BROKEN QUARTZ CRYSTALS
R                          DARK BLUISH IN COLOR (2-6 MM SIZE), 20% SMALL
R                          WHITE LITHIC LAPILLIS, 2-10 MM IN SIZE, THE CONTACTS
R                          ARE VERY SHARP AND THIS UNIT DOES NOT DISPLAY
R                          SIGNIFICANT MINERALIZATION, IT IS MODERATELY ALTERED
R                          10-20% CHLORITE, (THE SAME DYKE OCCURS IN THE
R                          HANGING WALL OF THE CABIN ZONE IN HOLE 86-26)
R                          DEFORMATION WEAK, TR PY DISS, SMALL QZ VEINLETS
R                          THROUGHOUT
P     56039 56979    MXXDC/F       MX  2414      FO    65
L                                                      P2      D+D=
R                          MASSIVE DACITE, 10% VERY SMALL QUARTZ GRAINS
R                          CHARACTERISTIC OF THIS UNIT, PERVASIVE
R                          CHLORITIZATION THROUGHOUT, INTENSE 20 TO 80% CHL.
R                          ALSO SERICITIZATION AND SILICIFICATION IN
R                          BANDS, SMALL STRINGERS (1-2 MM) OF SERICITE-CHLORITE
R                          THROUGHOUT CAUSING LOCALLY A BRECCIA LIKE TEXTURE,
R                          5 TO 20% PO CONCENTRATED IN BANDS OF 50% PO OVER UP
R                          TO 20 CM ASSOCIATED WITH DARK GREEN CHLORITE,
R                          DEFORMATION WEAK, SMALL QZ-CAL STRINGERS THROUGHOUT
R     56629 56704          C2301 2% PO+PY
R     56704 56775          C2302 30% PO STREAKS
R     56775 56804          C2303 5% PO STREAKS
R     56804 56854          C2304 5% PO STREAKS
R     58289 58350          C2305 2 CM QZ VEIN PARALLEL TO CA, TR PY
R     58350 58400          C2306 SMALL QZ VEINS, 1% PY
R     59720 59770          C2307 QZ+CAL INJECTION ZONE
R     59770 59829          C2308 QZ VEINLETS INJECTIONS
R     59829 59889          C2309 QZ VEINLETS CHERTY
P     56979 57520    BXXXTDY       BX  2536      FO    80D2
L                          5G
R                          CLASTIC DYKE, IDEM 558.9 TO 560.4, 15% QUARTZ
R                          CRYSTALS AND 20 TO 40% SMALL WHITE LAPILLI SIZE
R                          FRAGMENTS, IN MEDIUM GREEN CHLORITIC MATRIX, WEAK
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R
R
R
R
R
R
R
P 57520 61387 MXXBAST A*MX2616 FO 70
L
R
R
R
R
R
R
R
R
R
R

CHLORITIZATION 10-20% CHL., TR PY, DEFORMATION MODERATE, SMALL QZ-CAL STRINGERS THROUGHOUT, CONTACTS VERY SHARP AT 80 DEG TO CORE AXIS,
NOTE: EVEN THOUGH THIS UNIT IS A DYKE IT IS STILL VERY SIGNIFICANT THAT IT OCCURS IN THE IMMEDIATE HANGING WALL OF THE CABIN OCCURRENCE AND OF THIS BP 4-92 INTERSECTION

3G
MASSIVE FINE GRAINED DARK GREEN BASALT, 5% QZ-CAL AMYGDULES THROUGHOUT, SILICIFIED LOCALLY, BLEACHED LIGHT GREEN ZONES (UP TO 1 M LONG), ALTHOUGH DARK GREEN CHLORITIC COLOR ROCK IS RELATIVELY HARD, POSSIBLE PERVASIVE SILICIFICATION THROUGHOUT, SMALL QZ-CAL VEINLETS AND QZ INJECTION ZONES THROUGHOUT, DEFORMATION IS VERY WEAK, 1% PY DISS AND ASS. WITH SMALL QZ-CAL VEINS

- whole rock samples -

A001	2075	2125	D4576
A001	4400	4450	D4577
A001	6410	6460	D4578
A001	8895	8945	D4579
A001	11032	11082	D4580
A001	12770	12820	D4581
A001	14950	15000	D4582
A001	17480	17530	D4583
A001	19190	19240	D4584
A001	21940	21990	D4585
A001	23665	23715	D4586
A001	24980	25030	D4587
A001	27100	27150	D4588
A001	28830	28880	D4589
A001	29840	29890	D4590
A001	32700	32750	D4591
A001	35230	35280	D4592
A001	37430	37480	D4593
A001	40730	40780	D4594
A001	43525	43575	D4595
A001	52060	52110	D4599
A001	53730	53770	D4600
A001	55960	56000	C2878
A001	56430	56460	C2879
A001	57280	57320	C2880
A001	57942	57972	C2882
A001	59490	59530	C2881

R

				Au	Ag	Cu	Zn	Mo
A002	670	745	C1826	.015	.85	.02	.005	0.0
A002	1630	1690	C1827	.015	.85	.01	.005	0.0
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A002	2250	2300	C1829	.015	.85	.01	.005	0.0
A002	2330	2400	C1830	.015	.85	.01	.005	0.0
A002	2400	2475	C1831	.015	.85	.01	.005	0.0
A002	2560	2630	C1832	.015	.85	.02	.01	0.0
A002	3020	3070	C1833	.015	.85	.005	.01	0.0
A002	3230	3270	C1834	.03	.85	.005	.005	0.0
A002	3295	3370	C1835	.03	.85	.005	.005	0.0
A002	3370	3445	C1836	.015	.85	.005	.005	0.0
A002	4520	4590	C1837	.015	.85	.06	.01	0.0
A002	4590	4665	C1838	.015	.85	.03	.005	0.0

A002	5335	5405	C1839	.015	.85	.01	.005	0.0
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A002	6912	6982	C1843	.015	.85	.005	.005	0.0
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A002	8846	9016	C1846	.015	.85	.005	.005	0.0
A002	9130	9200	C1847	.015	.85	.05	.005	0.0
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A002	9555	9605	C1849	.015	.85	.005	.01	0.0
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APPENDIX IV

LITHOGEOCHEMISTRY
TABLE OF RESULTS FROM 1992 SURFACE SAMPLING

Sample	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
2026	69.50	12.10	1.39	2.42	3.56	1.39	6.17	0.10	0.32	0.07	3.20	100.3	10	46	154	21	108	38	376
2027	69.10	12.30	0.09	4.38	0.07	2.59	7.13	0.06	0.34	0.09	3.70	100.0	10	38	10	34	124	37	944
2028	79.50	10.40	0.04	1.48	0.24	2.48	2.45	0.02	0.27	0.06	2.30	99.4	10	52	10	36	151	34	1210
2029	71.30	13.10	2.37	1.22	2.16	1.90	5.27	0.08	0.39	0.10	2.60	100.6	10	32	159	15	118	33	417
2030	70.40	12.50	3.73	1.04	1.21	1.82	6.25	0.10	0.39	0.12	2.80	100.4	10	58	162	17	103	24	398
2031	69.30	13.80	1.26	1.30	5.47	0.76	5.93	0.11	0.41	0.11	1.85	100.4	15	27	124	14	120	35	303
2032	71.40	12.30	0.85	1.58	5.12	0.28	6.44	0.08	0.38	0.13	1.60	100.2	10	25	345	10	71	37	202
2033	66.40	12.70	0.65	5.40	1.38	3.55	6.12	0.10	0.37	0.08	2.85	99.7	10	82	49	33	124	35	880
2034	71.30	12.50	1.26	1.71	2.81	2.92	4.20	0.05	0.37	0.10	3.00	100.3	10	46	49	42	105	21	513
2035	69.50	12.70	3.89	1.32	2.69	1.12	6.32	0.10	0.41	0.11	2.15	100.4	26	19	322	34	95	31	388
2036	69.00	12.50	3.05	2.05	0.40	2.01	7.51	0.08	0.41	0.15	2.90	100.2	29	41	363	18	102	38	485
2037	68.00	13.30	3.50	2.06	0.46	2.28	7.20	0.08	0.40	0.15	2.70	100.3	34	60	463	36	85	32	949
2038	69.10	12.60	3.80	1.48	1.83	3.49	6.11	0.14	0.41	0.15	1.30	100.5	10	69	115	20	94	25	762
2039	70.70	12.10	0.73	2.28	3.53	1.46	6.12	0.06	0.36	0.09	2.50	100.0	14	41	120	20	84	34	430
2040	73.60	12.10	0.80	1.25	3.07	1.67	4.99	0.09	0.40	0.16	1.90	100.1	10	39	86	21	78	28	704
2042	67.50	13.30	0.44	2.98	3.88	1.17	7.96	0.17	0.44	0.16	2.45	100.5	10	15	56	19	94	22	357
2043	66.60	11.50	0.16	3.28	0.09	2.06	10.10	0.21	0.36	0.14	3.85	98.4	10	52	10	10	101	39	382
2051	71.60	12.00	0.93	1.60	4.48	0.58	6.24	0.12	0.39	0.11	2.00	100.1	13	26	121	11	105	29	266
2052	68.60	11.30	2.74	1.50	1.95	5.94	2.39	0.08	0.35	0.11	3.60	98.8	10	61	109	19	75	23	1530
2054	67.70	12.60	0.93	1.86	4.49	1.30	7.72	0.11	0.42	0.15	2.30	99.7	10	27	45	27	79	35	482
2055	63.80	12.10	1.24	1.95	0.53	5.49	9.44	0.15	0.37	0.15	3.20	98.6	10	59	39	20	99	34	1280
2053	68.90	11.40	6.63	1.11	0.86	0.91	6.86	0.13	0.36	0.13	2.65	100.0	10	22	161	10	74	40	397
2056	77.90	9.98	1.25	0.50	2.78	2.80	2.42	0.05	0.34	0.12	1.25	99.6	10	45	168	10	62	32	1310
2057	70.80	12.60	1.64	2.02	2.65	3.27	3.21	0.06	0.34	0.09	3.60	100.4	10	42	102	10	108	36	818
2059	68.30	13.90	0.76	1.81	2.93	3.01	5.53	0.06	0.51	0.11	2.70	99.8	28	60	105	18	121	39	976
2060	67.60	13.40	1.69	2.13	1.21	4.88	3.87	0.05	0.47	0.11	4.15	99.7	16	55	69	23	105	10	1210
2061	66.10	9.92	0.05	3.77	0.03	1.30	11.30	0.34	0.35	0.12	5.30	98.7	36	27	161	10	72	23	626
2062	69.60	12.30	0.05	4.95	0.15	1.76	5.28	0.07	0.32	0.08	3.95	98.6	10	42	10	14	120	26	249
2063	69.70	10.90	4.78	2.00	2.19	2.48	4.65	0.15	0.27	0.08	1.00	98.3	10	32	177	32	91	16	883
2064	68.60	12.50	2.38	1.90	3.98	0.71	6.96	0.08	0.41	0.14	2.60	100.3	10	27	464	10	78	31	169
2065	65.60	12.90	2.38	1.23	5.40	0.81	6.71	0.13	0.40	0.15	2.90	98.7	10	10	95	10	88	30	327
2066	62.70	12.50	0.10	7.62	0.06	0.94	9.46	0.07	0.47	0.09	4.95	99.0	10	21	10	13	84	45	299
2067	66.80	12.50	0.19	4.32	0.14	4.60	6.88	0.04	0.31	0.07	2.80	98.8	10	48	10	20	115	47	1440
2068	64.90	14.30	2.76	1.58	3.03	2.68	6.61	0.15	0.44	0.17	2.25	99.0	10	36	91	26	97	16	626
2069	64.50	14.50	5.40	2.03	0.46	1.75	7.39	0.08	0.40	0.15	2.75	99.5	10	44	361	12	96	40	603
2058	67.10	15.30	0.42	1.56	3.91	2.96	4.91	0.06	0.37	0.10	2.50	99.3	10	64	80	19	126	28	603
2070	64.00	12.20	5.18	1.94	1.49	2.72	7.54	0.16	0.40	0.15	4.55	100.4	10	34	114	40	79	23	503
2072	70.20	12.20	1.80	1.82	2.27	2.49	4.67	0.05	0.43	0.10	3.90	100.0	16	48	61	10	93	31	610
2076	65.10	12.20	2.67	3.09	2.02	3.15	5.58	0.07	0.42	0.10	4.95	99.5	17	72	87	10	83	33	856
2077	67.40	10.90	5.72	2.10	0.69	5.14	6.04	0.14	0.32	0.12	1.20	99.9	10	35	178	26	61	19	913
2078	64.90	10.80	6.57	2.65	0.52	4.64	8.31	0.31	0.30	0.12	1.10	100.4	33	43	182	23	78	27	719
2079	70.00	11.90	1.88	2.23	1.70	3.36	7.18	0.08	0.37	0.13	1.55	100.5	10	50	43	11	89	27	661

Sample	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
2080	66.60	16.00	2.76	0.90	5.76	1.71	2.81	0.05	0.38	0.17	1.90	99.4	10	40	1560	15	143	32	1350
2081	69.50	13.00	3.08	1.24	3.66	2.06	5.50	0.12	0.45	0.11	1.25	100.1	30	54	242	10	107	26	694
2082	75.00	11.90	1.31	0.89	4.14	1.54	2.91	0.05	0.36	0.09	1.90	100.2	21	32	143	15	118	28	418
2083	68.70	15.90	1.71	1.03	5.97	2.04	2.33	0.03	0.35	0.15	1.75	100.2	10	26	1200	10	145	32	808
2084	65.10	13.40	0.23	5.31	0.07	2.58	8.64	0.04	0.51	0.10	4.25	100.3	14	65	15	19	110	51	556
2085	61.40	12.10	1.18	4.04	1.63	0.74	12.60	0.31	0.67	0.22	4.40	99.3	10	33	22	24	110	27	233
2086	69.60	13.20	3.08	0.55	2.42	2.42	4.52	0.10	0.42	0.13	3.55	100.1	10	10	92	142	106	26	594
2087	76.60	10.50	1.39	1.08	3.46	1.47	2.11	0.04	0.34	0.11	2.60	99.8	10	48	187	10	64	22	812
2088	75.50	11.70	1.39	0.54	3.92	1.93	3.22	0.07	0.37	0.11	1.55	100.5	10	31	575	32	34	38	1050
2089	68.30	13.10	3.55	1.86	2.91	2.50	5.99	0.10	0.46	0.11	0.90	99.9	13	33	198	31	108	26	880
2091	67.00	16.10	1.69	1.12	5.19	3.62	2.33	0.03	0.41	0.15	1.30	99.2	10	23	1150	12	141	29	972
2092	70.60	12.50	0.14	3.70	1.45	1.81	6.12	0.09	0.37	0.09	3.20	100.1	10	48	20	10	114	33	295
2094	70.60	10.20	3.80	0.90	2.81	1.65	4.06	0.11	0.35	0.13	5.70	100.4	10	34	108	33	87	24	244
2095	69.30	12.30	1.95	0.95	5.60	0.33	5.94	0.10	0.40	0.12	2.45	99.5	13	10	169	20	110	38	143
2097	68.80	12.70	0.40	5.09	0.13	2.41	5.97	0.04	0.47	0.11	3.90	100.1	13	54	10	32	109	26	576
2098	64.00	13.10	0.47	4.78	0.91	1.75	10.00	0.29	0.50	0.09	3.85	99.9	20	40	21	10	97	47	724
2109	68.50	10.00	4.47	2.99	1.71	1.58	5.34	0.09	0.28	0.11	5.30	100.5	19	20	164	18	73	10	398
2116	72.40	12.00	1.83	1.50	3.05	1.38	5.06	0.07	0.34	0.09	2.50	100.3	10	24	71	20	71	10	352
2122	69.50	12.70	2.55	1.72	2.78	1.92	4.66	0.08	0.38	0.11	2.75	99.3	10	40	133	23	111	10	666
2123	69.80	14.10	3.70	1.23	1.75	2.08	5.42	0.07	0.44	0.13	1.90	100.8	10	35	340	22	128	10	614
2130	71.90	11.50	0.17	1.99	1.29	1.79	7.66	0.14	0.33	0.08	3.10	100.0	10	37	21	26	107	10	703
2132	81.50	10.00	0.78	0.67	0.17	2.93	1.08	0.02	0.29	0.09	2.20	99.8	10	71	29	19	86	10	846
2133	74.70	10.70	4.78	0.88	3.02	1.10	3.33	0.11	0.34	0.14	0.80	100.0	10	17	129	16	63	10	498
2138	66.80	14.20	2.92	1.72	0.38	3.02	6.47	0.11	0.41	0.12	3.95	100.2	10	73	162	18	126	10	752
2139	68.50	13.20	4.30	1.21	2.38	2.64	5.51	0.07	0.47	0.11	1.60	100.1	10	34	215	25	115	11	707
2141	60.00	12.80	4.42	3.49	0.76	1.77	10.30	0.10	0.42	0.07	6.30	100.5	10	23	82	10	79	10	319
2142	58.80	14.50	2.82	4.76	2.73	0.14	11.70	0.26	0.55	0.08	3.70	100.1	54	13	241	10	68	10	62
2147	66.90	14.30	3.39	1.16	0.36	3.09	7.24	0.12	0.44	0.13	3.30	100.6	10	68	169	24	129	10	1270
2148	75.00	10.90	1.97	1.03	5.03	0.15	4.95	0.09	0.37	0.10	0.80	100.4	15	10	165	28	92	10	87
2576	70.90	12.10	0.68	1.86	2.29	3.60	5.67	0.22	0.34	0.08	2.05	100.0	10	47	69	18	114	10	1860
2577	65.90	14.10	0.67	1.49	2.06	6.69	5.47	0.06	0.41	0.11	2.10	99.4	10	72	64	28	121	10	2930
2581	70.20	13.20	2.15	1.46	3.34	1.69	4.80	0.08	0.38	0.10	2.55	100.1	10	46	161	32	95	40	701
2582	68.40	13.00	3.88	0.75	4.03	1.20	5.53	0.10	0.39	0.12	1.15	98.6	10	35	209	37	112	18	362
2586	70.40	12.40	2.56	1.05	3.78	2.78	3.75	0.06	0.29	0.07	2.45	99.7	11	51	180	17	88	18	957
2587	72.00	11.50	0.97	2.44	3.51	2.14	4.59	0.08	0.33	0.10	2.35	100.1	10	22	16	28	92	31	351
2588	78.70	9.84	1.13	0.80	5.38	0.61	0.88	0.03	0.28	0.08	1.45	99.2	10	10	119	21	88	24	15
2589	78.50	9.07	2.58	0.33	4.95	0.15	1.30	0.06	0.27	0.08	2.00	99.3	10	21	151	21	82	34	17
3876	56.10	14.50	5.12	4.25	3.69	0.15	12.60	0.18	0.80	0.13	2.90	100.5	10	10	199	17	64	27	109
3877	52.70	14.40	1.87	6.71	2.29	1.70	11.60	0.09	0.90	0.17	5.85	98.3	10	32	11	13	68	26	46
3878	54.40	13.60	2.75	7.40	3.65	0.62	10.20	0.13	0.87	0.17	6.30	100.1	38	10	25	22	38	38	136
3879	51.10	14.00	3.61	6.81	3.97	0.43	10.70	0.25	0.71	0.13	7.75	99.5	26	10	174	25	71	21	184
3882	55.50	13.70	2.12	5.11	2.39	1.49	12.60	0.15	0.79	0.26	4.10	98.3	10	29	81	15	55	29	380

Sample	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
3883	52.40	16.80	1.66	6.58	2.87	1.86	11.00	0.15	0.87	0.13	5.65	100.1	40	36	30	28	64	40	474
3884	60.90	12.20	3.82	3.16	5.48	0.47	10.60	0.18	0.73	0.11	1.30	99.0	12	10	92	10	55	22	119
3886	55.70	14.40	4.30	4.84	3.95	0.53	11.20	0.16	0.81	0.13	2.90	99.0	14	40	193	10	74	24	271
3888	52.00	15.70	6.58	6.15	2.09	1.22	11.60	0.20	0.56	0.09	4.10	100.4	20	10	335	10	40	141	700
3889	55.10	14.30	4.22	5.34	5.77	0.25	9.93	0.17	0.59	0.10	2.75	98.6	48	10	10	10	170	172	256
3891	56.30	14.70	6.52	4.07	3.91	0.52	10.70	0.17	0.68	0.12	2.45	100.3	23	44	465	10	70	16	329
3892	73.60	12.70	3.41	0.85	4.25	0.80	1.69	0.04	0.25	0.04	1.20	98.9	10	30	341	10	59	38	203
3893	52.00	15.10	5.32	7.38	4.91	0.90	10.00	0.19	0.34	0.06	4.25	100.5	120	21	15	10	77	177	198
3894	71.10	11.70	1.12	2.16	3.12	1.37	5.52	0.07	0.36	0.08	2.80	99.4	14	20	47	14	110	45	175
3896	69.80	11.50	1.71	2.30	1.74	2.40	5.12	0.08	0.38	0.09	3.35	98.5	14	44	33	18	102	29	373
3897	71.70	11.60	0.54	2.16	2.84	1.80	5.24	0.04	0.36	0.10	2.25	98.7	36	104	88	10	34	154	286
3898	53.00	14.60	0.79	8.44	0.52	1.22	15.20	0.16	0.56	0.09	5.80	100.4	80	42	10	10	82	124	189
3899	61.60	11.20	2.49	4.93	3.50	0.68	7.73	0.17	0.64	0.20	5.30	98.5	10	10	35	10	10	96	183
3900	60.80	12.80	1.81	3.96	2.82	1.41	9.94	0.13	0.56	0.18	4.30	98.8	13	39	10	10	41	10	437
4037	66.50	13.10	1.45	1.82	4.70	1.08	7.22	0.12	0.36	0.12	2.60	99.1	10	20	85	23	99	25	442
4038	68.00	12.70	1.24	1.69	5.18	0.70	6.21	0.10	0.35	0.11	2.65	99.0	17	17	87	18	84	36	241
4039	71.80	11.20	1.85	0.85	4.00	1.66	4.35	0.11	0.33	0.09	2.20	98.6	10	23	102	29	99	20	807
4040	59.10	13.40	4.40	3.88	2.05	0.76	11.20	0.14	0.46	0.07	3.10	98.6	10	24	75	10	54	33	282
4041	52.40	14.70	8.97	7.01	2.38	0.09	10.20	0.16	0.30	0.05	3.90	100.2	154	29	115	10	18	39	64
4042	51.90	18.30	8.47	4.25	1.85	0.61	9.67	0.16	0.51	0.08	3.65	99.5	53	33	345	10	38	17	165
4043	65.20	14.40	1.31	1.71	5.53	0.35	7.89	0.12	0.51	0.17	1.95	99.2	18	10	54	19	109	41	237
4285	68.80	12.50	0.90	2.77	3.60	0.76	7.67	0.10	0.40	0.15	2.55	100.3	10	10	74	20	88	32	344
4286	70.00	11.20	0.80	3.15	0.50	1.51	7.96	0.07	0.32	0.07	3.35	99.0	19	33	23	26	129	39	632
4287	70.50	12.20	0.70	2.35	2.60	2.06	6.28	0.12	0.36	0.10	2.30	99.7	10	35	26	10	112	24	1170
4288	70.90	11.70	1.09	2.28	2.47	2.07	5.55	0.14	0.33	0.07	3.00	99.7	17	36	13	31	110	21	1090
4289	71.40	11.50	1.85	1.24	1.39	2.91	6.04	0.09	0.36	0.10	3.30	100.3	10	57	25	18	152	36	620
4290	66.60	12.50	1.57	2.83	0.80	3.34	6.48	0.10	0.35	0.10	3.95	98.7	17	61	31	24	102	30	424
4291	67.60	12.70	1.76	2.24	2.08	2.88	5.96	0.08	0.34	0.08	4.05	99.9	10	35	32	23	109	22	585
4293	67.20	11.80	2.91	1.89	1.24	3.28	5.01	0.11	0.32	0.08	4.95	98.9	10	39	58	29	106	20	659
4294	47.80	11.70	7.10	8.17	1.29	1.01	11.50	0.19	0.64	0.07	9.65	99.2	129	26	62	12	34	26	106
4295	73.20	10.60	0.80	1.96	2.78	0.91	5.16	0.05	0.40	0.09	2.40	98.4	10	17	19	41	117	33	161
4296	70.10	12.50	1.21	1.64	1.89	3.07	5.49	0.08	0.33	0.08	2.75	99.3	10	32	56	25	92	28	1210
4297	71.00	12.80	0.51	1.72	2.51	2.51	6.09	0.06	0.34	0.08	2.10	99.8	12	33	18	24	123	10	760
4298	71.80	12.00	0.84	2.55	3.08	2.01	5.23	0.09	0.31	0.07	2.25	100.3	62	38	55	25	110	31	575
4601	65.60	14.30	0.41	5.68	0.15	1.86	6.45	0.10	0.52	0.11	4.10	99.4	19	38	10	14	128	46	924
4604	79.20	12.40	0.27	0.33	0.25	2.97	1.31	0.01	0.31	0.05	2.20	99.5	10	45	10	27	106	24	1560
4612	68.40	12.70	0.56	4.11	0.17	1.72	7.51	0.08	0.46	0.11	3.40	99.4	104	35	10	11	110	27	850
4613	71.00	12.20	0.58	3.56	0.16	2.03	6.06	0.11	0.46	0.11	3.45	99.9	86	40	10	10	115	23	1010
4616	76.60	13.70	0.28	0.32	0.27	3.28	2.41	0.01	0.35	0.05	2.95	100.5	10	42	10	50	129	31	1990
4299	66.20	12.20	1.96	2.70	3.04	1.67	7.15	0.08	0.38	0.14	3.90	99.5	10	26	16	11	85	27	445
4240	65.50	12.10	1.74	2.73	2.30	1.94	8.32	0.09	0.36	0.14	3.70	99.0	10	40	10	22	87	40	602
4048	67.30	14.40	3.30	0.80	1.60	3.57	4.32	0.05	0.37	0.08	4.20	100.1	10	73	42	16	111	26	655

Sample	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
4049	54.40	11.90	4.59	1.77	3.43	0.64	16.20	0.26	1.60	0.36	5.20	100.4	10	24	120	43	213	20	223
4106	69.20	11.30	0.66	4.91	0.01	1.88	6.15	0.06	0.34	0.08	3.95	98.6	11	30	10	24	112	34	345
4107	70.30	11.10	0.37	4.51	0.01	1.15	9.08	0.08	0.41	0.12	3.40	100.6	16	31	24	14	49	19	663
4108	74.00	11.20	0.39	2.50	0.08	1.63	7.50	0.08	0.31	0.08	2.70	100.6	13	30	10	32	100	25	886
4109	67.00	9.72	0.40	6.89	0.01	0.30	9.61	0.06	0.34	0.08	4.30	98.7	14	14	10	17	114	29	125
4110	73.90	10.70	0.34	4.55	0.01	1.61	5.37	0.07	0.29	0.08	3.15	100.1	47	21	13	11	91	29	540
4112	68.50	12.80	0.33	4.69	0.03	1.85	7.07	0.18	0.36	0.08	3.50	99.5	10	49	10	26	123	38	576
4113	71.00	12.30	0.36	1.68	4.08	0.65	7.72	0.07	0.34	0.08	1.85	100.2	26	23	18	18	107	41	131
4114	74.20	10.70	0.31	4.14	0.10	1.53	5.53	0.08	0.31	0.07	3.05	100.1	20	42	10	15	93	41	719
4115	65.40	10.50	3.68	1.74	1.02	3.18	5.06	0.12	0.29	0.09	6.20	98.4	10	50	50	21	93	40	464
4117	70.00	11.50	1.80	1.76	2.65	2.67	4.65	0.07	0.32	0.09	3.55	99.1	14	29	39	32	111	24	337
4118	68.70	11.80	1.74	2.68	0.01	3.25	6.33	0.05	0.32	0.08	4.70	99.8	10	72	14	27	110	41	938
4119	69.20	11.90	1.44	2.15	2.26	1.97	6.75	0.26	0.31	0.08	3.05	99.5	25	41	58	28	105	33	829
4120	71.60	12.00	1.44	1.14	4.47	1.28	5.33	0.11	0.32	0.08	2.55	100.4	34	29	82	16	113	35	744
4121	69.00	12.20	1.75	1.12	5.03	0.86	5.47	0.13	0.33	0.08	2.90	98.9	10	26	44	21	105	25	223
4122	70.40	11.30	0.70	2.74	2.11	1.83	5.74	0.16	0.33	0.09	2.70	98.2	10	35	12	13	107	31	631
4123	66.90	11.60	0.51	3.84	1.64	0.79	11.00	0.16	0.32	0.09	3.30	100.2	16	30	10	29	109	38	186
4124	73.90	11.10	1.24	1.93	2.75	1.69	3.80	0.06	0.24	0.06	2.90	99.8	10	42	40	20	96	32	523
4125	75.80	11.00	0.42	1.25	3.39	0.95	5.25	0.10	0.30	0.07	1.60	100.2	12	32	23	38	105	33	374
4126	65.50	12.40	6.04	3.15	3.67	0.35	5.87	0.09	0.30	0.08	2.45	100.0	151	16	196	10	67	27	296
4127	71.80	11.70	2.53	1.28	3.71	0.70	5.37	0.10	0.29	0.10	1.60	99.3	13	29	287	17	82	30	422
4128	68.70	13.90	1.44	2.33	2.95	1.44	6.35	0.07	0.32	0.07	2.80	100.5	16	28	127	10	104	35	607
4129	67.70	12.50	0.78	2.93	0.28	2.26	8.74	0.13	0.36	0.07	3.60	99.4	10	32	10	10	136	34	618
4130	50.90	15.60	8.54	7.45	3.33	0.55	11.70	0.16	1.48	0.25	-0.25	99.8	200	18	461	29	84	40	140
4131	76.60	10.10	1.81	0.98	1.04	2.54	2.90	0.07	0.27	0.08	3.40	99.9	11	56	52	20	82	23	574
4132	70.40	11.10	2.91	0.50	5.72	0.55	3.90	0.12	0.30	0.08	3.50	99.2	10	10	159	10	97	29	333
4133	58.20	13.90	0.46	8.11	1.94	0.81	11.30	0.13	0.89	0.17	4.60	100.6	29	27	10	26	88	40	136
4134	70.30	12.00	1.03	2.50	1.50	2.13	6.16	0.12	0.38	0.09	3.25	99.6	10	42	40	28	123	31	840
4135	68.80	10.70	2.05	1.10	4.51	1.09	5.28	0.11	0.29	0.07	4.50	98.6	13	23	145	15	94	22	399
4136	68.60	12.40	2.10	1.33	4.81	1.18	5.28	0.09	0.32	0.07	3.50	99.8	10	30	172	10	110	43	399
4137	69.10	13.10	0.84	2.75	2.07	1.50	7.32	0.13	0.40	0.10	3.10	100.5	10	31	28	37	129	32	410
4138	76.00	10.40	1.06	1.55	3.59	1.01	2.76	0.05	0.27	0.07	2.10	98.9	49	14	60	13	83	28	160
4139	77.10	10.20	1.21	1.46	0.72	3.39	2.52	0.04	0.28	0.07	2.85	100.0	10	45	10	17	83	21	911
4176	75.00	11.00	0.47	1.73	4.00	0.53	5.44	0.08	0.29	0.08	1.70	100.4	17	12	46	13	103	26	169
4179	72.00	11.50	0.38	2.47	2.87	1.16	6.81	0.13	0.38	0.09	2.50	100.3	12	26	21	31	102	25	193
4180	61.30	11.10	3.80	4.49	2.40	1.38	6.52	0.23	0.34	0.09	7.05	98.8	10	15	79	35	104	18	632
4181	69.60	12.50	0.46	4.00	2.20	1.28	6.85	0.11	0.38	0.10	2.85	100.4	13	25	22	27	118	38	433
4182	74.00	10.90	0.54	2.20	4.10	0.24	5.55	0.07	0.33	0.09	1.70	99.8	17	21	49	10	87	26	89
4183	73.40	11.40	1.04	1.40	4.54	0.48	5.79	0.08	0.35	0.09	1.85	100.5	18	24	54	36	110	26	183
4184	70.90	12.20	1.55	1.09	4.80	0.36	5.81	0.12	0.34	0.08	2.00	99.3	10	18	105	17	113	23	214
4089	45.00	16.50	6.38	9.22	2.13	0.34	12.20	0.30	0.38	0.06	6.30	98.8	71	20	90	10	25	32	74
4092	51.40	15.70	5.99	5.53	4.35	0.44	12.40	0.15	0.50	0.08	2.75	99.3	36	21	136	10	37	36	235

Sample	SiO2	Al2O	CaO	MgO	Na2O	K2O	Fe2O	MnO	TiO2	P2O5	LOI	Total	Cr	Rb	Sr	Y	Zr	Nb	Ba
4090	53.30	16.80	0.48	6.77	1.74	3.95	8.91	0.08	0.43	0.07	7.35	100.1	90	60	24	10	15	25	1550

APPENDIX V

LITHOGEOCHEMISTRY
TABLE OF RESULTS FROM 1992 DRILLING

Lithogeochem. drill holes samples, raw data

Hole BP_2-92

Samp.	depth	SiO2	TiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	P2O5	LOI	Cr	Rb	Sr	Y	Zr	Nb	Ba	SUM
4526	9.5	68.2	0.471	12.9	0.38	4.79	0.19	1.47	7.54	0.1	0.11	3.95	74	40	10	10	122	39	725	100.2
4527	38	68.6	0.475	13.2	0.34	4.38	0.21	1.83	6.09	0.07	0.11	3.45	20	35	12	11	124	25	1170	98.9
4528	63	68.9	0.468	12.7	0.4	4.67	0.12	1.82	6.67	0.05	0.11	3.6	24	30	10	12	108	23	753	99.6
4529	88	72.5	0.325	12.6	0.42	2.8	0.14	2.52	5.2	0.03	0.08	3.75	10	64	10	27	114	33	1520	100.6
4530	103	73.7	0.312	11.8	0.42	1.12	0.2	2.84	5.06	0.03	0.08	3.8	17	48	16	32	116	37	1420	99.6
4531	113	71.2	0.343	12.9	0.95	1.54	0.27	3.06	4.09	0.08	0.08	4.1	10	47	13	34	128	25	1570	98.8
4532	133	73.3	0.299	11.9	0.37	1.84	0.24	2.63	5.22	0.04	0.08	4.2	10	46	10	24	114	28	1300	100.3
4533	147	73.2	0.297	12.2	0.33	1.32	0.22	2.79	5.52	0.03	0.07	4.15	20	41	10	37	114	20	1510	100.3
4534	166	69.4	0.296	10.8	0.35	1.85	0.18	2.15	8.98	0.03	0.07	5.35	10	32	10	38	112	27	1160	99.6
4535	190	85.7	0.232	9.23	0.31	0.21	0.21	2.11	0.45	0.01	0.08	1.45	10	32	10	25	93	14	1050	100.1
4536	214	71.8	0.293	11.4	0.3	0.24	0.29	2.82	7.63	0.01	0.07	5.05	13	41	10	21	122	28	1330	100.1
4537	222	54.1	0.844	14.3	0.52	0.39	0.31	3.51	15.9	0.01	0.26	9.65	15	56	10	20	54	31	1800	100
4538	249.5	74.2	0.285	11.2	0.29	0.17	0.33	2.6	6.47	0.01	0.07	4.5	10	39	12	16	126	37	1090	100.3
4539	274.5	68.4	0.267	10	0.24	0.15	0.31	2.29	11.7	0.01	0.04	6.95	10	26	12	27	114	29	834	100.5
4541	282	61.9	0.486	13	0.36	0.27	0.37	3.07	12.9	0.01	0.13	7.95	86	60	10	10	58	30	1150	100.6
4543	339	71.9	0.319	12.6	0.29	0.91	0.24	2.99	6.69	0.01	0.08	4.7	10	47	10	16	123	29	1350	100.9
4544	354	73.1	0.333	12.1	0.42	0.75	0.23	2.94	5.29	0.02	0.07	4.1	10	51	16	32	119	27	1590	99.6
4545	376	74.4	0.327	11.9	0.53	2.44	0.13	2.26	4.12	0.04	0.08	2.8	11	48	10	37	107	32	1140	99.2
4546	389	69.7	0.351	13.1	0.35	1.66	0.22	2.87	7.18	0.08	0.08	4.3	10	46	10	33	134	23	1260	100.1
4547	396	75.2	0.278	11.2	0.29	0.34	0.21	2.8	5.59	0.02	0.07	4.1	10	47	10	23	112	19	1130	100.3
4548	418	55.7	0.744	14.1	0.51	2	0.24	3.32	14	0.04	0.19	8.95	19	62	10	13	79	24	1300	100
4549	456	71.4	0.201	9.58	0.28	0.42	0.14	2.29	9.72	0.02	0.08	5.8	12	40	10	18	103	34	1050	100.2
4550	466	69.9	0.351	11.4	0.32	3.88	0.11	1.51	7.83	0.11	0.08	4	10	16	10	21	112	29	599	99.6
BP_1-92																				
4620	173	75.3	0.308	11.6	0.27	0.47	0.22	2.75	4.6	0.01	0.07	3.75	12	44	10	17	117	25	1410	99.5
4623	198	72.1	0.233	9.99	0.24	0.23	0.18	2.41	8.46	0.01	0.04	5.5	10	42	10	32	118	25	1390	99.6
4625	225	69.5	0.407	12.7	0.4	1.88	0.28	2.4	7.01	0.04	0.11	4.25	10	39	13	40	119	32	1370	99.2
4627	232	77.5	0.231	11	0.27	0.23	0.28	2.52	4.34	0.01	0.06	3.5	10	56	18	35	119	29	1480	100.1
4629	256	82.2	0.239	11	0.25	0.2	0.31	2.53	1	0.01	0.04	2.1	10	47	29	17	124	33	1910	100.1
4633	280	67.5	0.36	11.5	0.35	0.32	0.22	2.79	10.3	0.01	0.11	6.5	14	65	13	10	103	35	1590	100.2
4641	288	79.2	0.2	7.95	0.24	0.67	0.15	1.78	5.49	0.02	0.03	3.6	11	25	10	17	94	20	1100	99.5
4654	328	71.9	0.308	14.1	0.24	1.67	0.19	2.98	4.93	0.02	0.03	3.7	10	43	10	40	170	22	1430	100.3
4551	661	70.8	0.367	13	0.31	2.48	0.09	2.29	6.9	0.06	0.08	2.7	12	43	10	30	151	22	1530	99.3
4300		73.2	0.303	11	0.4	2.32	0.71	3.08	5.97	0.09	0.07	2.3	13	48	10	19	122	33	579	99.5
4301		60.5	0.585	14.2	2.96	4.12	6.01	0.78	9.1	0.15	0.1	1.85	57	10	46	15	70	26	323	100.4
43602		55	0.609	14.6	2.93	6.12	2.75	2.08	10.6	0.13	0.1	3.45	91	46	167	10	65	25	725	98.5

Samp.	depth	SiO2	TiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	P2O5	LOI	Cr	Rb	Sr	Y	Zr	Nb	Ba	SUM
4303		75.1	0.295	11.4	1.93	1.03	3.66	1.19	3.89	0.08	0.06	1.05	10	37	58	14	86	24	216	99.7
BP_3-92																				
4552	29	74.4	0.341	12.1	0.36	2.28	0.13	2.27	5.28	0.05	0.08	2.8	17	43	10	33	124	21	1470	100.3
4553	49	67.7	0.502	13	0.6	2.46	2.06	1.53	7.85	0.09	0.11	2.8	14	38	18	19	104	43	608	98.8
4554	74	59.1	0.394	15.4	0.34	5.72	0.11	1.58	12.6	0.17	0.07	4.7	54	29	10	11	69	32	773	100.3
4555	99	72.4	0.311	11.4	0.33	3.35	0.08	1.77	5.72	0.08	0.07	2.8	10	34	10	12	121	29	948	98.4
4556	123	72.8	0.349	11.9	0.34	2.9	0.16	2.06	5.43	0.07	0.08	3.3	10	44	10	24	129	10	1250	99.6
4557	163	75.2	0.238	10.2	0.29	1.24	0.12	2.19	6.83	0.05	0.05	3.5	10	36	21	17	114	35	1470	100.1
4558	190	73.3	0.249	11.2	0.31	2.35	0.07	2.06	6.22	0.07	0.06	3.25	10	40	10	25	119	36	1010	99.3
4559	214	72.5	0.361	12.5	0.32	2.7	0.08	2.35	5.25	0.06	0.08	2.85	10	46	10	28	130	14	989	99.2
4560	230	73.9	0.322	11.5	0.3	2.8	0.05	1.93	6.41	0.07	0.07	2.9	10	46	10	23	120	23	863	100.4
4561	249	74.4	0.328	10.5	0.31	2.92	0.03	1.73	5.24	0.06	0.07	2.6	10	21	10	37	113	41	816	98.3
4562	269	74.2	0.254	11.1	0.3	2.11	0.12	2.27	5.44	0.04	0.06	3.15	10	43	10	29	125	40	989	99.2
4563	291	74.5	0.271	11.7	0.29	1.94	0.14	2.62	4.43	0.06	0.06	3.45	10	47	10	10	131	29	872	99.6
4564	311	76	0.319	10.9	0.31	0.38	0.15	2.74	4.25	0.01	0.07	3.5	10	43	17	30	111	33	1170	98.8
4565	323	76.7	0.332	11.9	0.32	0.3	0.22	2.97	3.93	0.01	0.08	3.35	10	52	26	11	122	22	1860	100.3
4566	333	77.3	0.296	10.4	0.3	1.9	0.15	1.68	5.44	0.04	0.07	2.5	10	37	10	11	100	15	1320	100.2
4567	347	76.8	0.303	11.1	0.29	0.51	0.17	2.64	3.56	0.02	0.07	2.9	10	40	10	42	110	17	1820	98.6
4568	356	71.2	0.293	10.4	0.26	2.46	0.03	1.28	10.9	0.05	0.05	3.65	11	19	10	24	118	27	942	100.7
4569	362	72.5	0.254	9.19	0.34	4.11	0.01	0.51	10	0.07	0.02	3.35	11	19	10	31	106	33	407	100.4
4570	379	72.2	0.294	11.5	0.28	2.07	0.1	2.37	5.61	0.03	0.06	3.75	10	40	11	22	131	37	1290	98.4
4571	398	72.5	0.314	11.4	0.38	2.11	0.12	1.97	7.95	0.05	0.08	3.35	10	39	10	19	115	36	1190	100.4
4572	420	74.8	0.285	12.1	0.29	2.95	0.12	2.24	4.54	0.07	0.07	2.85	10	60	10	38	142	29	776	100.4
4573	442	75.8	0.266	10.8	0.28	1.62	0.13	2.29	4.13	0.04	0.05	2.9	10	31	10	28	122	34	735	98.4
4574	458	65.6	0.518	16.7	0.37	2.92	0.28	3.66	4.95	0.05	0.1	4.1	10	56	10	36	145	29	1430	99.4
4575	482	71.6	0.426	14	0.56	3	3.44	1.56	1.75	0.1	0.1	2.5	10	31	20	48	109	32	463	99.1
BP_4-92																				
	21	70.9	0.28	10.8	0.4	3.82	0.05	1.14	8.92	0.04	0.07	3.75	10	20	10	10	104	14	758	100.3
4577	44	72.8	0.321	11.3	0.35	1.31	0.2	2.75	5.95	0.08	0.07	5.05	10	43	10	32	110	20	1640	100.4
4578	64	72.5	0.328	12.3	0.37	0.67	0.33	2.9	5.97	0.04	0.08	4.55	10	52	41	23	105	33	1700	100.3
4579	89	67.6	0.394	12.9	0.34	1.47	0.52	2.84	6.54	0.06	0.08	5.7	10	51	27	17	119	24	1420	98.6
4580	110	70.9	0.325	12	0.32	2.68	0.23	1.8	8.03	0.07	0.08	3.7	10	44	26	32	111	32	970	100.3
4581	128	71.7	0.317	11.7	0.32	2.34	0.21	2.18	6.84	0.07	0.08	4.25	10	52	10	27	114	19	1130	100.2
4582	150	71.6	0.331	12.5	0.32	1.83	0.24	2.55	5.71	0.06	0.08	3.75	10	58	10	19	133	29	1390	99.2
4583	175	70.6	0.304	11.4	0.35	3.65	0.18	1.33	8.16	0.07	0.07	3.5	10	39	17	16	128	23	711	99.7
4584	192	72.6	0.29	10.8	0.54	2.79	0.2	1.52	5.89	0.04	0.09	2.85	10	32	10	12	100	23	1080	97.8
4585	219	70.7	0.343	12.4	0.45	3.19	0.16	2.26	5.37	0.06	0.08	3.7	10	43	10	33	119	28	1860	98.9
4586	237	74.4	0.298	11.3	0.31	1.62	0.17	2.77	4.31	0.07	0.07	4.1	10	47	10	31	110	19	2350	99.7

Samp.	depth	SiO2	TiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	P2O5	LOI	Cr	Rb	Sr	Y	Zr	Nb	Ba	SUM
4587	250	71.6	0.304	11.8	0.31	3.08	0.07	1.86	7.62	0.06	0.08	3.6	10	34	10	26	121	29	1600	100.6
4588	271	74.4	0.256	9.26	0.49	4.39	0.06	0.91	6.84	0.05	0.07	3.4	10	17	10	62	108	32	695	100.2
4589	288	65.2	0.481	13.8	0.31	2.37	0.17	2.88	8.05	0.05	0.09	5.15	20	61	15	31	103	29	1170	98.7
4590	298	67.1	0.415	12	0.33	2.1	0.13	2.86	7.41	0.19	0.1	5.95	20	51	11	11	90	44	927	98.7
4591	327	73.5	0.294	10.8	0.3	4.35	0.1	1.19	5.5	0.14	0.07	3.45	35	27	10	18	144	23	232	99.8
4592	352	69.2	0.352	12.7	0.3	6.09	0.09	1.31	5.76	0.14	0.08	4.3	42	33	12	16	117	49	297	100.4
4593	374	68.7	0.396	12.6	0.3	6.42	0.04	1.26	5.46	0.09	0.08	4.2	23	17	10	54	142	36	267	99.6
4594	407	68.8	0.361	12.1	0.38	4.57	0.73	1.72	6.09	0.14	0.08	3.8	21	27	10	41	138	28	437	98.9
4595	435	64.3	0.391	13.6	0.42	4.51	1.15	2.6	7.37	0.2	0.09	4.6	219	39	24	36	141	29	1080	99.4
4596	455	65.7	0.37	12.5	0.57	4.31	0.01	2.69	7.9	0.48	0.08	4.6	73	51	22	21	127	37	1110	99.4
4597	475	67.2	0.357	11.7	1.09	3.64	0.09	2.45	7.5	0.39	0.09	4.1	11	37	24	19	108	14	888	98.7
4598	500	65.2	0.41	14	2.08	3.13	2.01	3.07	5.93	0.2	0.09	3.8	10	38	62	35	149	29	1090	100.1
4599	520	68.2	0.374	12.5	0.88	3.33	0.01	3.54	6.38	0.17	0.08	4.35	10	44	10	45	130	29	1100	99.9
4600	537	69.8	0.363	12.6	1.67	1.9	2.76	2.26	5.02	0.24	0.08	2.85	10	35	50	34	131	24	1000	99.7
2878	560	64	0.47	12.8	2.64	3.02	2.3	2.27	7.07	0.12	0.1	5	10	40	116	21	110	37	714	99.9
2879	564	64.7	0.378	14.3	1.88	2.16	2.14	2.98	6.65	0.24	0.07	3.6	10	43	68	26	143	21	627	99.4
2880	573	65.3	0.444	12.6	3.57	2.4	2.67	2.18	5.58	0.12	0.1	4.55	10	32	66	14	105	27	659	99.6
2881	595	65.5	0.269	10.1	5.81	1.88	2.22	1.93	5.67	0.15	0.07	6.1	10	43	101	10	95	19	563	99.8
BP_2-92ext																				
2882	479	70.1	0.334	12.2	1.61	1.52	1.64	4.21	5.02	0.07	0.08	3.1	10	52	41	19	116	21	1110	100
2883	495	69.6	0.333	11.5	0.4	0.7	0.14	2.57	9.54	0.03	0.08	5.1	10	40	10	27	123	29	1070	100.1
2884	515	69.3	0.349	11.6	0.31	3.13	0.02	1.5	9.66	0.12	0.08	3.75	10	30	10	50	158	11	821	99.9
2885	533	68.3	0.351	11.8	0.31	4.05	0.03	1.21	10	0.15	0.07	3.85	10	37	10	25	130	30	628	100.2
2886	560	66.7	0.376	12.5	0.49	2.61	0.01	1.84	11.1	0.12	0.08	3.8	10	41	10	24	143	42	1030	99.8
2887	577	63.6	0.373	11.7	1.11	5.7	0.01	1.2	11.2	0.24	0.14	4.75	10	18	10	26	83	30	458	100.1
2888	596	66.1	0.323	11.1	0.53	3.56	0.01	2.45	8.51	0.16	0.07	5.3	10	46	20	15	130	48	609	98.2
2889	613	70.1	0.327	11	0.7	3.71	1.21	1.7	7.19	0.03	0.07	4	10	32	11	35	123	20	626	100.1
2890	640	66.1	0.428	13.7	1.4	1.95	4.63	1	6.87	0.08	0.08	2.45	10	40	161	32	165	40	386	98.8
2891	661	69.8	0.36	12.6	2.11	1.44	3.99	1.22	5.98	0.08	0.08	2.25	10	33	185	35	125	19	510	100

drill hole, geochem, normalized data, hashimoto ratio and mass balance

Hole BP_2-92 sample	depth	SiO2	TiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	P2O5	total	Fe2O3 % mass change	MgO %mass Change	SiO2 %mass Change	Hashim
4526	9.5	70.93	0.49	13.42	0.40	4.98	0 20	1.53	7.84	0.10	0.11	100	N.A.	N.A.	N.A.	
4527	38	71.98	0.50	13.85	0.36	4.60	0.22	1.92	6.39	0.07	0.12	100	N.A.	N.A.	N.A.	
4528	63	71.84	0.49	13.24	0.42	4.87	0.13	1.90	6.95	0.05	0.11	100	N.A.	N.A.	N.A.	
4529	88	75.04	0.34	13.04	0.43	2.90	0.14	2.61	5.38	0.03	0.08	100	-10.13	67.43	-1.85	90.48
4530	103	77.12	0.33	12.35	0.44	1.17	0.21	2.97	5.29	0.03	0.08	100	-6.62	-28.49	6.54	86.46
4531	113	75.33	0.36	13.65	1.01	1.63	0.29	3.24	4.33	0.03	0.08	100	-30.95	-10.06	-5.85	79.04
4532	133	76.42	0.31	12.41	0.39	1.92	0.25	2.74	5.44	0.04	0.08	100	-4.47	16.49	5.07	87.99
4533	147	76.27	0.31	12.71	0.34	1.38	0.23	2.91	5.75	0.03	0.07	100	-1.47	-18.48	2.35	88.20
4534	166	73.75	0.31	11.48	0.37	1.97	0.19	2.28	9.54	0.03	0.07	100	81.07	29.06	9.61	88.30
4535	190	86.97	0.24	9.37	0.31	0.21	0.21	2.14	0.46	0.01	0.08	100	-89.38	-82.86	58.38	81.69
4536	214	75.70	0.31	12.02	0.32	0.25	0.31	2.97	8.04	0.01	0.07	100	45.76	-84.14	7.44	83.84
4537	222	60.02	0.94	15.86	0.58	0.43	0.34	3.89	17.64	0.01	0.29	100	N.A.	N.A.	N.A.	82.45
4538	249.5	77.59	0.30	11.71	0.30	0.18	0.35	2.72	6.77	0.01	0.07	100	25.80	-88.56	13.01	81.71
4539	274.5	73.23	0.29	10.71	0.26	0.16	0.33	2.45	12.53	0.01	0.04	100	154.80	-88.70	16.68	81.61
4541	282	66.92	0.53	14.05	0.39	0.29	0.40	3.32	13.95	0.01	0.14	100	N.A.	N.A.	N.A.	82.06
4543	339	74.87	0.33	13.12	0.30	0.95	0.25	3.11	6.97	0.01	0.08	100	15.63	-45.59	-2.66	88.04
4544	354	76.74	0.35	12.70	0.44	0.79	0.24	3.09	5.55	0.02	0.07	100	-4.79	-53.30	3.05	85.02
4545	376	77.32	0.34	12.37	0.55	2.54	0.14	2.35	4.28	0.04	0.08	100	-24.60	54.48	6.65	87.69
4546	389	72.91	0.37	13.70	0.37	1.74	0.23	3.00	7.51	0.08	0.08	100	19.36	-4.53	-9.24	88.82
4547	396	78.33	0.29	11.67	0.30	0.35	0.22	2.92	5.82	0.02	0.07	100	8.69	-77.13	14.53	86.26
4548	418	61.31	0.82	15.52	0.56	2.20	0.26	3.65	15.41	0.04	0.21	100	N.A.	N.A.	N.A.	87.64
4549	456	75.79	0.30	10.17	0.30	0.45	0.15	2.43	10.32	0.02	0.08	100	120.96	-66.97	27.13	86.58
4550	466	73.20	0.37	11.94	0.34	4.06	0.12	1.58	8.20	0.12	0.08	100	49.58	156.43	4.59	92.61
2882	479	72.43	0.35	12.61	1.66	1.57	1.69	4.35	5.19	0.07	0.08	100	-10.39	-6.13	-1.99	63.81
2883	495	73.35	0.35	12.12	0.42	0.74	0.15	2.71	10.05	0.03	0.08	100	80.66	-54.14	3.24	85.83
2884	515	72.14	0.36	12.07	0.32	3.26	0.02	1.56	10.06	0.12	0.08	100	81.35	103.29	1.91	93.35
2885	533	70.95	0.36	12.26	0.32	4.21	0.03	1.26	10.39	0.16	0.07	100	84.55	158.59	-1.27	93.93
2886	560	69.61	0.39	13.04	0.51	2.72	0.01	1.92	11.58	0.13	0.08	100	93.38	57.31	-8.98	89.90
2887	577	66.76	0.39	12.28	1.17	5.98	0.01	1.26	11.76	0.25	0.15	100	N.A.	N.A.	N.A.	86.03
2888	596	71.22	0.35	11.96	0.57	3.84	0.01	2.64	9.17	0.17	0.08	100	36.96	141.64	1.58	91.76
2889	613	72.99	0.34	11.45	0.73	3.86	1.26	1.77	7.49	0.03	0.07	100	42.34	154.11	8.71	73.91
2890	640	68.68	0.44	14.24	1.45	2.03	4.81	1.04	7.14	0.08	0.08	100	9.20	7.24	-17.70	32.85
2891	661	71.47	0.37	12.90	2.16	1.47	4.09	1.25	6.12	0.08	0.08	100	3.36	-13.90	-5.50	30.37

Hole BP_1-92 sample	depth	SiO2	TiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	P2O5	total	Fe2O3 % mass change	MgO %mass Change	SiO2 %mass Change	Hashim
4601		68.97	0.55	15.03	0.43	5.97	0.16	1.96	6.78	0.11	0.05	100				
4604		81.52	0.32	12.76	0.28	0.34	0.26	3.06	1.35	0.01	0.11	100				
4612		71.38	0.48	13.25	0.58	4.29	0.18	1.80	7.84	0.08	0.11	100				
4613		73.80	0.48	12.68	0.60	3.70	0.17	2.11	6.30	0.11	0.05	100				
4616		78.68	0.36	14.07	0.29	0.33	0.28	3.37	2.48	0.01	0.14	100				
4620	173	78.77	0.32	12.13	0.28	0.49	0.23	2.88	4.81	0.01	0.07	100	-13.24	-69.47	10.73	86.79
4623	198	76.79	0.25	10.64	0.26	0.24	0.19	2.57	9.01	0.01	0.04	100	84.42	-82.65	23.11	86.27
4625	225	73.37	0.43	13.41	0.42	1.98	0.30	2.53	7.40	0.04	0.12	100	20.20	11.53	-6.65	86.29
4627	232	80.36	0.24	11.41	0.28	0.24	0.29	2.61	4.50	0.01	0.06	100	-14.08	-84.25	20.18	83.33
4629	256	84.07	0.24	11.25	0.28	0.20	0.32	2.59	1.02	0.01	0.04	100	-80.20	-86.30	27.47	82.98
4633	280	72.22	0.39	12.30	0.37	0.34	0.24	2.99	11.02	0.01	0.12	100	95.05	-79.04	0.12	84.51
4641	288	82.73	0.21	8.30	0.25	0.70	0.16	1.86	5.73	0.02	0.03	100	50.39	-36.50	69.94	86.27
4654	328	74.61	0.32	14.63	0.25	1.73	0.20	3.09	5.12	0.02	0.03	100	-23.86	-10.77	-13.02	91.54
4551		73.46	0.38	13.49	0.32	2.57	0.09	2.38	7.16	0.06	0.08	100	15.59	43.73	-7.10	92.26
BP_3-92																
4552	29	76.47	0.35	12.44	0.37	2.34	0.13	2.33	5.43	0.05	0.08	100	-4.97	41.97	4.89	90.28
4553	49	70.59	0.52	13.56	0.63	2.57	2.15	1.60	8.19	0.09	0.11	100	N.A.	N.A	N.A	60.00
4554	74	61.90	0.41	16.13	0.36	5.99	0.12	1.65	13.20	0.18	0.07	100	N.A.	N.A	N.A	94.19
4555	99	75.60	0.33	11.94	0.35	3.51	0.08	1.85	5.99	0.08	0.07	100	9.27	121.40	8.33	92.59
4556	123	75.76	0.36	12.38	0.35	3.02	0.17	2.14	5.65	0.07	0.08	100	-0.63	83.61	4.36	90.84
4557	163	78.00	0.25	10.58	0.30	1.29	0.12	2.27	7.08	0.05	0.05	100	45.82	-8.41	25.76	89.32
4558	190	76.44	0.26	11.68	0.32	2.45	0.07	2.15	6.49	0.07	0.06	100	20.94	58.08	11.64	92.07
4559	214	75.36	0.38	12.99	0.33	2.81	0.08	2.44	5.46	0.06	0.08	100	-8.54	62.74	-1.06	92.66
4560	230	75.91	0.33	11.81	0.31	2.88	0.05	1.98	6.58	0.07	0.07	100	21.39	83.44	9.62	93.11
4561	249	77.83	0.34	10.98	0.32	3.05	0.03	1.81	5.48	0.06	0.07	100	8.68	109.52	20.87	93.19
4562	269	77.38	0.26	11.58	0.31	2.20	0.13	2.37	5.67	0.04	0.06	100	6.73	43.22	14.03	91.25
4563	291	77.60	0.26	12.19	0.30	2.02	0.15	2.73	4.61	0.06	0.06	100	-17.54	24.83	8.62	91.38
4564	311	79.88	0.34	11.46	0.33	0.40	0.18	2.88	4.47	0.01	0.07	100	-15.09	-73.73	18.94	87.15
4565	323	79.27	0.34	12.30	0.33	0.31	0.23	3.07	4.06	0.01	0.08	100	-28.08	-81.01	9.95	85.83
4566	333	79.22	0.30	10.66	0.31	1.95	0.15	1.72	5.58	0.04	0.07	100	13.91	37.64	26.79	88.83
4567	347	80.45	0.32	11.63	0.30	0.53	0.18	2.77	3.73	0.02	0.07	100	-30.16	-65.38	18.02	87.26
4568	356	73.46	0.30	10.73	0.27	2.54	0.03	1.32	11.25	0.05	0.05	100	128.24	78.21	16.78	92.80
4569	362	74.74	0.26	9.47	0.35	4.24	0.01	0.53	10.31	0.07	0.02	100	136.97	236.95	34.57	92.96
4570	379	76.39	0.31	12.17	0.30	2.19	0.11	2.51	5.94	0.03	0.06	100	6.24	35.61	7.10	92.12
4571	398	74.84	0.32	11.77	0.39	2.18	0.12	2.03	8.21	0.05	0.08	100	51.87	39.45	8.48	89.08
4572	420	76.75	0.29	12.41	0.30	3.03	0.12	2.30	4.66	0.07	0.07	100	-18.29	83.68	5.45	92.68

sample	depth	SiO2	TiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	P2O5	total	Fe2O3 % mass change	MgO %mass Change	SiO2 %mass Change	Hashim
4573	442	79.45	0.28	11.32	0.29	1.70	0.14	2.40	4.33	0.04	0.05	100	-16.72	13.01	19.72	90.51
4574	458	68.95	0.54	17.55	0.39	3.07	0.29	3.85	5.20	0.05	0.11	100	N.A.	N.A	N.A.	91.01
4575	482	74.17	0.44	14.50	0.58	3.11	3.56	1.62	1.81	0.10	0.10	100	N.A.	N.A.	N.A.	53.27
BP_4-92																
4576	21	73.53	0.29	11.20	0.41	3.96	0.05	1.16	9.25	0.04	0.07	100	79.87	166.49	11.98	91.68
4577	44	76.53	0.34	11.88	0.37	1.38	0.21	2.89	6.25	0.08	0.07	100	14.67	-12.66	9.90	88.07
4578	64	75.93	0.34	12.88	0.39	0.70	0.35	3.04	6.25	0.04	0.08	100	5.70	-58.96	0.55	83.61
4579	89	72.89	0.42	13.91	0.37	1.59	0.56	3.06	7.05	0.06	0.09	100	10.41	-14.15	-10.61	83.37
4580	110	73.52	0.34	12.44	0.33	2.78	0.24	1.87	8.33	0.07	0.08	100	45.73	68.26	0.78	89.07
4581	128	74.88	0.33	12.22	0.33	2.44	0.22	2.28	7.14	0.07	0.08	100	27.31	50.68	4.54	89.50
4582	150	75.19	0.35	13.13	0.34	1.92	0.25	2.68	6.00	0.06	0.08	100	-0.52	10.30	-2.29	88.66
4583	175	73.45	0.32	11.86	0.36	3.80	0.19	1.38	8.49	0.07	0.07	100	55.88	141.23	5.64	90.38
4584	192	76.61	0.31	11.40	0.57	2.94	0.21	1.60	6.22	0.04	0.09	100	18.77	94.63	14.67	85.35
4585	219	74.41	0.36	13.05	0.47	3.36	0.17	2.38	5.65	0.06	0.08	100	-5.69	93.82	-2.74	89.93
4586	237	78.05	0.31	11.86	0.33	1.70	0.18	2.91	4.52	0.07	0.07	100	-16.94	8.01	12.31	90.14
4587	250	73.98	0.31	12.19	0.32	3.18	0.07	1.92	7.87	0.06	0.08	100	40.63	96.65	3.50	92.86
4588	271	76.92	0.26	9.57	0.51	4.54	0.06	0.94	7.07	0.05	0.07	100	60.86	257.18	37.05	90.60
4589	288	69.81	0.51	14.78	0.33	2.54	0.18	3.08	8.62	0.05	0.10	100	N.A	N.A.	N.A.	91.62
4590	298	72.43	0.45	12.95	0.36	2.27	0.14	3.09	8.00	0.21	0.11	100	N.A.	N.A.	N.A	91.51
4591	327	76.37	0.31	11.22	0.31	4.52	0.10	1.24	5.71	0.15	0.07	100	10.80	203.46	16.09	93.27
4592	352	72.07	0.37	13.23	0.31	6.34	0.09	1.36	6.00	0.15	0.08	100	-1.23	261.28	-7.05	94.99
4593	374	72.05	0.42	13.22	0.31	6.73	0.04	1.32	5.73	0.09	0.08	100	-5.63	283.88	-6.99	95.76
4594	407	72.44	0.38	12.74	0.40	4.81	0.77	1.81	6.41	0.15	0.08	100	9.61	184.55	-3.01	85.00
4595	435	67.95	0.41	14.37	0.44	4.77	1.22	2.75	7.79	0.21	0.10	100	18.01	149.85	-19.35	81.91
4596	455	69.44	0.39	13.21	0.60	4.56	0.01	2.84	8.35	0.51	0.08	100	37.63	159.76	-10.34	92.35
4597	475	71.11	0.38	12.38	1.15	3.85	0.10	2.59	7.94	0.41	0.10	100	39.60	134.40	-2.03	83.77
4598	500	67.83	0.43	14.57	2.16	3.26	2.09	3.19	6.17	0.21	0.09	100	-7.76	68.44	-20.56	60.25
4599	520	71.46	0.39	13.10	0.92	3.49	0.01	3.71	6.66	0.18	0.08	100	10.80	100.71	-6.93	88.53
4600	537	72.19	0.38	13.03	1.73	1.98	2.85	2.34	5.19	0.25	0.08	100	-13.24	13.61	-5.50	48.43
2878	560	67.52	0.50	13.50	2.79	3.19	2.43	2.39	7.46	0.13	0.11	100	N.A.	N.A.	N.A.	51.71
2879	564	67.75	0.40	14.97	1.97	2.26	2.24	3.12	6.96	0.25	0.07	100	1.27	13.80	-22.82	56.11
2880	573	68.76	0.47	13.27	3.76	2.53	2.81	2.30	5.88	0.13	0.11	100	N.A.	N.A.	N.A.	42.33
2881	595	69.98	0.29	10.79	6.21	2.01	2.37	2.06	6.06	0.16	0.07	100	22.26	40.24	10.62	32.18

N.A. = not applicable, unit not on same alteration line than "two quartz rhyolite" precursor.

Thompson Lake alteration zone, raw data

Samp.		SiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	TiO2	P2O5	LOI	Sum	Cr	Rb	Sr	Y	Zr	Nb	Ba
4106		69.2	11.3	0.66	4.91	0.01	1.88	6.15	0.06	0.344	0.08	3.95	98.6	11	30	10	24	112	34	345
4107		70.3	11.1	0.37	4.51	0.01	1.15	9.08	0.08	0.412	0.12	3.4	100.6	16	31	24	14	49	19	663
4108		74	11.2	0.39	2.5	0.08	1.63	7.5	0.08	0.313	0.08	2.7	100.6	13	30	10	32	100	25	886
4109		67	9.72	0.4	6.69	0.01	0.3	9.61	0.06	0.338	0.08	4.3	98.7	14	14	10	17	114	29	125
4110		73.9	10.7	0.34	4.55	0.01	1.61	5.37	0.07	0.286	0.08	3.15	100.1	47	21	13	11	91	29	540
4111	standard	50.7	15.5	8.42	7.33	3.25	0.57	11.4	0.16	1.46	0.24	-0.3	98.8	199	16	475	12	87	12	128
4112		68.5	12.8	0.33	4.69	0.03	1.85	7.07	0.18	0.36	0.08	3.5	99.5	10	49	10	26	123	38	576
4113		71	12.3	0.36	1.68	4.08	0.65	7.72	0.07	0.338	0.08	1.35	100.2	26	23	18	18	107	41	131
4114		74.2	10.7	0.31	4.14	0.1	1.53	5.53	0.08	0.309	0.07	3.05	100.1	20	42	10	15	93	41	719
4115		66.4	10.5	3.68	1.74	1.02	3.18	5.06	0.12	0.293	0.09	6.2	98.4	10	50	50	21	93	40	464

Normalized data, hashimoto and mass balance

Samp.	SiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	TiO2	P2O5	Sum	Fe2O3 % mass change	MgO % Mass change	SiO2 % Mass change	Hashimoto
4106	73.15	11.95	0.70	5.19	0.01	1.99	6.50	0.06	0.36	0.08	100	18.52	227.37	4.46	91.02
4107	72.38	11.43	0.38	4.64	0.01	1.18	9.35	0.08	0.42	0.12	100	0.00	0.00	6.03	93.71
4108	75.69	11.46	0.40	2.56	0.08	1.67	7.67	0.08	0.32	0.08	100	45.83	38.17	12.71	89.78
4109	70.97	10.30	0.42	7.30	0.01	0.32	10.18	0.06	0.36	0.08	100	115.31	434.06	17.58	94.61
4110	76.25	11.04	0.35	4.69	0.01	1.66	5.54	0.07	0.30	0.08	100	9.29	220.38	17.81	94.62
4112	71.44	13.35	0.34	4.89	0.03	1.93	7.37	0.19	0.38	0.08	100	20.29	176.06	-8.71	94.78
4113	72.24	12.52	0.37	1.71	4.15	0.66	7.86	0.07	0.34	0.08	100	36.68	2.91	-1.53	34.42
4114	76.52	11.03	0.32	4.27	0.10	1.58	5.70	0.08	0.32	0.07	100	12.55	191.51	18.29	93.26
4115	72.11	11.40	4.00	1.89	1.11	3.45	5.50	0.13	0.32	0.10	100	4.95	24.85	7.87	51.14

Least altered samples, rhyolite flows, Flintoba Creek area, raw data

sample	SI02	Al2O3	CaO	MgO	Na2O	K20	Fe2O3	MnO	TIO2	P2O5	LOI%	Sum%	Cr PPM	Rb PPM	Sr PPM	Y PPM	Zr PPM	Nb PP	Ba PPM
4288	70.9	11.7	1.09	2.28	2.47	2.07	5.55	0.14	0.327	0.07	3	99.7	17	36	13	31	110	21	1090
4117	70	11.5	1.8	1.76	2.65	2.67	4.65	0.07	0.319	0.09	3.55	99.1	14	29	39	32	111	24	337
4119	69.2	11.9	1.44	2.15	2.26	1.97	6.75	0.26	0.309	0.08	3.05	99.5	25	41	58	28	105	33	829
4120	71.6	12	1.44	1.14	4.47	1.28	5.33	0.11	0.32	0.08	2.55	100.4	34	29	82	16	113	35	744
4121	69	12.2	1.75	1.12	5.03	0.86	5.47	0.13	0.326	0.08	2.9	98.9	10	26	44	21	105	25	223
4124	73.9	11.1	1.24	1.93	2.75	1.69	3.8	0.06	0.24	0.06	2.9	99.8	10	42	40	20	96	32	523
4183	73.4	11.4	1.04	1.4	4.54	0.48	5.79	0.08	0.345	0.09	1.85	100.5	18	24	54	36	110	26	183
4184	70.9	12.2	1.55	1.09	4.8	0.36	5.81	0.12	0.342	0.08	2	99.3	10	18	105	17	113	23	214
Average	71.11	11.75	1.42	1.61	3.62	1.42	5.39	0.12	0.32	0.08	2.73	99.65	17.25	30.63	54.38	25.13	******	27.38	******

normalized data

sample	SI02	Al2O3	CaO	MgO	Na2O	K20	Fe2O3	MnO	TIO2	P2O5	Sum%
4288	73.40	12.11	1.13	2.36	2.56	2.14	5.75	0.14	0.34	0.07	100
4117	73.29	12.04	1.88	1.84	2.77	2.80	4.87	0.07	0.33	0.09	100
4119	71.84	12.35	1.50	2.23	2.35	2.05	7.01	0.27	0.32	0.08	100
4120	73.23	12.27	1.47	1.17	4.57	1.31	5.45	0.11	0.33	0.08	100
4121	71.90	12.71	1.82	1.17	5.24	0.90	5.70	0.14	0.34	0.08	100
4124	76.37	11.47	1.28	1.99	2.84	1.75	3.93	0.06	0.25	0.06	100
4183	74.47	11.57	1.06	1.42	4.61	0.49	5.87	0.08	0.35	0.09	100
4184	72.90	12.54	1.59	1.12	4.94	0.37	5.97	0.12	0.35	0.08	100
Average	73.43	12.13	1.46	1.66	3.74	1.47	5.57	0.13	0.33	0.08	100

APPENDIX VI

LEGEND, 1992 MAPPING

LEGEND, Pine Bay (#284), Thompson Bay (#281), Crow (#291)

Intrusive rocks

16a Diatreme
16b Granodiorite

15a Quartz feldspar porphyry dykes
15b Quartz feldspar porphyry intrusions
15c Clastic dyke

14a Gabbro
14b Fine grained mafic intrusion
14c Lamprophyre
14d Diorite
14e "Spherulitic" dacitic intrusion

Amisk Group
Sediments and volcanics

Dominantly mafic volcanic domain

13a Basaltic to andesitic hyaloclastite

12a Laminated chert, graywacke
12b Cherty mudstone
12c Graphite-Pyrite horizon
12d Epiclastic, reworked tuffaceous, andesitic
12e Bedded cherty tuff

11a Rhyolite lapilli to tuff breccia
11b Heterolithic rhyolitic breccia
11c aphyric rhyolitic dykes
11d Rhyolitic flow, hyaloclastite, lobes

10a Vesicular basalt flow
10b Aphyric basalt flow
10c Basaltic flow breccia, silicified and pyritized
10d Basalt flow, pillowed, flow brecciated
10e Magnetic basalt, flow brecciated, felsic breccias

9a Andesitic tuff
9b Andesitic lapilli tuff
9c Plagioclase phyric andesitic flow
9d Andesitic flow breccia

Exhalative horizons

8a Massive to semi-massive sulphide
8b Tuffite, sulphide/chert beds
8c Sulphide-rich veins
8d Bedded cherty tuff

Dominantly felsic volcanic domain

7a Rhyolite tuff
7b Rhyodacitic tuff
7c Dacitic tuff

6a Aphyric dacite flows
6b Rhyodacitic subvolcanic centre, cross cutting dykes
6c Aphyric rhyodacitic flow breccia, lobes
6d White aphyric rhyolite flow

5a Massive rhyolite flows

4a Rhyolite flow breccia

3a Heterolithic rhyolite breccia
3b Amygdaloidal rhyolite flow
3c Rhyolite flow breccia

2a Rhyolitic/rhyodacitic flow
2b Rhyodacitic flow
2c Dacitic flow

1a "Two quartz" crystal rich, rhyolite lapilli tuff
1b Aphyric rhyolite breccia
1c Aphyric rhyolite flows

APPENDIX VII

TRANSIENT FM, RESULTS

INTRODUCTION

During the period August-September, 1992, Patterson Mining Geophysics of La Ronge, Saskatchewan conducted down-hole transient electromagnetic (E.M.) surveys in holes BP-1-92, BP-2-92, BP-3-92 and BP-4-92 on the Pine Bay property near Flin Flon, Manitoba. These surveys were performed for Placer Dome Inc. to investigate the possibility of detecting sulphide mineralization away from each of the drill holes.

This appendix describes the instrumentation used, the survey parameters and method and presents an interpretation of the resulting data.

SURVEY PERSONNEL

Survey personnel comprised David Bingham and Marlin Pohjavuori of Patterson Mining Geophysics.

SURVEY INSTRUMENTATION AND METHOD

The surveys were completed using the GEONICS EM-37 transient EM system manufactured by GEONICS Limited of Toronto, Ontario. Resulting data were recorded by the Polycorder digital data recorder. Detailed equipment descriptions are presented in Table 1, 2 and 3.

In either the surface or drill hole modes, a bi-polar square wave is transmitted through a wire loop by the 2500 watt transmitter. The loop is routinely square or rectangular in shape and is constructed from #10 gauge copper wire. The square wave pulse is transmitted with a repetition frequency selectable from one of 3 Hz, 7.5 Hz or 30 Hz. The choice of frequency is dependant upon the conductivity of the target of interest and the host environment.

The current flowing in the loop of the wire (the transmitter loop) produces a primary magnetic field around the loop. This magnetic field passes through any sub-surface conductive body and induces a secondary current to flow within the body. The secondary current flow produces a secondary magnetic field from the body. During the time that the current is off in the transmitter loop, the secondary magnetic field is measured by a receiver coil mounted in a

probe that is lowered down the drill hole.

The receiver coil measures the rate of change (or "decay") of the secondary magnetic field along the axis of the drill hole. The rate of change is recorded as 20 sequential time slices or channels after the current turn-off in the transmitter loop. Crystal oscillators in both the transmitter and receiver enable synchronization of both units to allow the receiver to measure the secondary field when the transmitter current is off.

Measured responses for each of the 20 channels are transferred from the receiver to the Polycorder where they are stored as voltages. These measurements are subsequently transferred to a microcomputer where corrections are applied for turn-off time, transmitter loop area, system gain and transmitted current yielding results in nanovolts per ampere-metre squared (nV/Am^2). These measurements are made with an accuracy of less than 0.1 nV/Am^2.

The main objectives for drill hole E.M. surveys are i) to provide qualitative information about intersected conductor geometry relative to the drill hole and, ii) to evaluate the geological environment around a drill hole that may not have intersected a conductive target. In this case, the survey can effectively explore a radius of at least 100 metres around a drill hole and provide information on distance and position of conductive units relative to the drill hole.

The distance from a conductive target and position relative to a drill hole is determined by routinely surveying the drill hole from each of five transmitter loops. These loops are arranged in a typical star pattern. One loop is positioned around the collar of the hole (the collar loop). The remaining four loops are positioned grid north, south, east and west of the collar loop. An example of this loop arrangement is shown in Figure G3. It should be noted that the deployment of the four directional loops is contingent upon the recording of an anomalous response from the collar loop. Loop layouts for the surveys are presented in Figures G1 to G5.

For the present surveys, the following parameters were employed.

Pulse Frequency	:	30 Hz
Gain	:	6
Integration Number	:	256
Loop Sizes	:	200m X 200m
	:	300m X 300m
Current	:	15 to 20 Amps
Turn-off Time	:	110 to 230 microseconds

Measurements were taken at 10m intervals down-hole with 5m intervals in areas of anomalous responses.

DATA PRESENTATION

For each transmitter loop, the 20 channels of recorded data are presented as profiles down the hole. Due to the wide variation in amplitudes from earliest channels to late time channels, the data are presented as groupings of 5 channels (1-5, 6-10, etc.). Each group is plotted with different linear amplitude scales.

DISCUSSION OF RESULTS

Hole BP-1-92

The results from each of collar, north, south, east and west transmitter loops are presented in Sections G-1 to G-5 respectively.

A broad off-hole response is best defined on the collar and north loop data and appears centred at 400m to 410m down-hole. The inferred source is poorly conductive and located approximately 100 to 120 metres above and slightly grid north of the hole. The response is most likely due to near-surface sulphides defined in shallow drilling by previous workers.

Hole BP-2-92 and BP-2-92 Extensions

Five loops were originally surveyed from this hole: collar, north, south, east and west. The resulting data are presented in Sections G-6 to G-10 respectively. Two anomalous responses were defined at 295m - 305m and 440m to 460m down-hole. The former appears as an edge-type response and corresponds to an intersection of 3m of massive/semi-massive pyrite. The east and west loop data suggest that the hole intersected the lower edge of a sulphide body.

The second anomalous response, at 440m - 460m is a broad possible off-hole response noted on the west loop data at late times (channels 11 and greater). To confirm the response, two additional transmitter loops were established grid north and south of the west loop and the data are presented in Sections G-11 and G-12. The results from these loops only confirmed the possible presence of a small, poorly conductive source at 450m to 460m down-hole.

Hole BP-2-92 was subsequently deepened to a maximum depth of 655m. The interval from 430m to 655m was surveyed from collar, north, south, east and west loops and the resulting data are presented in Sections G-13 to G-17 respectively.

One anomalous off-hole response was defined with the strongest response noted on the collar, south and west loops. The source of this response is inferred to be very conductive and located approximately 100 metres above and south of the hole. It is possible that the source may be the base of the Cabin Zone.

<u>Hole BP-3-92</u>

Collar and north loops were surveyed for this hole and the resulting data are presented in Sections G-18 and G-19 respectively.

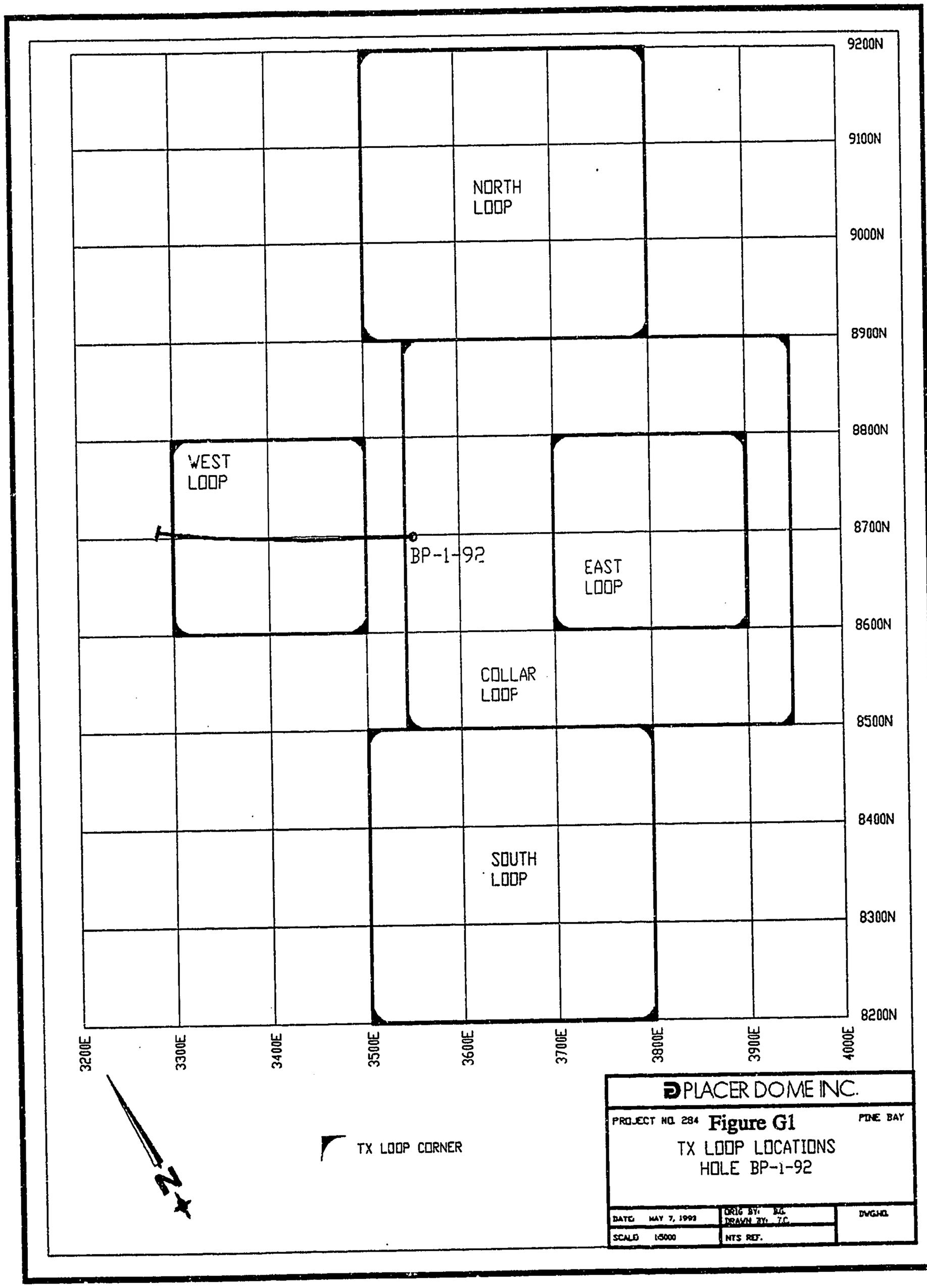
No significant responses were recorded from either loop.

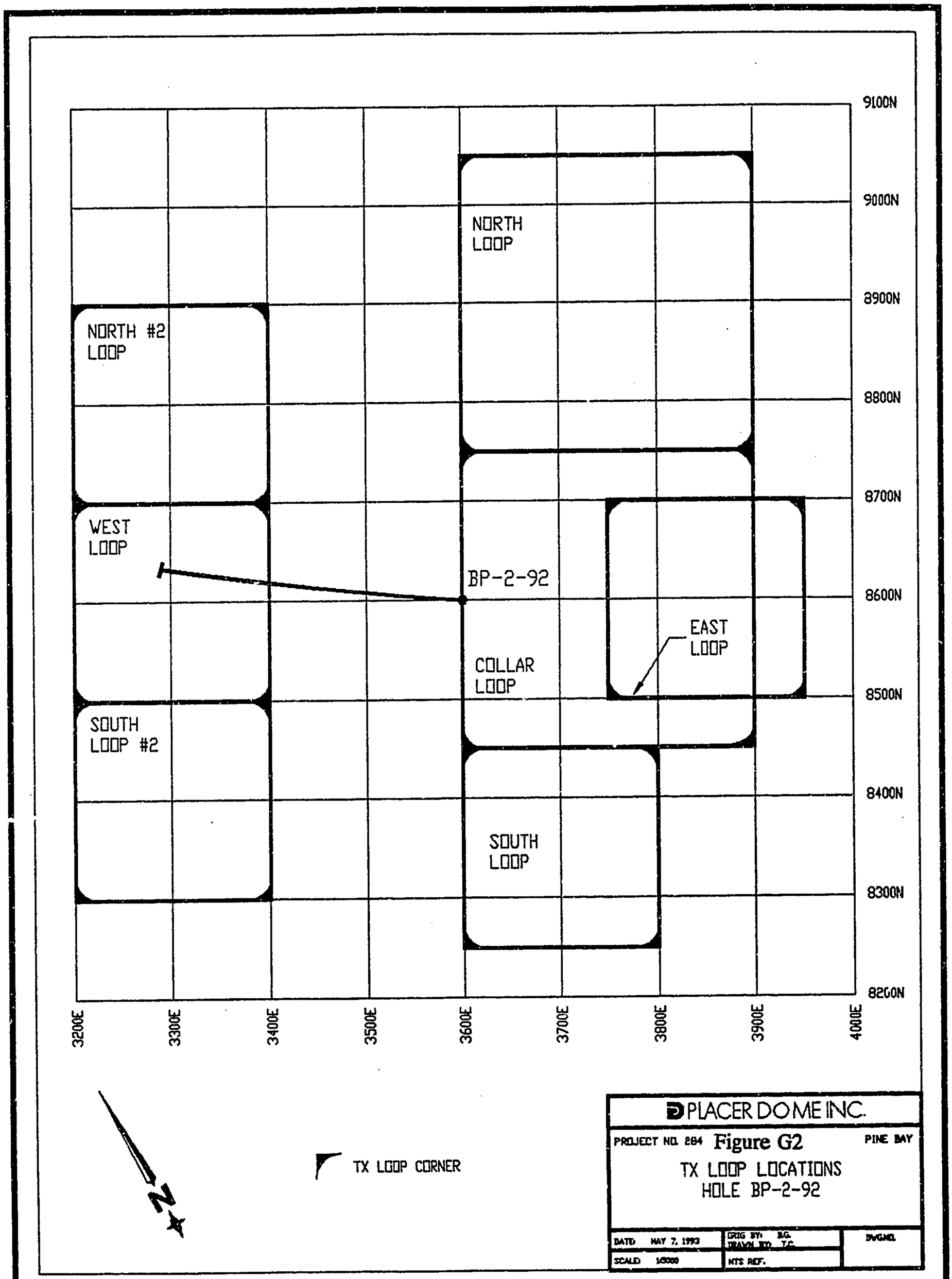
<u>Hole BP-4-92</u>

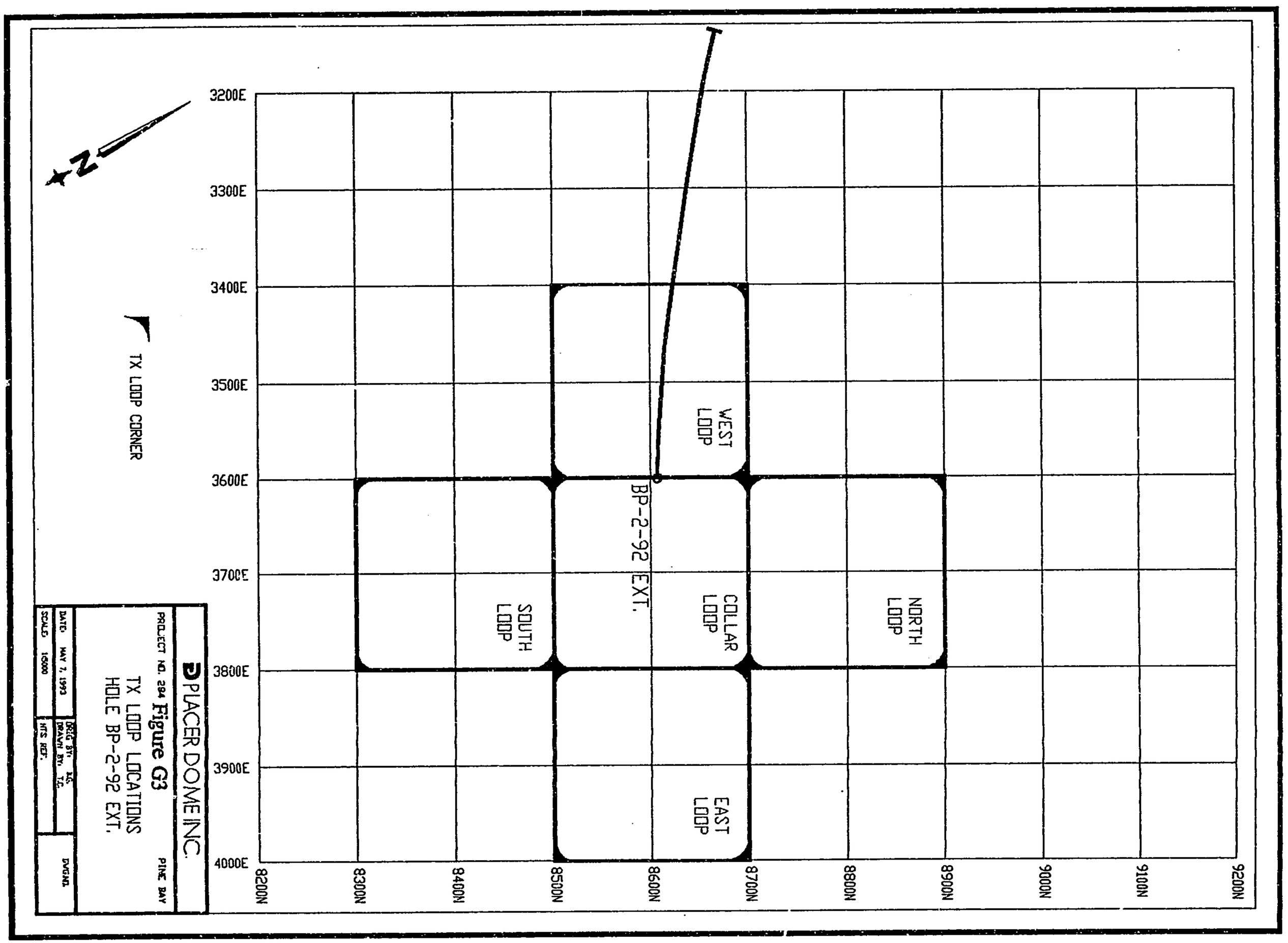
Collar, north, south, east and west loops were surveyed and the data are presented in Sections G-20 to G-24 respectively.

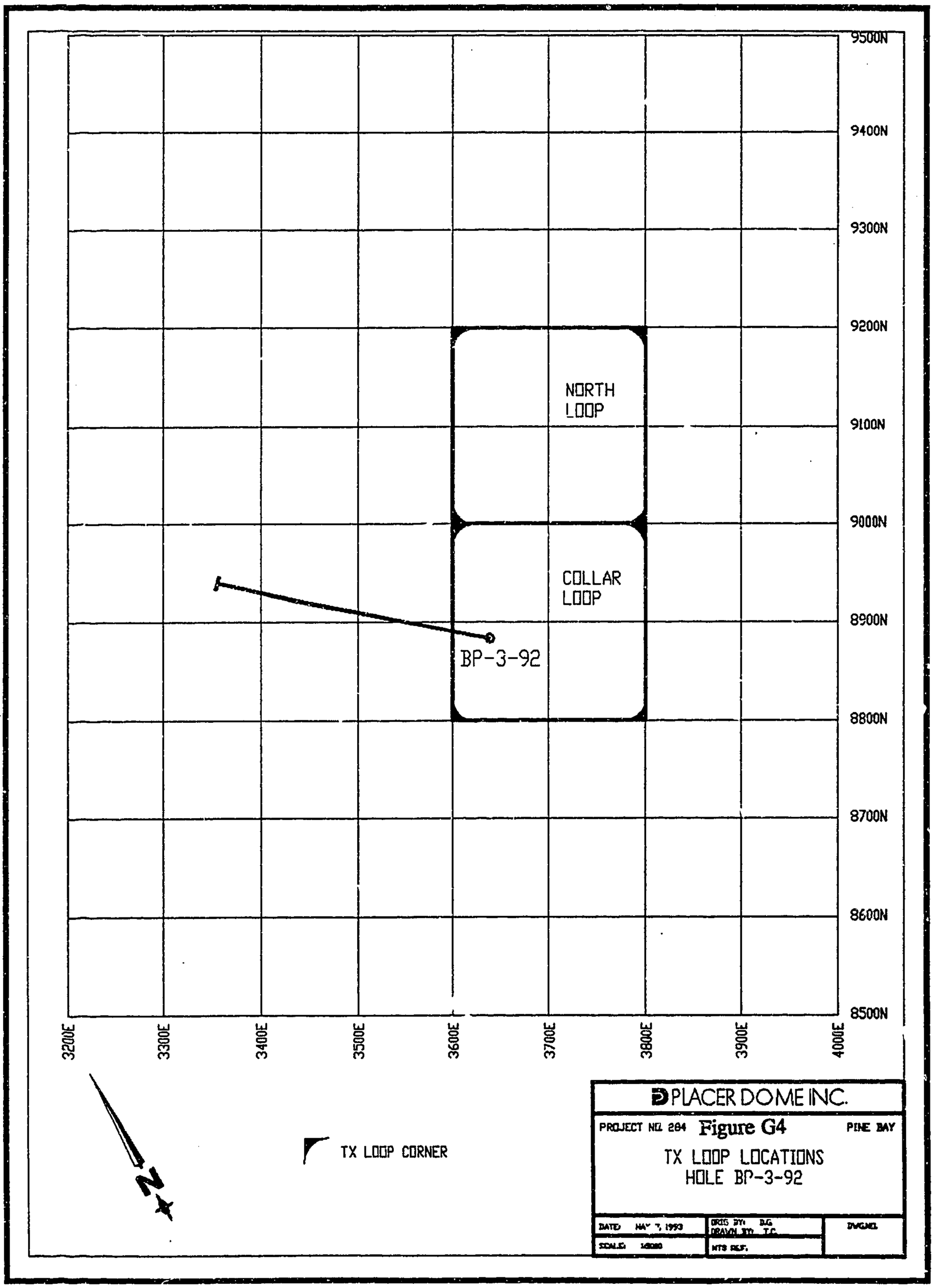
A narrow sulphide zone was intersected in the hole at depth of 545m. This intersection is apparent in the E.M. data as a sharp, short wavelength response that suggests a conductive but very small source. No off-hole sources of conductivity were defined by the surveys.

Brian Groves,
Senior Geophysicist.


9200N
9100N
NORTH
LOOP
9000N
8900N
8800N
WEST
LOOP
8700N
BP-1-92
EAST
LOOP
8600N
COLLAR
LOOP
8500N
8400N
SOUTH
LOOP
8300N
8200N
3200E
3300E
3400E
3500E
3600E
3700E
3800E
3900E
4000E
N
TX LOOP CORNER
PLACER DOME INC.
PROJECT NO. 284
Figure G1
PINE BAY
TX LOOP LOCATIONS
HOLE BP-1-92
DATE: MAY 7, 1992
DRIG BY: B.G.
DRAWN BY: J.C.
DWG.NO.
SCALE: 1:5000
NTS REF.


9100N
9000N
8900N
8800N
8700N
8600N
8500N
8400N
8300N
8200N
3200E
3300E
3400E
3500E
3600E
3700E
3800E
3900E
4000E
NORTH LOOP
NORTH #2 LOOP
WEST LOOP
BP-2-92
EAST LOOP
COLLAR LOOP
SOUTH LOOP #2
SOUTH LOOP
N
TX LOOP CORNER
PLACER DOME INC.
PROJECT NO. 284
Figure G2
PINE BAY
TX LOOP LOCATIONS
HOLE BP-2-92
DATE MAY 7, 1993
DRAWN BY: J.C.
SCALE 1:5000
NTS REF.
DWG NO.


N
TX LOOP CORNER
3200E
3300E
3400E
3500E
3600E
3700E
3800E
3900E
4000E
8200N
8300N
8400N
8500N
8600N
8700N
8800N
8900N
9000N
9100N
9200N
WEST LOOP
BP-2-92 EXT.
NORTH LOOP
COLLAR LOOP
SOUTH LOOP
EAST LOOP
PLACER DOME INC.
PINE BAY
PROJECT NO. 284 Figure G3
TX LOOP LOCATIONS
HOLE BP-2-92 EXT.
DATE: MAY 7, 1993
SCALE: 1:5000
DRAWN BY: T.G.
CHKD BY: T.G.
NTS REF.
DWGNO.


9500N
9400N
9300N
9200N
9100N
9000N
8900N
8800N
8700N
8600N
8500N
3200E
3300E
3400E
3500E
3600E
3700E
3800E
3900E
4000E
NORTH
LOOP
COLLAR
LOOP
BP-3-92
N
TX LOOP CORNER
PLACER DOME INC.
PROJECT NO. 284
Figure G4
PINE BAY
TX LOOP LOCATIONS
HOLE BP-3-92
DATE: MAY 7, 1993
DRIS BY: D.G.
DRAWN BY: T.C.
DWGNO.
SCALE: 1:5000
NTS REF.

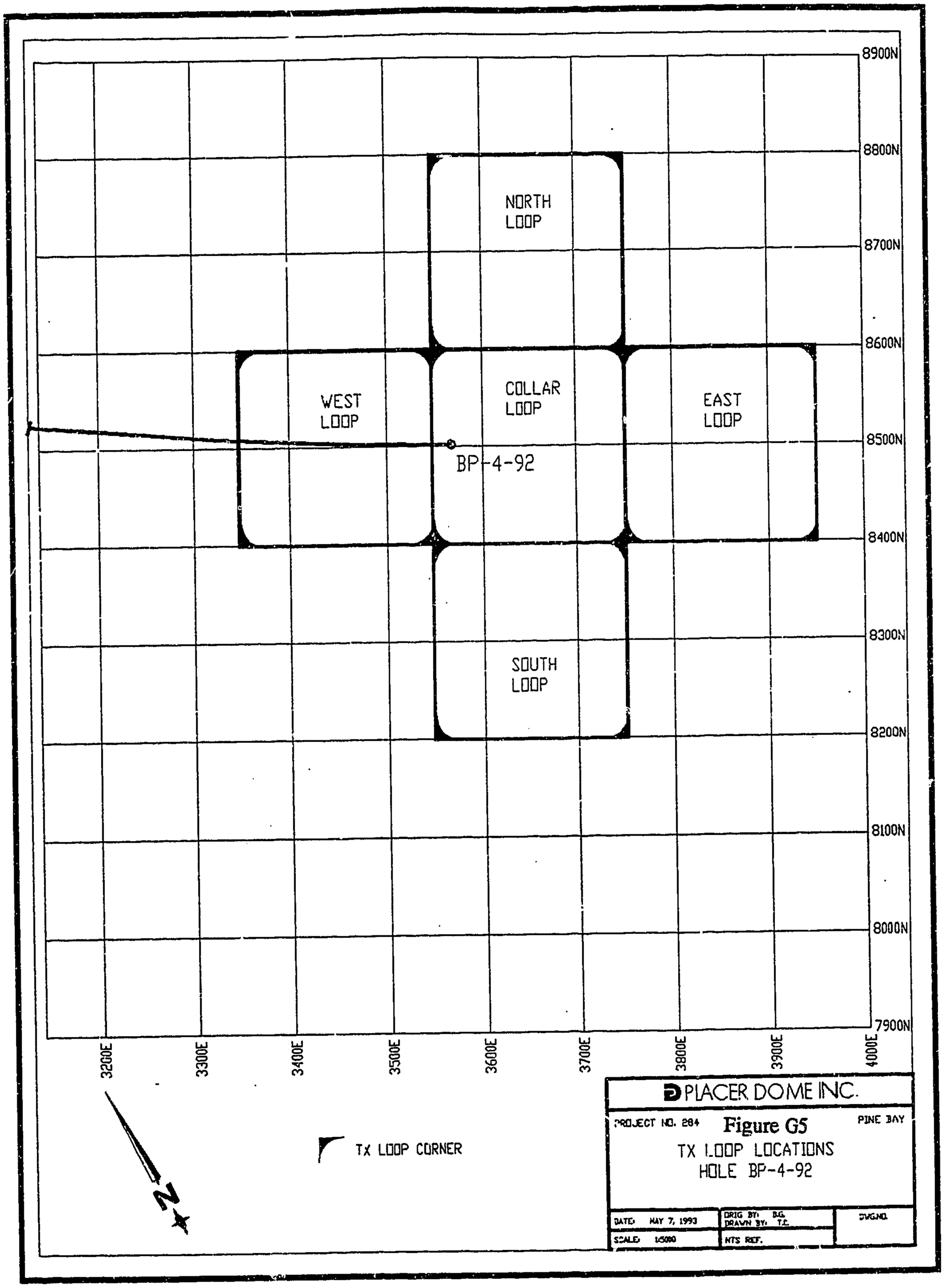

8900N
8800N
8700N
8600N
8500N
8400N
8300N
8200N
8100N
8000N
7900N
NORTH LOOP
WEST LOOP
COLLAR LOOP
EAST LOOP
SOUTH LOOP
BP-4-92
3200E
3300E
3400E
3500E
3600E
3700E
3800E
3900E
4000E
TX LOOP CORNER
PLACER DOME INC.
PROJECT NO. 284
Figure G5
PINE BAY
TX LOOP LOCATIONS
HOLE BP-4-92
DATE: MAY 7, 1993
DRIG BY: B.G.
DRAWN BY: T.C.
DWG NO.
SCALE: 1:5000
NTS REF.

TABLE 1

GEONICS LIMITED

EM-37 Ground Transient Electromagnetic System
Technical Specifications

Transmitter

Current Waveform	-	bipolar square wave.
Repetition rate	-	3Hz, 7.5Hz or 30Hz in countries using 60Hz power line frequency; 2.5Hz, 6.25Hz or 25Hz in countries using 50Hz power line frequency; all six base frequencies are switch selectable.
Turn-off time(t)	-	fast linear turn-off maximum of 450 usec. at 30 amps into a 300x600 meter loop. Decreases proportionally with current and the root of the loop area to a maximum of 20 usec. Actual value of t read on front panel meter.
Transmitter loop	-	any dimensions from 40x40 meters to 300x600 meters maximum at 30 amps. Larger dimensions at reduced current. Transmitter output voltage switch adjustable for smaller loops. Value of loop resistance read from front panel meter; resistance must be greater than 1 ohm on lowest setting to prevent overload.
Protection	-	circuit breaker protection against input overvoltage; instantaneous solid state protection against output short circuit; automatically resets on removal of short circuit. Input voltage output voltage and current indicated on front panel meter.
Output voltage	-	150 volts (zero to peak) maximum
Output power	-	2.8 Kw maximum
Motor generator	-	5 HP Honda gasoline engine coupled to a 120 volt, 3 phase, 400Hz alternator. Approximately 8 hours continuous operation from built-in fuel tank.

TABLE 2

Receiver

Sensor	-	air-cored coil of bandwidth 40 kHz; 100cm dia. by 7x5cm cross-section. Coil holder supplied to facilitate measurement along 3 axes.
Time channels	-	20 time channels. Successive operation at 30 Hz, then 3Hz, effectively gives 30 channels covering range from 80 usec. to 80 msec.
Output display	-	4 digit plus sign LED display display also shows channel number and gain.
Integration time	-	2^n cycles at 30Hz; n=4,6,8,10,12,14 (switch selectable); similar integration times at other base frequencies.
Output noise referred to input	-	typically 1.5x10^-10 volt/m^2 at last gate at 30Hz with integration time of 34 seconds. Noise will be higher during intense local spheric activity.
Synchronization	-	any one of the following (switch selectable) (1) reference cable (2) primary pulse (3) 27 MHz radio link (40 channels) (4) high stability (oven controlled) quartz crystals.
Noise rejection	-	Selective clipping of atmospheric noise pulses at all times. Audio output of Rx coil (transmitter pulse blanked out) is available on built-in loud speaker for ready identification of interference.
Batteries	-	12 volt rechargable Gel-cel; 9 hours continuous operating time at 17 degrees Celsius. Two batteries and a battery charger supplied to permit charging of a second battery from transmitter motor-generator during survey.

TABLE 3

GEONICS LIMITED

BH-43 Borehole Probe
Technical Specifications

Borehole Probe		
Measured Quantity	–	Time derivative of axial magnetic field
Length	–	212 cm
Diameter	–	2.9 cm
Bandwidth	–	26 kHz
Sensor Area	–	64 m^2
Preamplifier Gain	–	50
Operating Temperature	–	-30 degrees C to +80 degrees C
Battery	–	Rechargable NiCd sealed pack for 30 hours continuous duty
Cable		
Type	–	Two-conductor shielded, polyurethane jacket, Kelvar strength membrane
Diameter	–	5.6 mm
Weight	–	40 kg/km

STATEMENT OF QUALIFICATIONS

I, Brian John Groves, residing at 672 Dieppe Street, Timmins, Ontario, hereby certify that:

i) I am a graduate of the University of Sydney, Sydney, Australia having received a B. Sc (Hons) degree in 1977.

ii) I have been engaged in exploration geophysics since 1977.

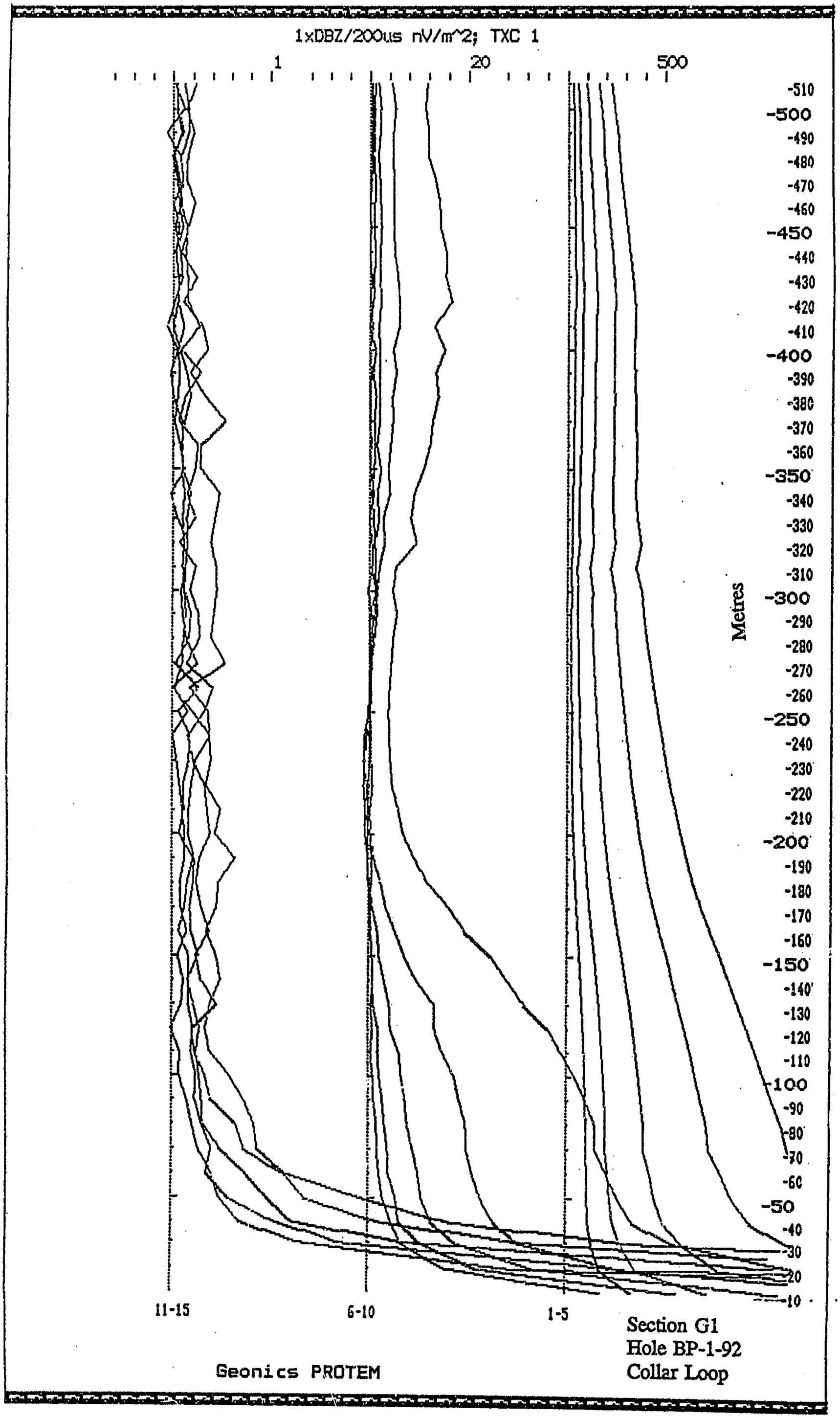
iii) I am employed by Placer Dome Inc. as Senior Geophysicist.

iv) I am a member of the Society of Exploration Geophysicists and the Australian Society of Exploration Geophysicist.

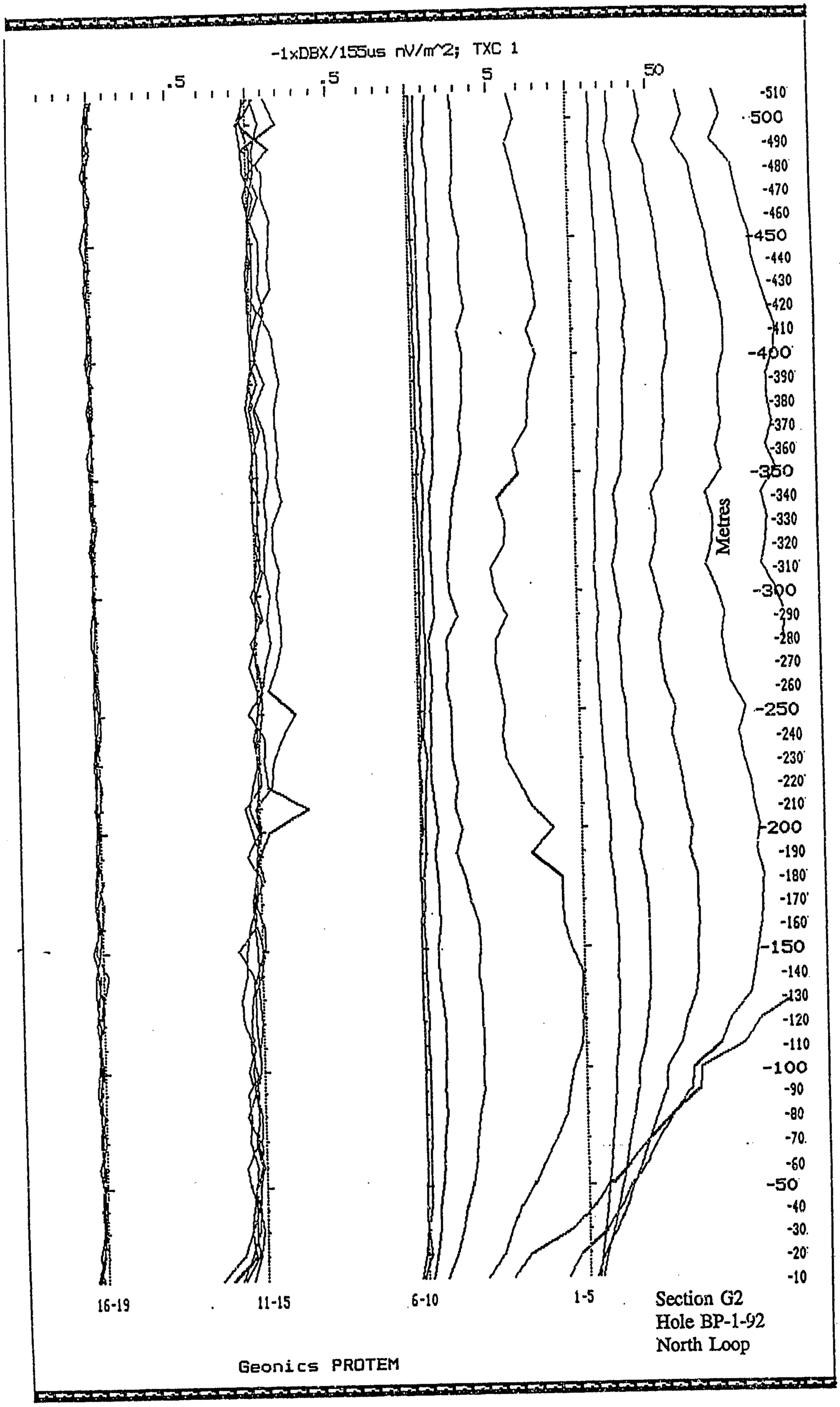
B. J. Groves

Brian Groves,
Senior Geophysicist.

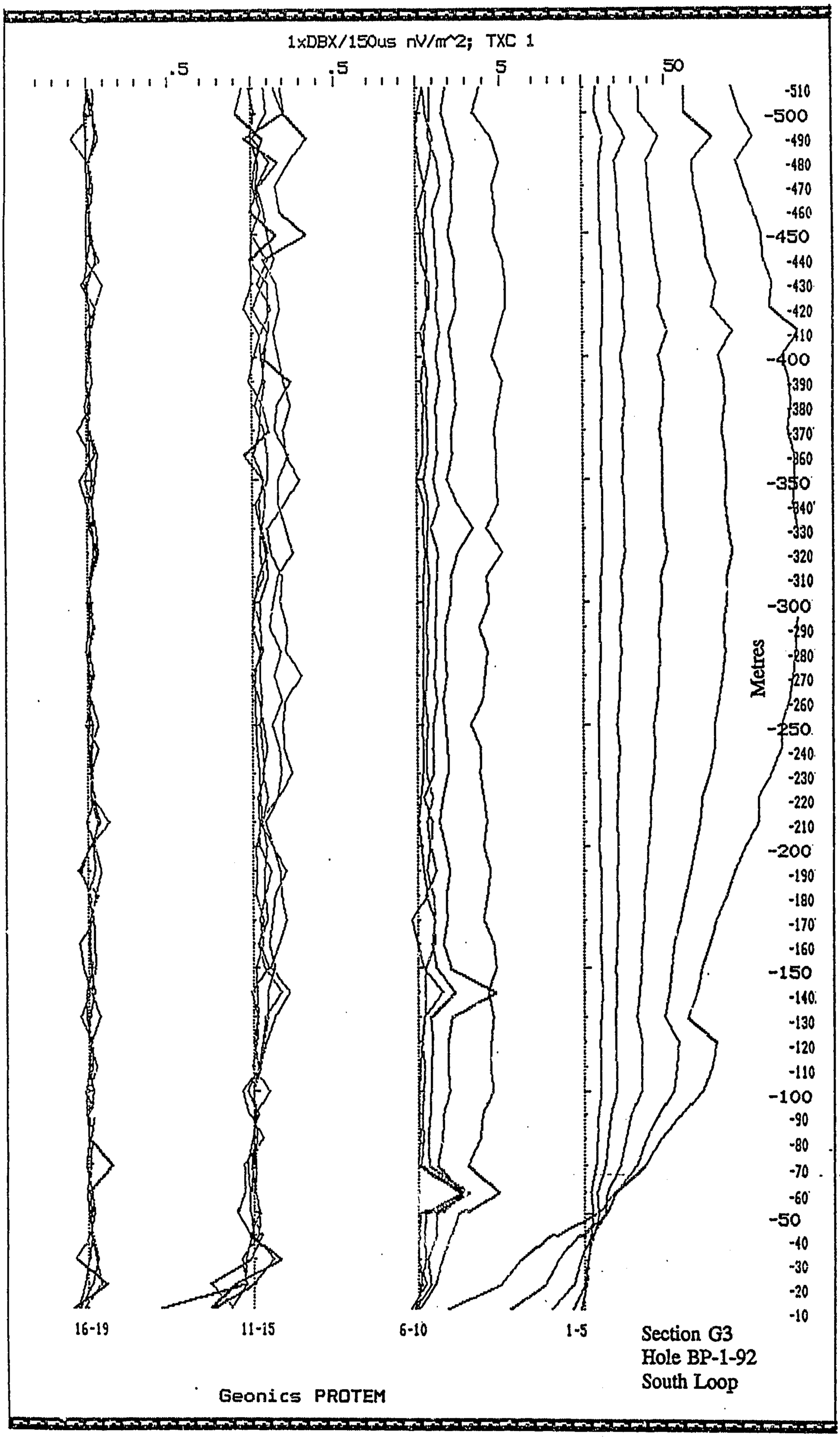
72637


1xDBZ/200us nV/m^2; TXC 1
1
20
500
-510
-500
-490
-480
-470
-460
-450
-440
-430
-420
-410
-400
-390
-380
-370
-360
-350
-340
-330
-320
-310
-300
-290
-280
-270
-260
-250
-240
-230
-220
-210
-200
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Metres
11-15
6-10
1-5
Geonics PROTEM
Section G1
Hole BP-1-92
Collar Loop

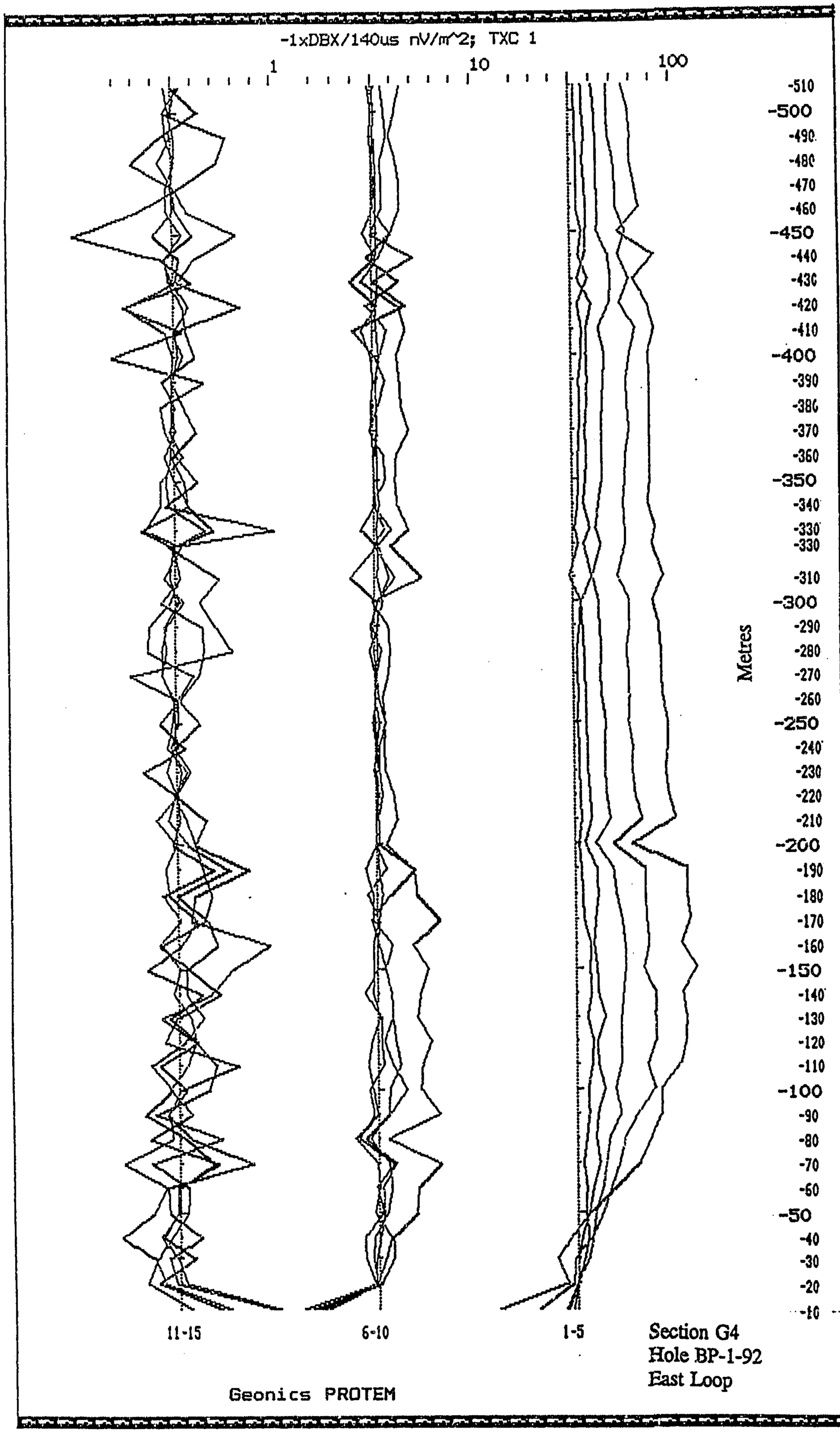
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-1xDBX/155us nV/m^2; TXC 1
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-170
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-150
-140
-130
-120
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-100
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Metres
16-19
11-15
6-10
1-5
Section G2
Hole BP-1-92
North Loop
Geonics PROTEM

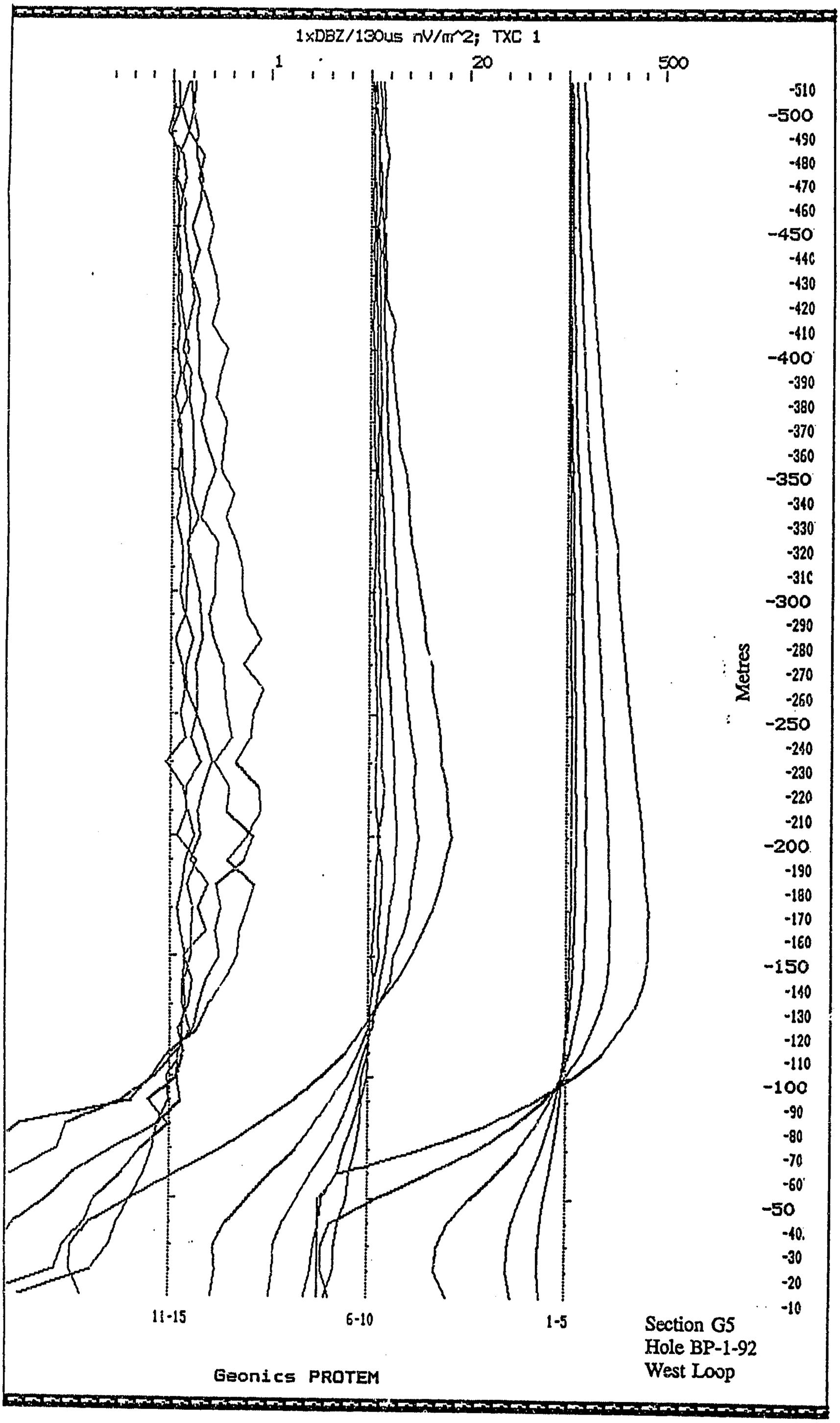
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1xDBX/150us nV/m^2; TXC 1
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5
50
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-150
-140
-130
-120
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-100
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Metres
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11-15
6-10
1-5
Section G3
Hole BP-1-92
South Loop
Geonics PROTEM

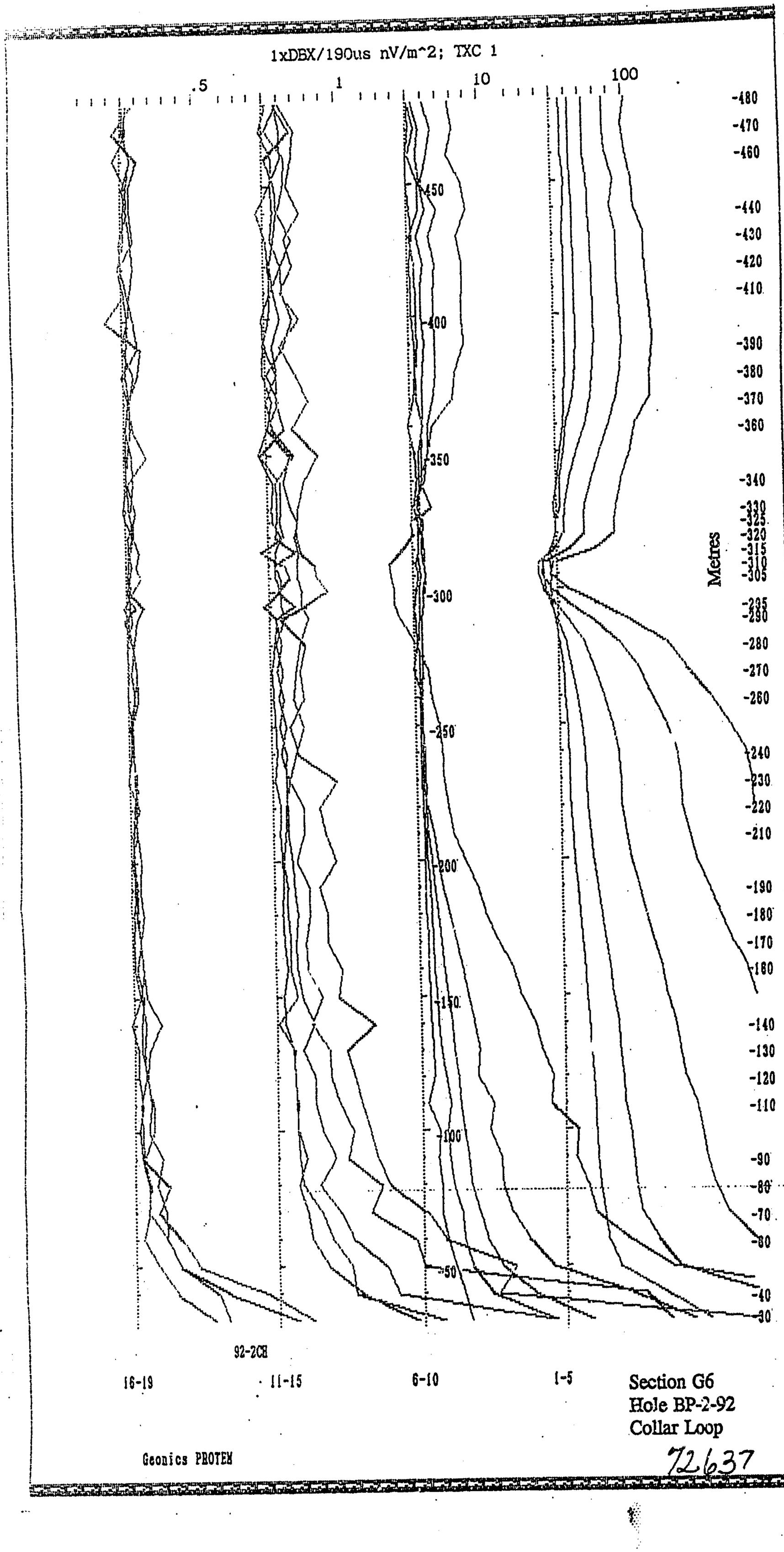
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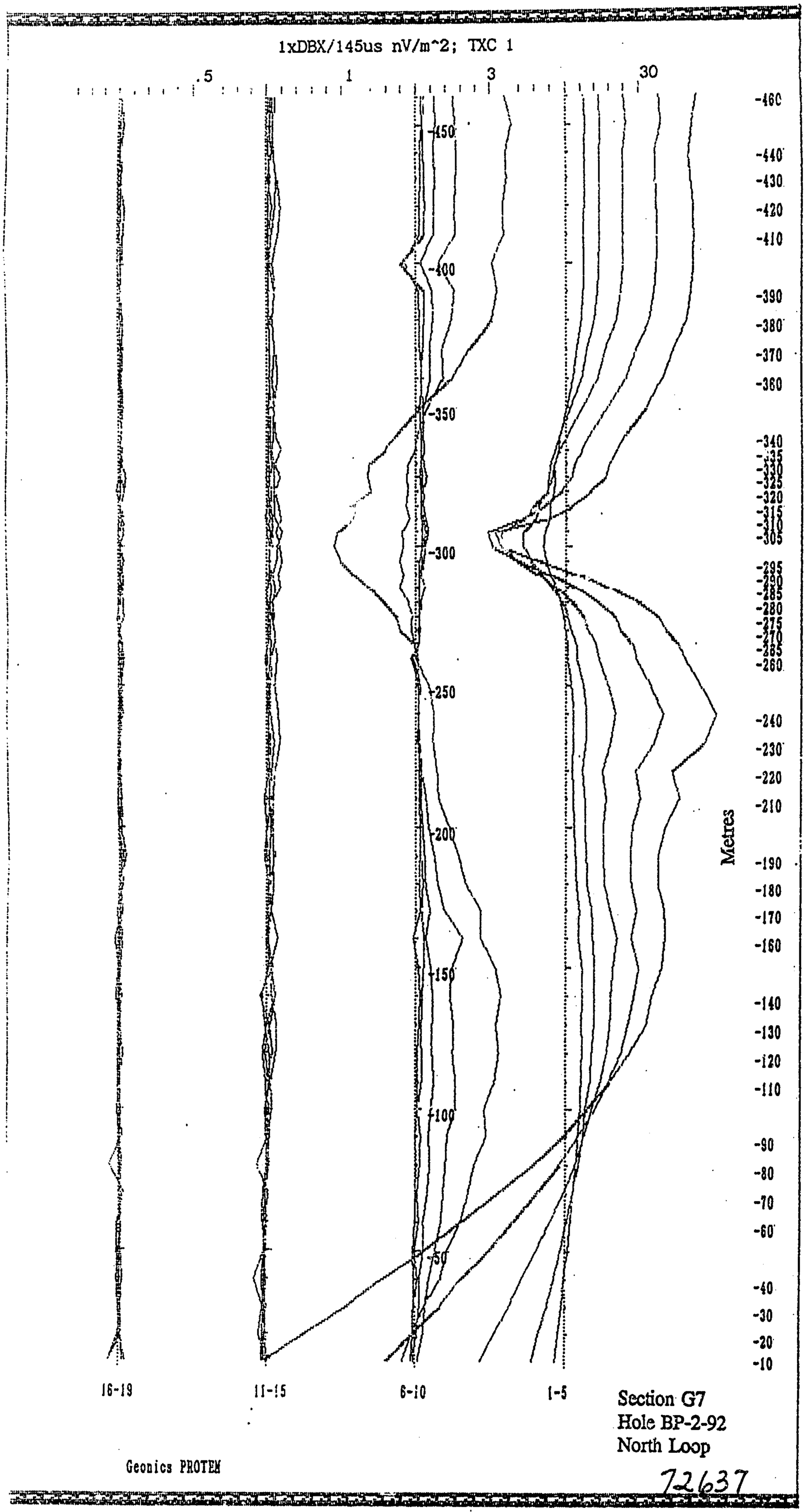

-1xDBX/140us nV/m^2; TXC 1
1
10
100
-510
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-480
-470
-460
-450
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-430
-420
-410
-400
-390
-380
-370
-360
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-70
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Metres
11-15
6-10
1-5
Section G4
Hole BP-1-92
East Loop
Geonics PROTEM

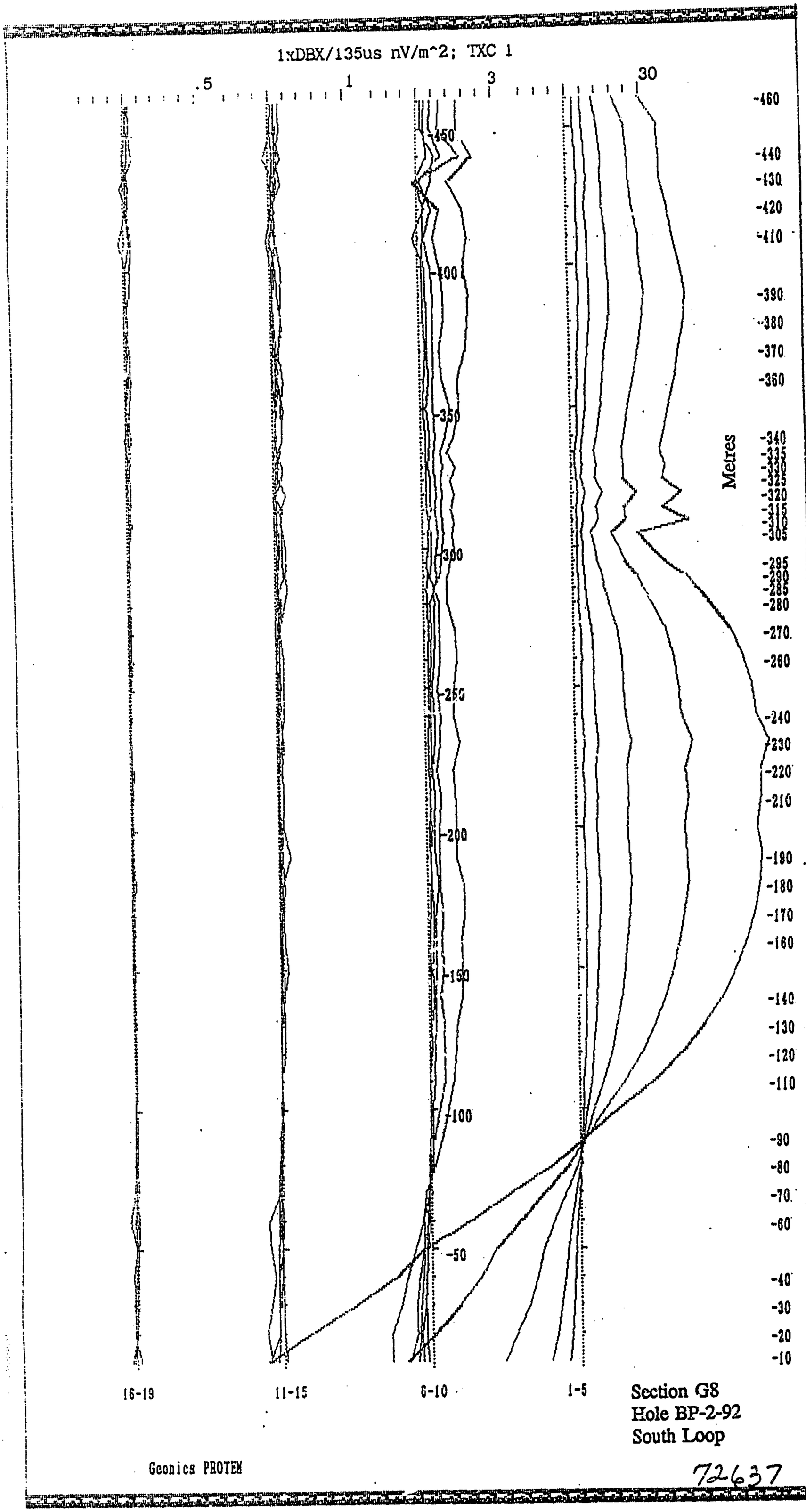
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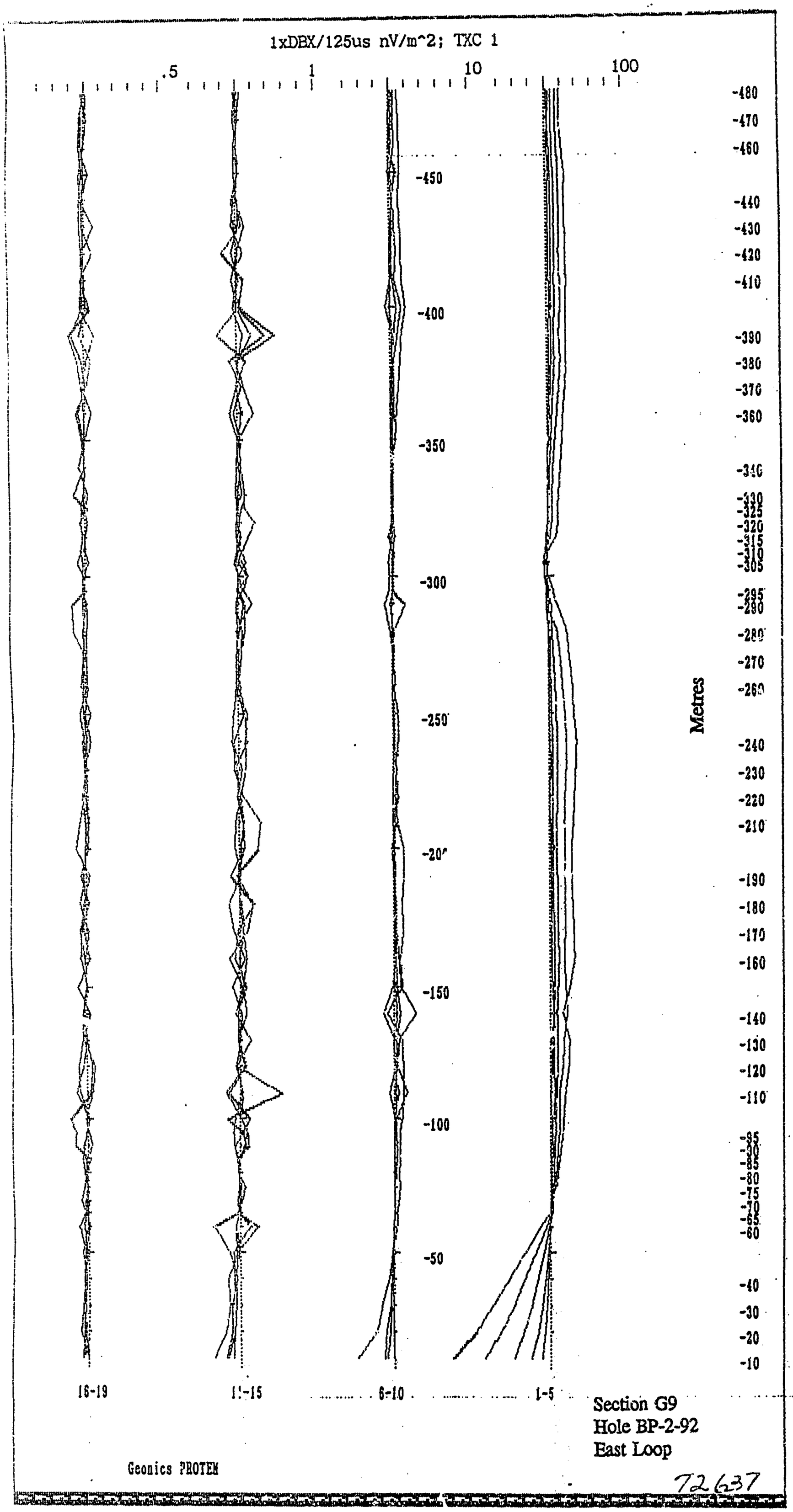

1xDBZ/130us nV/m^2; TXC 1
1
20
500
-510
-500
-490
-480
-470
-460
-450
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-430
-420
-410
-400
-390
-380
-370
-360
-350
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-160
-150
-140
-130
-120
-110
-100
-90
-80
-70
-60
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Metres
11-15
6-10
1-5
Geonics PROTEM
Section G5
Hole BP-1-92
West Loop

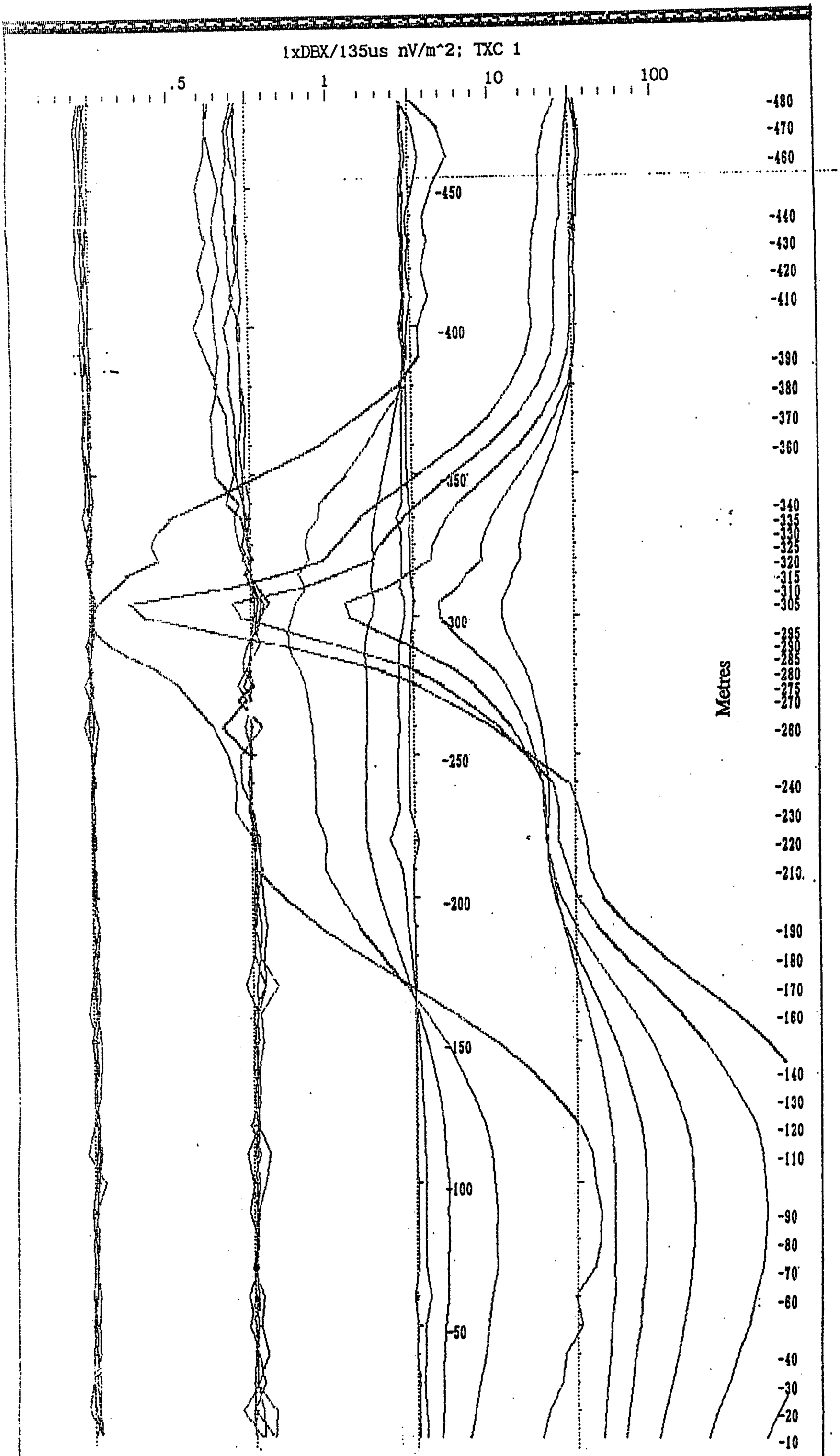
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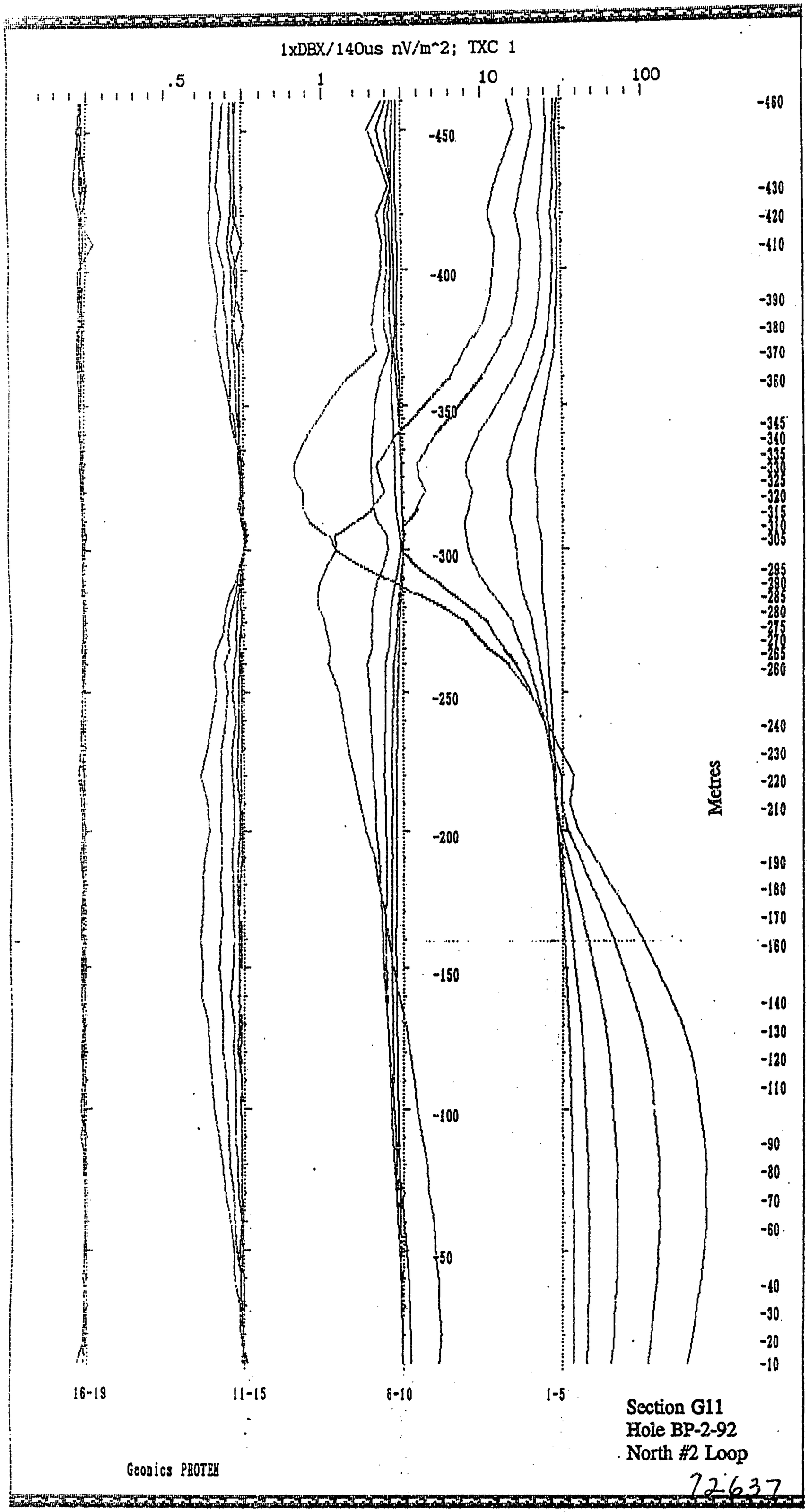

1xDBX/190us nV/m^2; TXC 1
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1
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100
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-460
-450
-440
-430
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-400
-390
-380
-370
-360
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-180
-170
-160
-150
-140
-130
-120
-110
-100
-90
-80
-70
-60
-50
-40
-30
Metres
92-2CH
16-19
11-15
6-10
1-5
Section G6
Hole BP-2-92
Collar Loop
Geonics PROTEM
72637

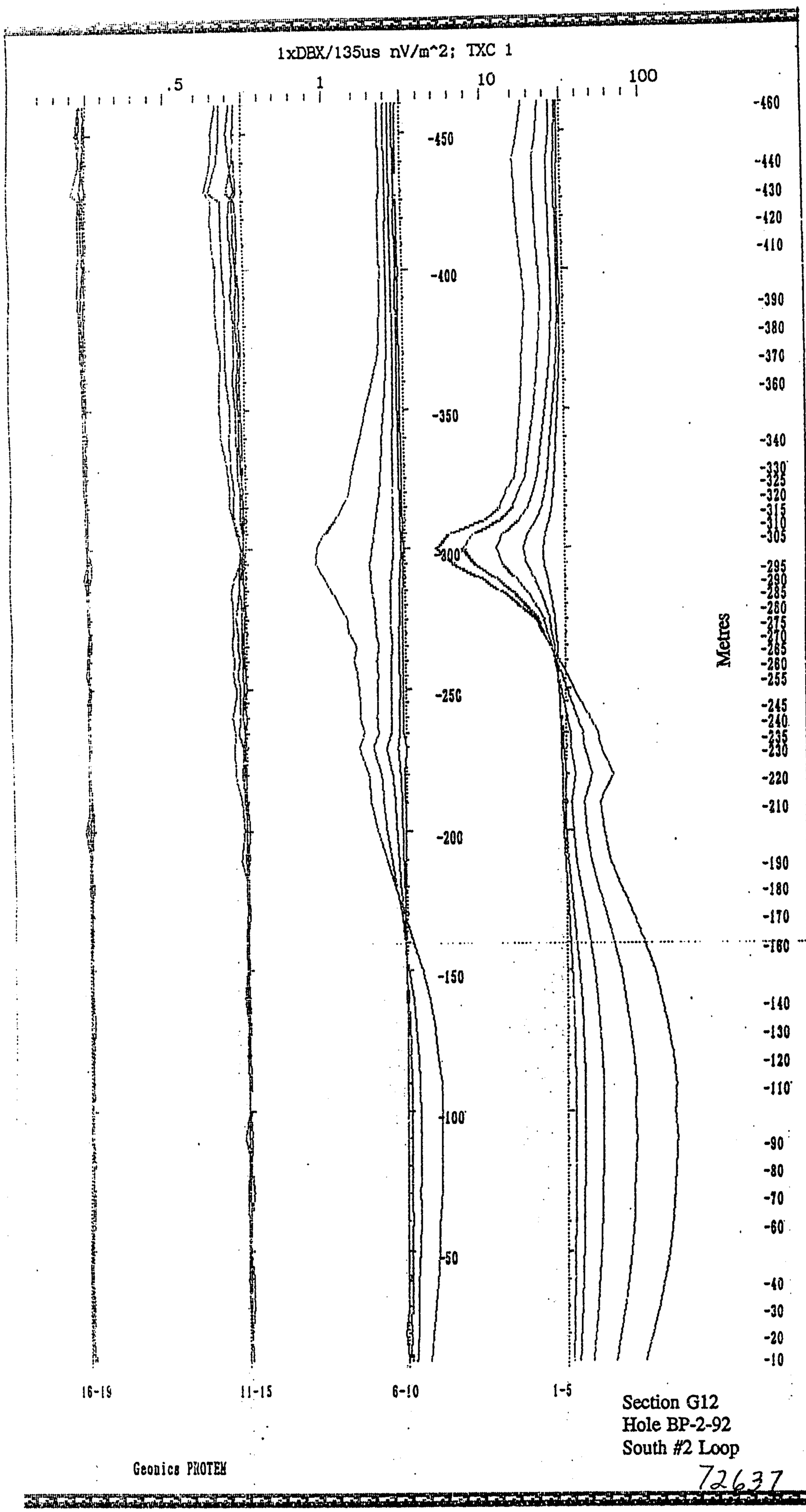

1xDBX/145us nV/m^2; TXC 1
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1
3
30
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-400
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-380
-370
-360
-350
-340
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-310
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-300
-295
-290
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-140
-130
-120
-110
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-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Section G7
Hole BP-2-92
North Loop
Geonics PROTEM
72637


1:xDBX/135us nV/m^2; TXC 1
.5
1
3
30
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-440
-430
-420
-410
-400
-390
-380
-370
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-50
-40
-30
-20
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Metres
16-19
11-15
6-10
1-5
Section G8
Hole BP-2-92
South Loop
Geonics PROTEM
72637

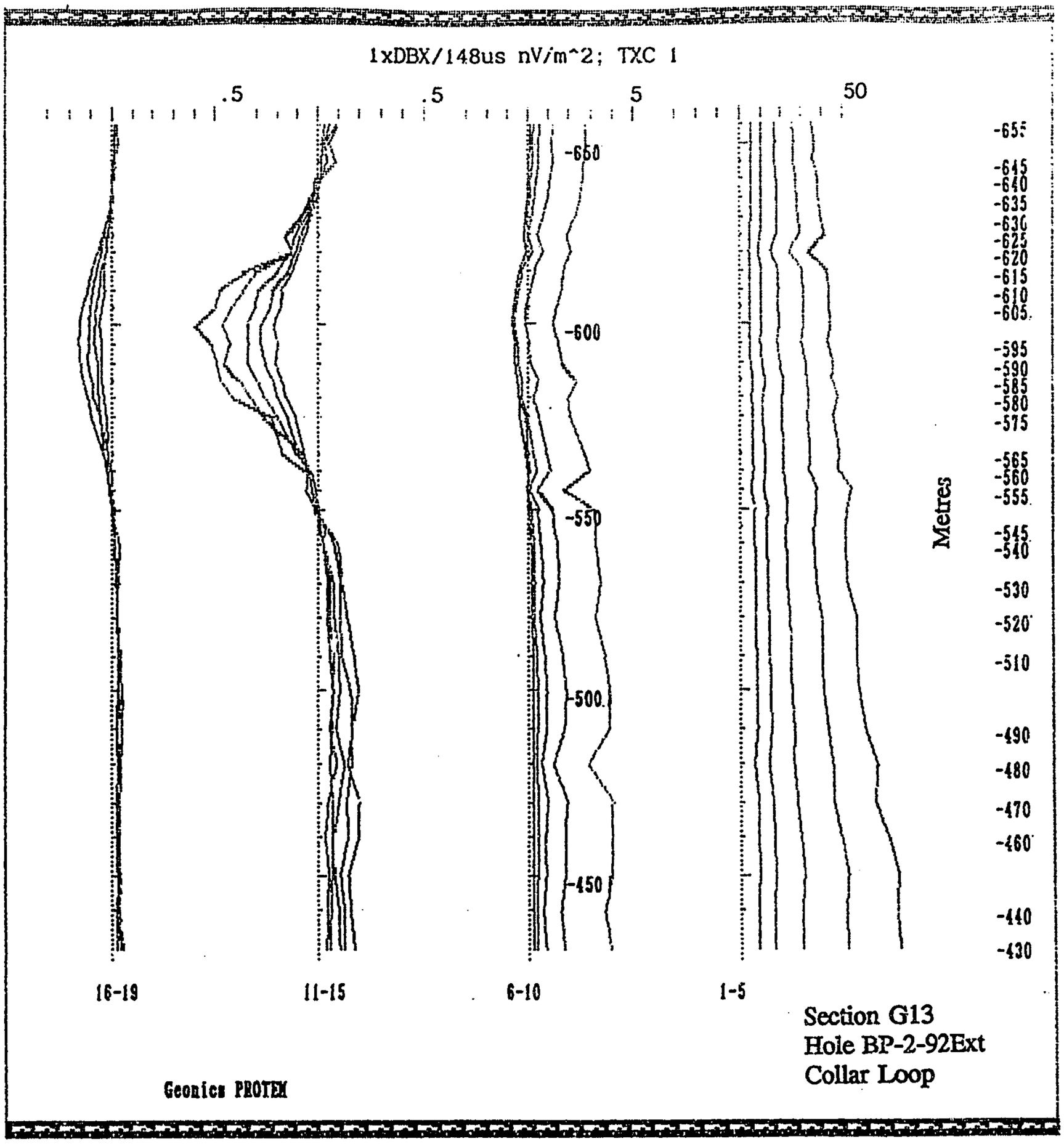

1xDBX/125us nV/m^2; TXC 1
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1
10
100
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-440
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-400
-390
-380
-370
-360
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-130
-120
-110
-100
-95
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-20
-10
Metres
16-19
11-15
6-10
1-5
Section G9
Hole BP-2-92
East Loop
Geonics PROTEM
72637


1xDBX/135us nV/m^2; TXC 1
.5
1
10
100
-480
-470
-460
-450
-440
-430
-420
-410
-400
-390
-380
-370
-360
-350
-340
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-290
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-130
-120
-110
-100
-90
-80
-70
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Metres
16-19
11-15
6-10
1-5
Section G10
Hole BP-2-92
West Loop
Geonics PROTEM
72637

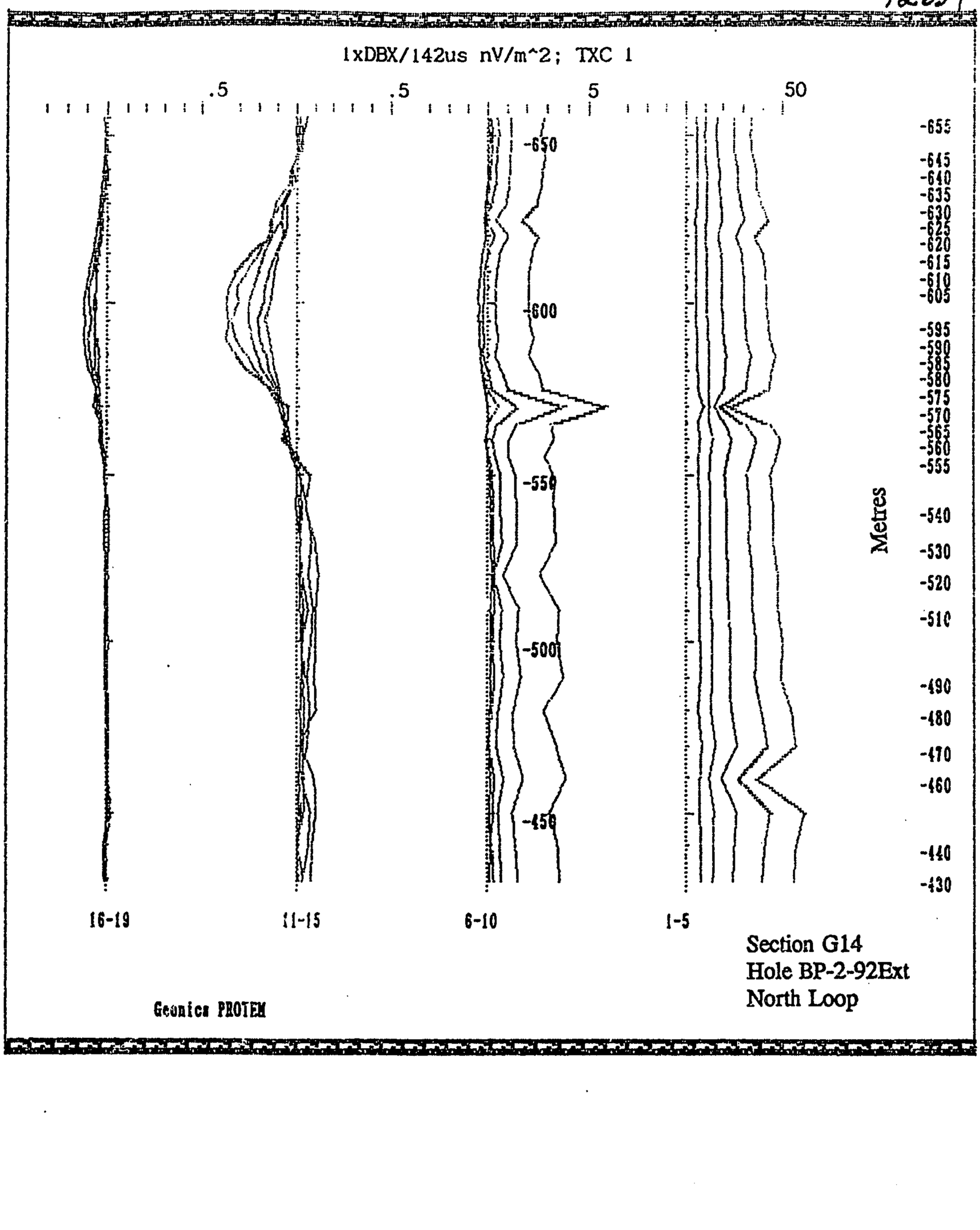

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-400
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-380
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-360
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-295
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-160
-150
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-130
-120
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Geonics PROTEM
Section G11
Hole BP-2-92
North #2 Loop
72637


1xDBX/135us nV/m^2; TXC 1
.5
1
10
100
-460
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-430
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-400
-390
-380
-370
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-50
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-20
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Metres
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11-15
6-10
1-5
Section G12
Hole BP-2-92
South #2 Loop
Geonics PROTEM
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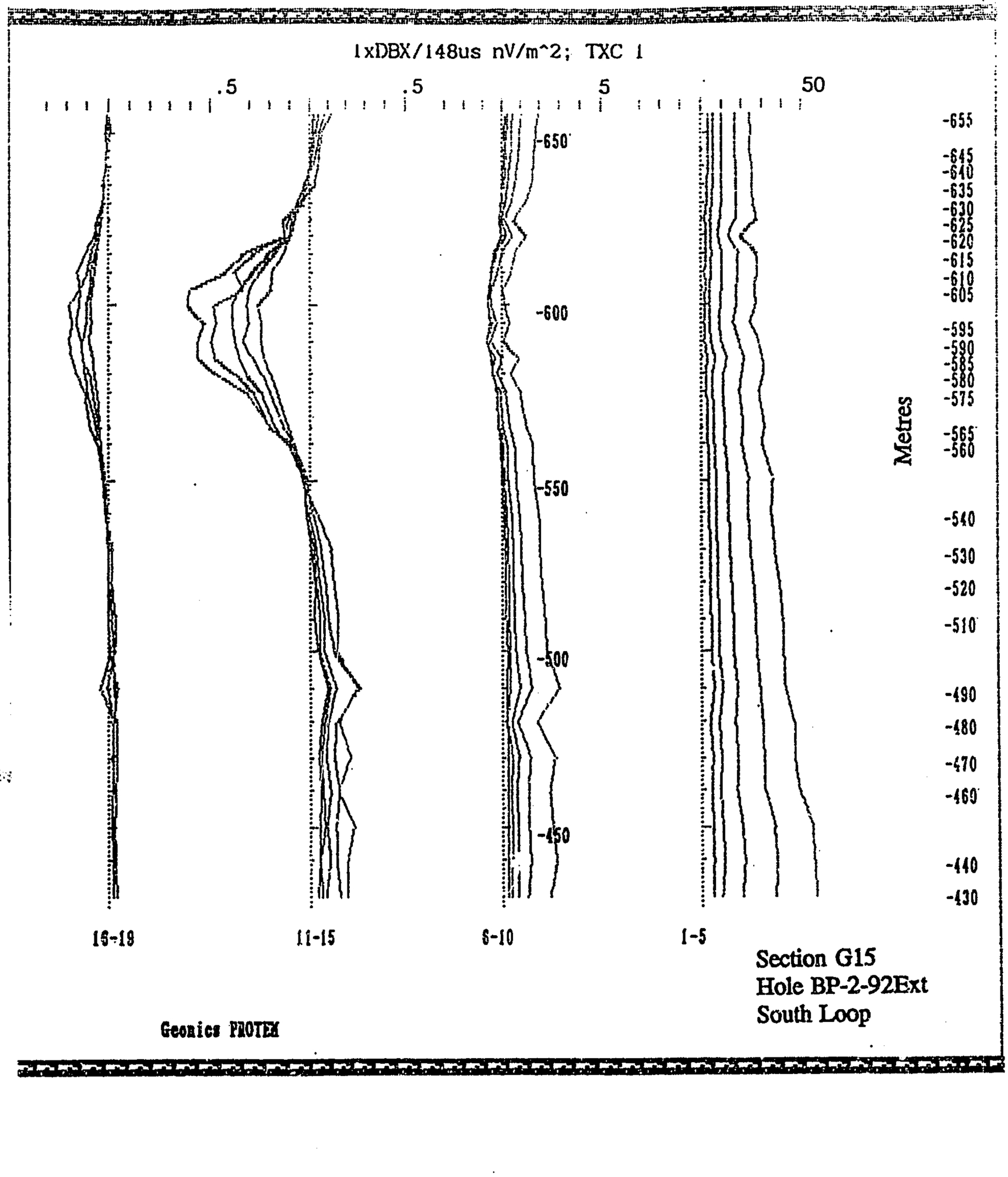
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1xDBX/148us nV/m^2; TXC 1
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-550
-500
-450
Metres
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-590
-585
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-575
-565
-560
-555
-545
-540
-530
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6-10
1-5
Section G13
Hole BP-2-92Ext
Collar Loop
Geonics PROTEM

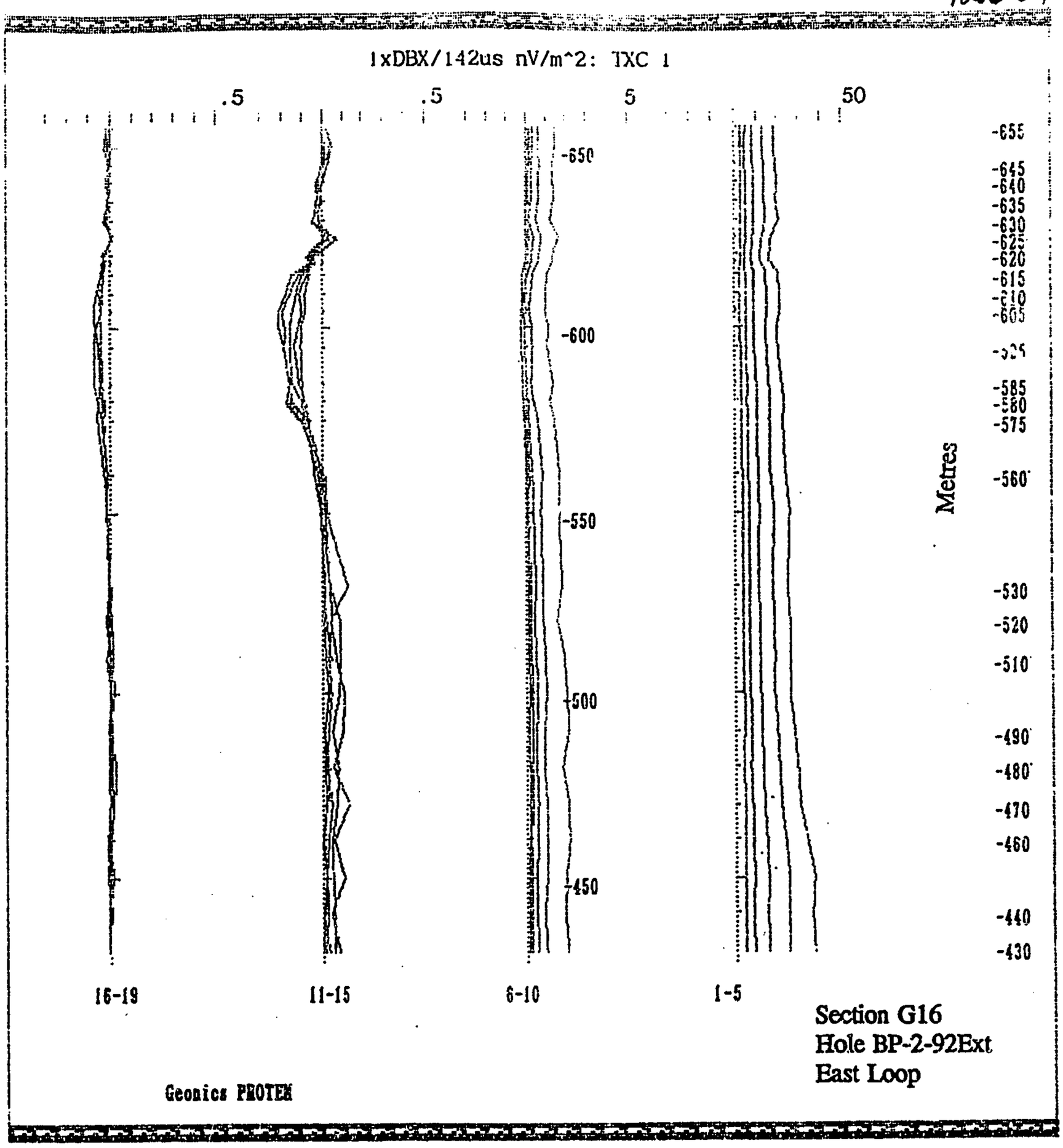
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1xDBX/142us nV/m^2; TXC 1
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-500
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-645
-640
-635
-630
-625
-620
-615
-610
-605
-595
-590
-585
-580
-575
-570
-565
-560
-555
-540
-530
-520
-510
-490
-480
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Metres
16-19
11-15
6-10
1-5
Section G14
Hole BP-2-92Ext
North Loop
Geonics PROTEM

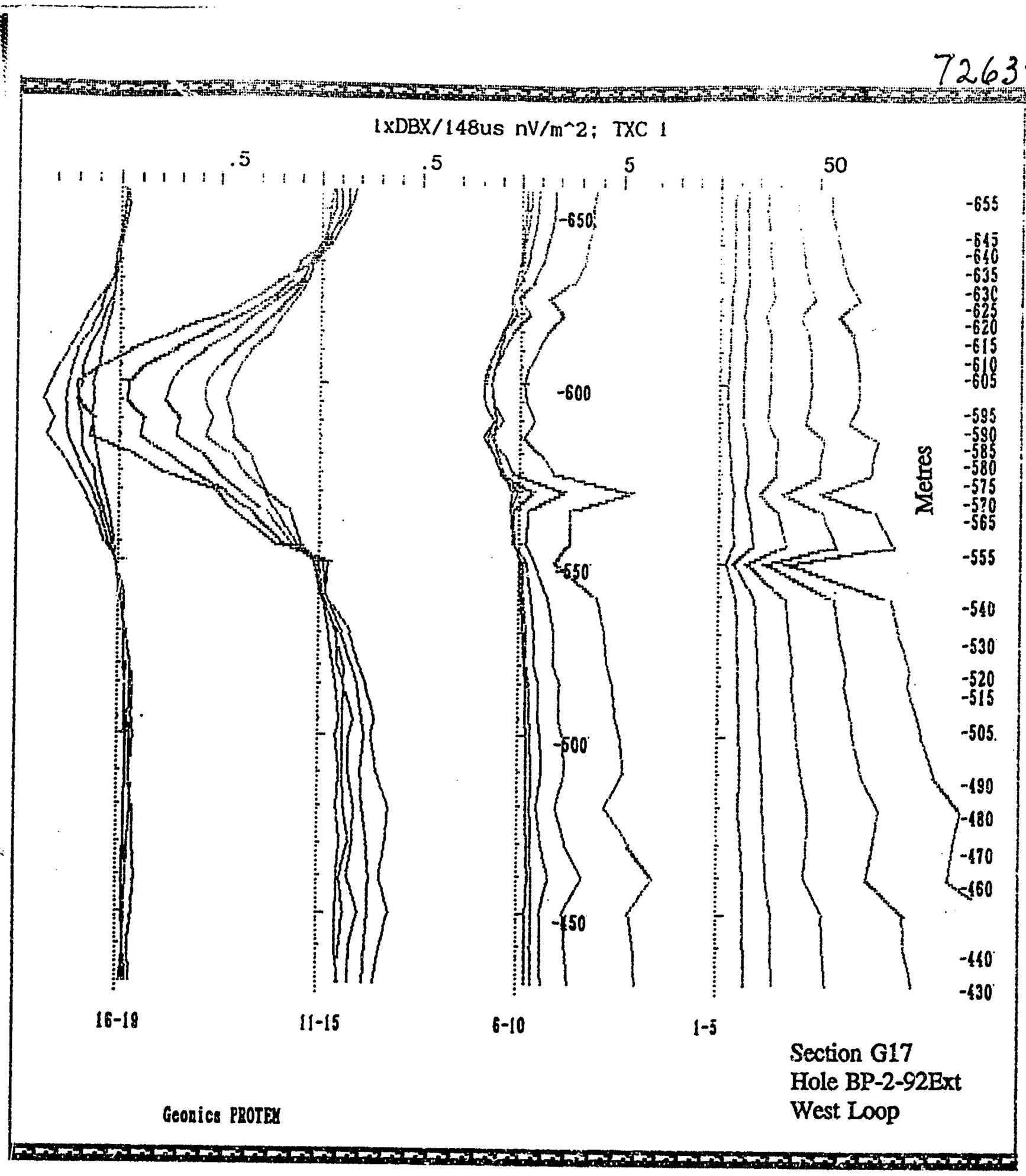
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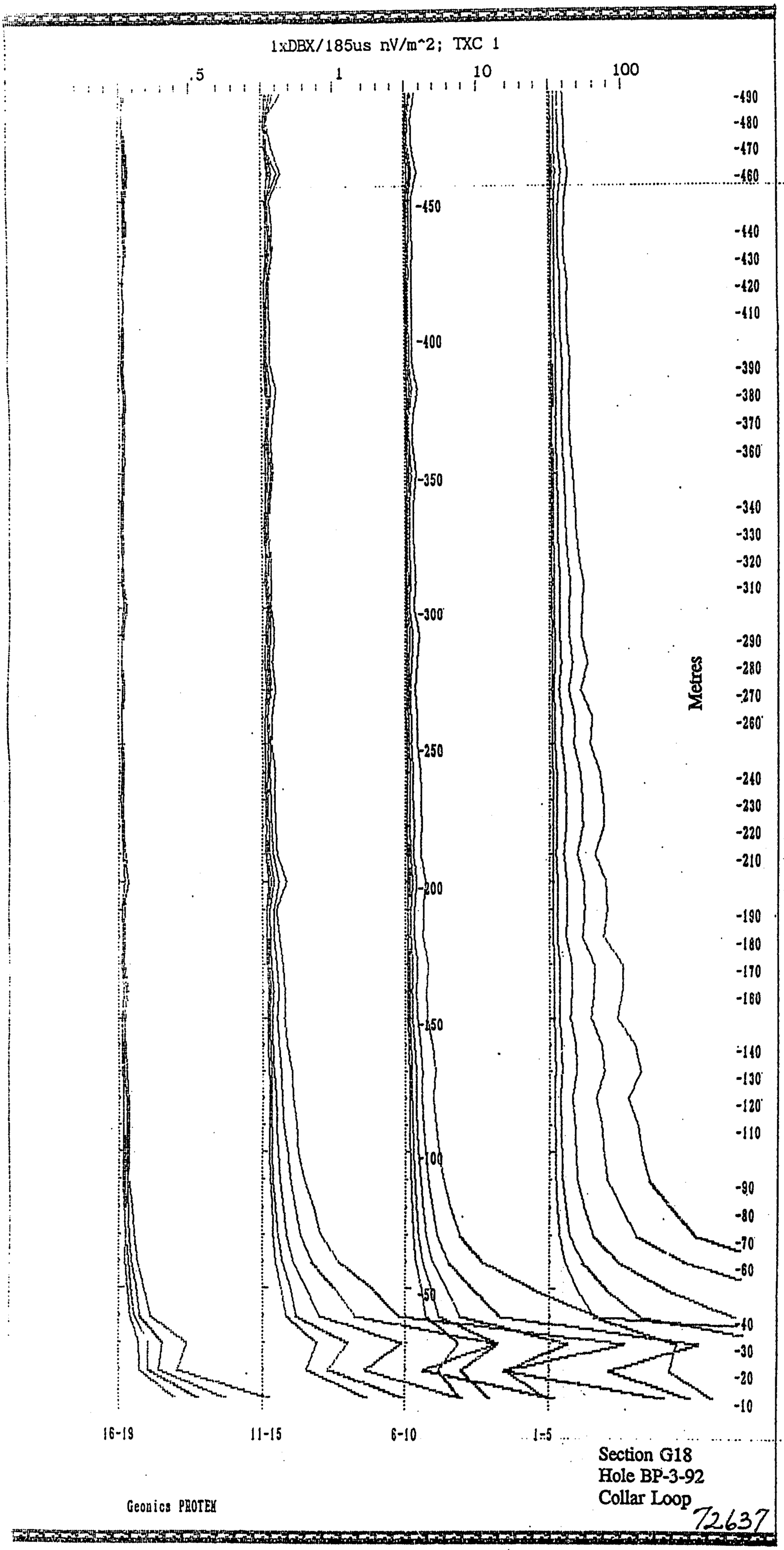

1xDBX/148us nV/m^2; TXC 1
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.5
5
50
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-640
-635
-630
-625
-620
-615
-610
-605
-600
-595
-590
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-565
-560
-550
-540
-530
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-500
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-470
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Metres
16-19
11-15
8-10
1-5
Section G15
Hole BP-2-92Ext
South Loop
Geonics PROTEM

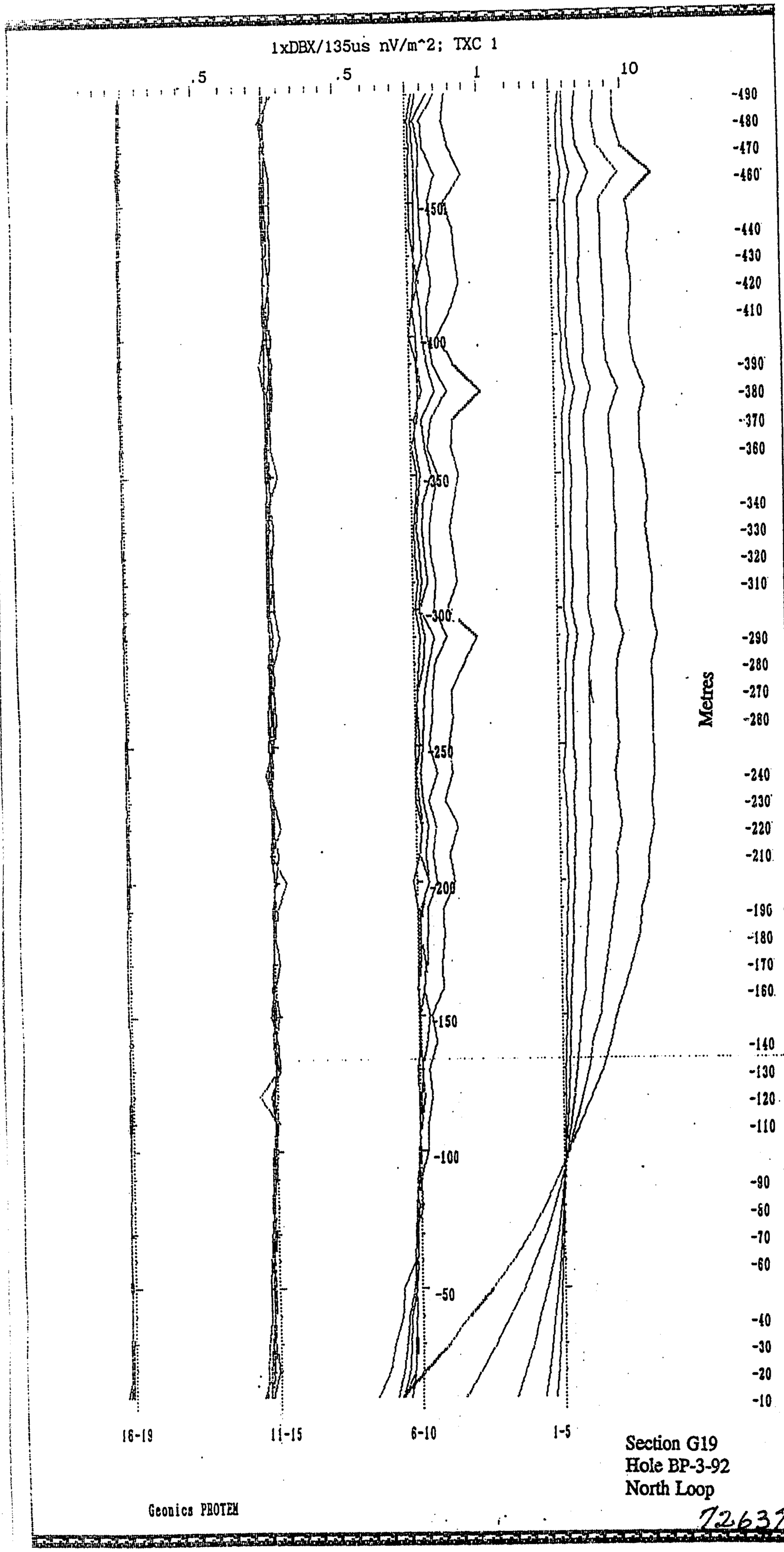
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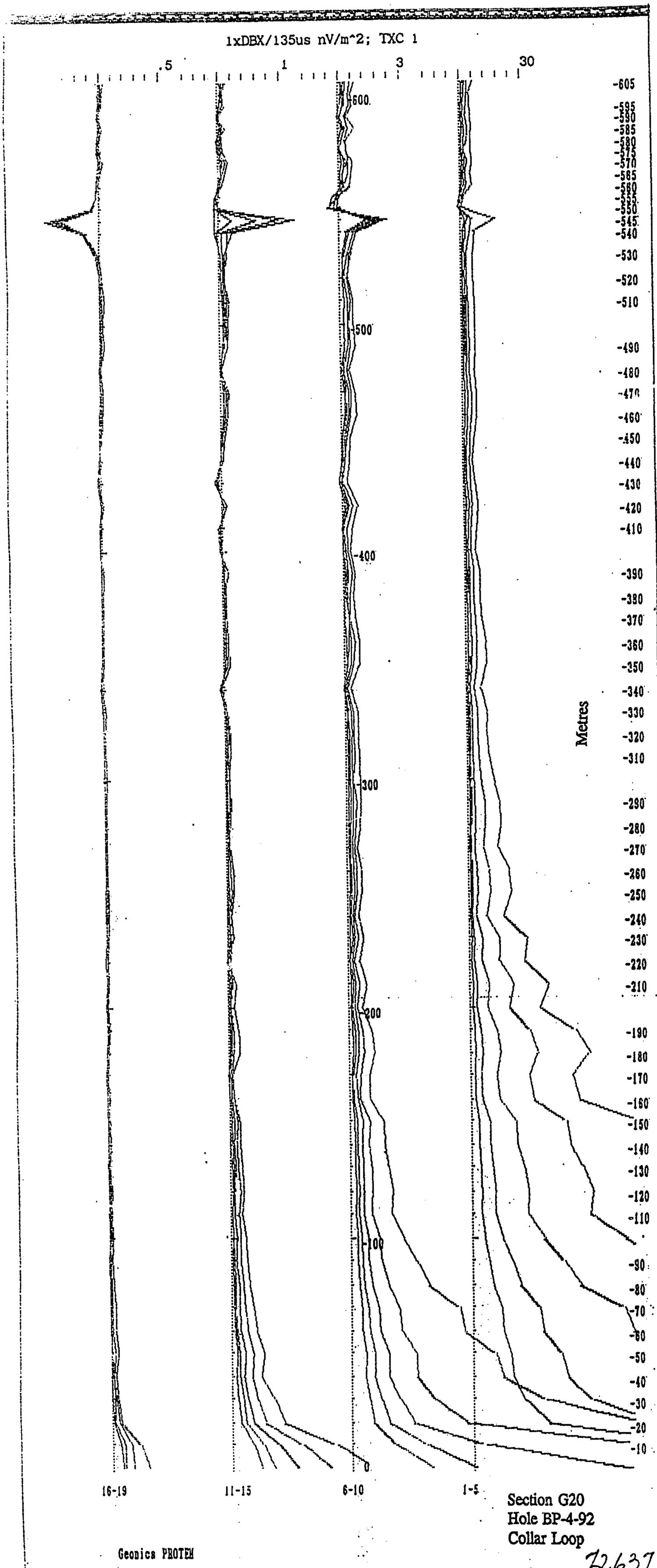

1xDBX/142us nV/m^2: TXC 1
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.5
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-650
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-550
-500
-450
Metres
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-645
-640
-635
-630
-625
-620
-615
-610
-605
-595
-585
-580
-575
-560
-530
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-490
-480
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11-15
6-10
1-5
Section G16
Hole BP-2-92Ext
East Loop
Geonics PROTEM

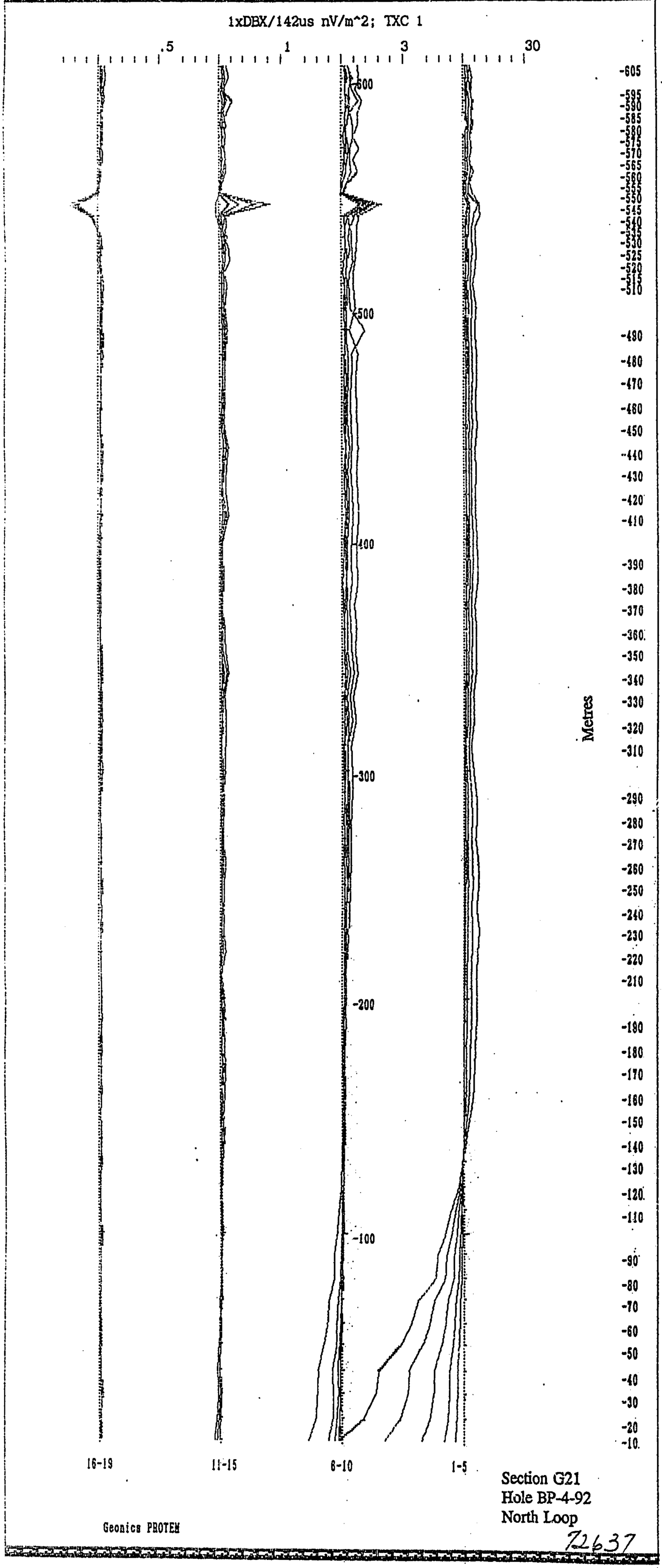
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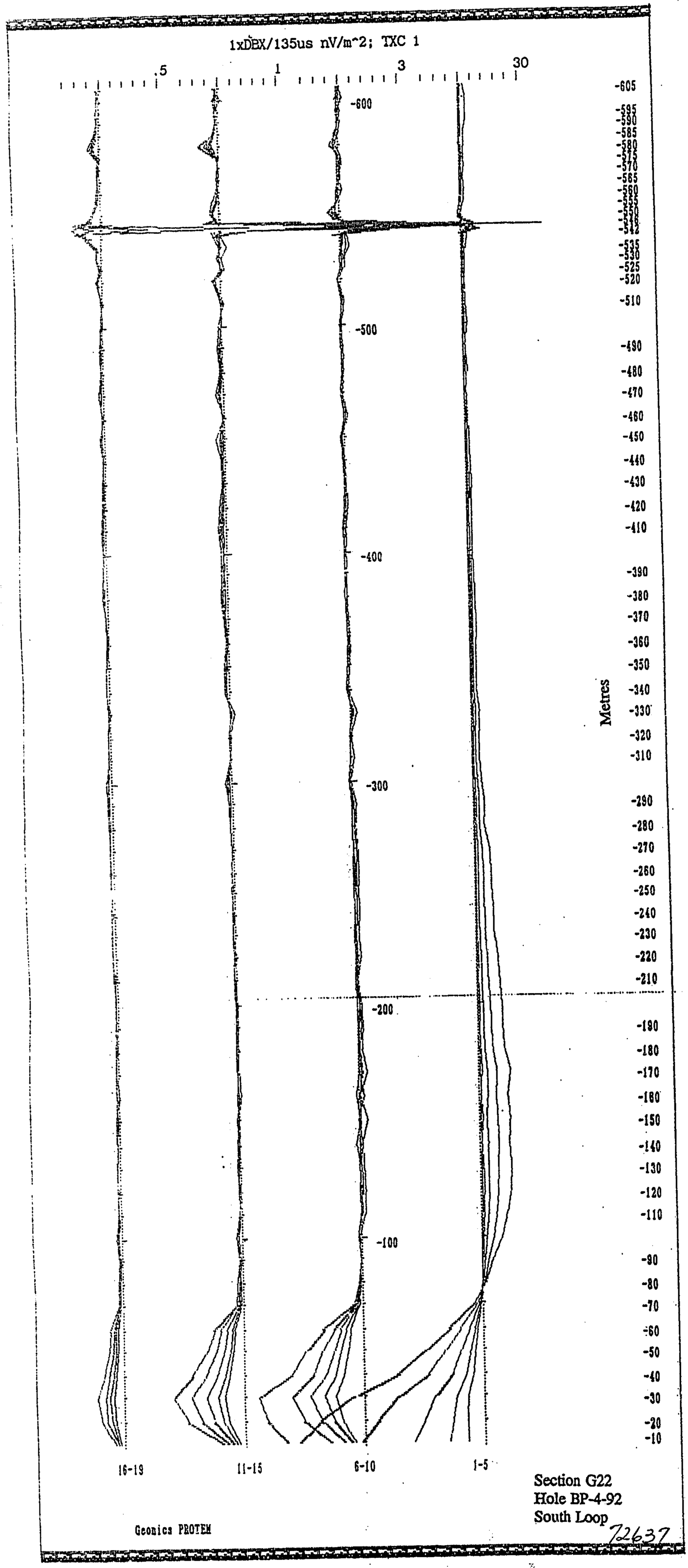

txDBX/148us nV/m^2; TXC 1
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.5
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-500
-450
-655
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-640
-635
-630
-625
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-585
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-570
-565
-555
-540
-530
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-515
-505
-490
-480
-470
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Metres
16-19
11-15
6-10
1-5
Section G17
Hole BP-2-92Ext
West Loop
Geonics PROTEM

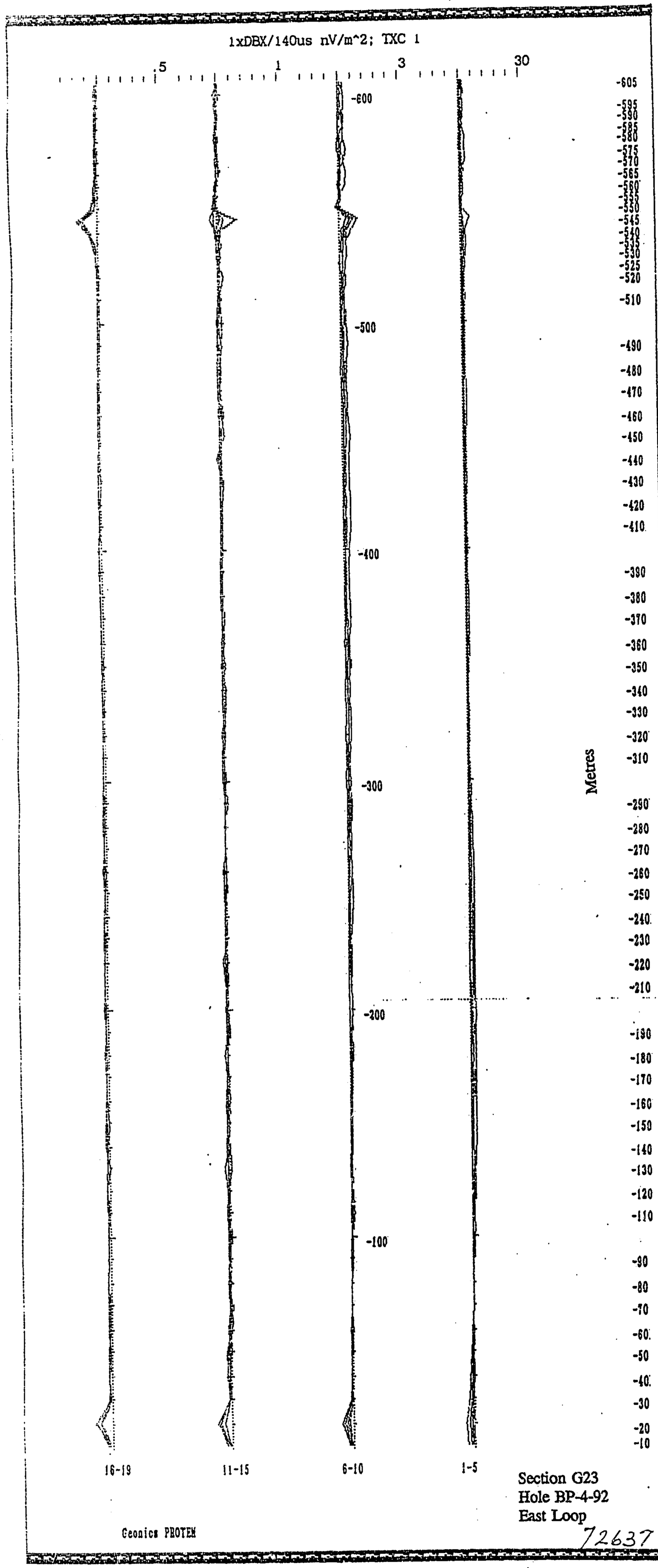

1xDBX/185us nV/m^2; TXC 1
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-460
-450
-440
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-410
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-390
-380
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-160
-150
-140
-130
-120
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Section G18
Hole BP-3-92
Collar Loop
Geonics PROTEM
72637

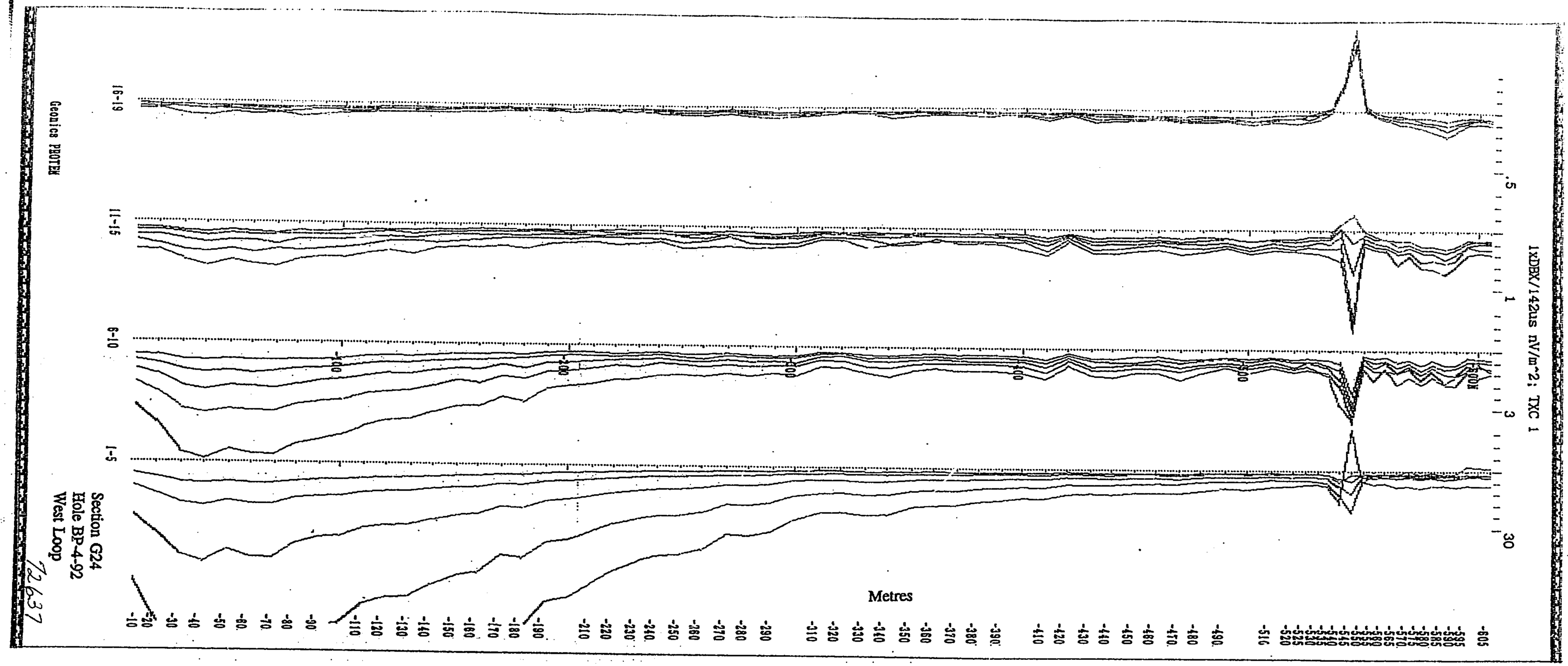

1xDBX/135us nV/m^2; TXC 1
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-450
-440
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-410
-400
-390
-380
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-110
-100
-90
-80
-70
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-50
-40
-30
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Metres
16-19
11-15
6-10
1-5
Section G19
Hole BP-3-92
North Loop
Geonics PROTEM
72637

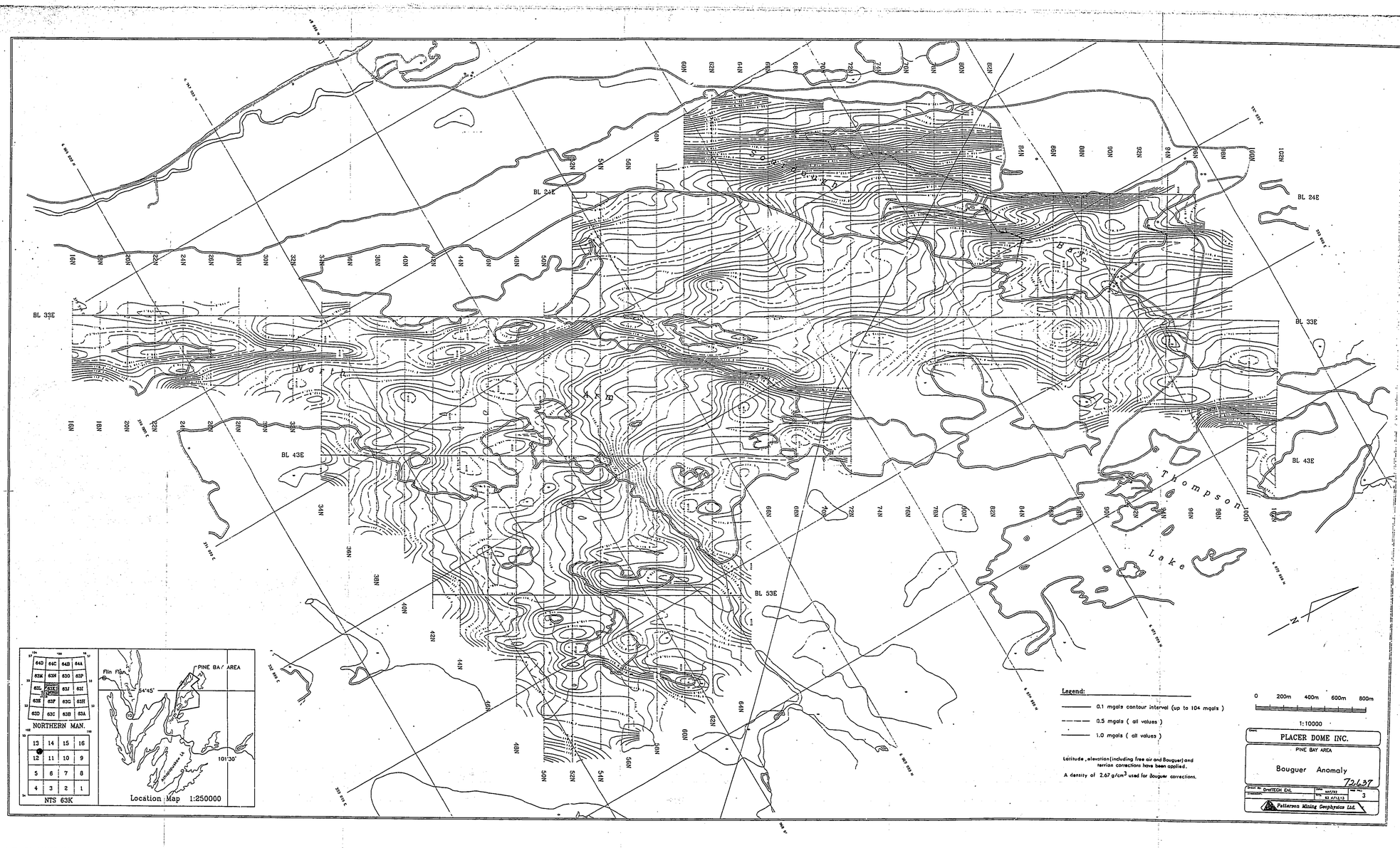

1xDBX/135us nV/m^2; TXC 1
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1
3
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600
500
400
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200
100
0
-605
-595
-590
-585
-580
-575
-570
-565
-560
-550
-545
-540
-530
-520
-510
-490
-480
-470
-460
-450
-440
-430
-420
-410
-390
-380
-370
-360
-350
-340
-330
-320
-310
-290
-280
-270
-260
-250
-240
-230
-220
-210
-190
-180
-170
-160
-150
-140
-130
-120
-110
-90
-80
-70
-60
-50
-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Section G20
Hole BP-4-92
Collar Loop
Geonics PROTEM
72637


1xDBX/142us nV/m^2; TXC 1
.5
1
3
30
-605
-595
-590
-585
-580
-575
-570
-565
-560
-555
-550
-545
-540
-535
-530
-525
-520
-515
-510
-500
-490
-480
-470
-460
-450
-440
-430
-420
-410
-400
-390
-380
-370
-360
-350
-340
-330
-320
-310
-300
-290
-280
-270
-260
-250
-240
-230
-220
-210
-200
-190
-180
-170
-160
-150
-140
-130
-120
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Section G21
Hole BP-4-92
North Loop
Geonics PROTEM
72637

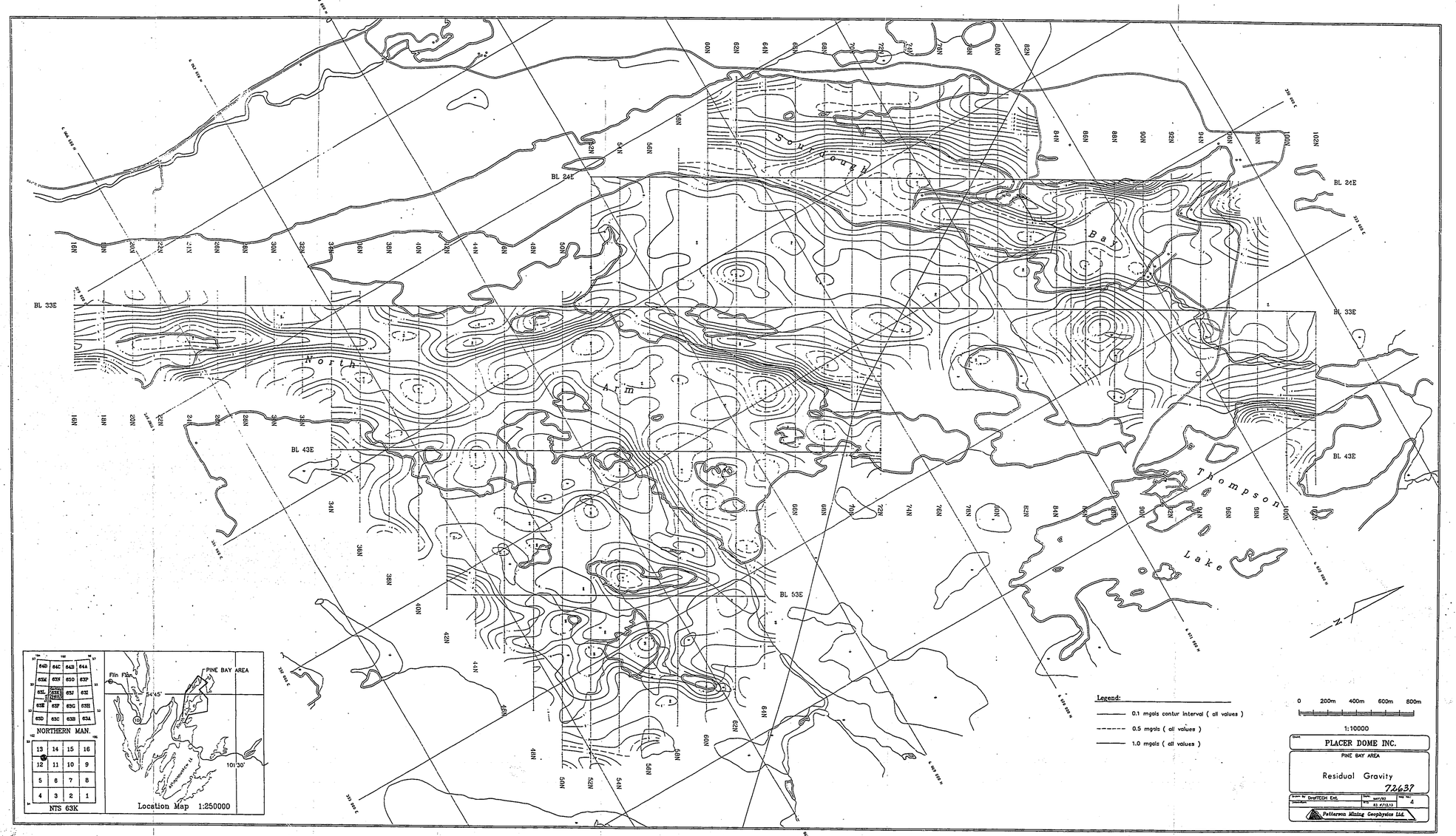

1xDBX/135us nV/m^2; TXC 1
.5
1
3
30
-600
-500
-400
-300
-200
-100
-605
-595
-590
-585
-580
-575
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-160
-150
-140
-130
-120
-110
-90
-80
-70
-60
-50
-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Section G22
Hole BP-4-92
South Loop
72637
Geonics PROTEM

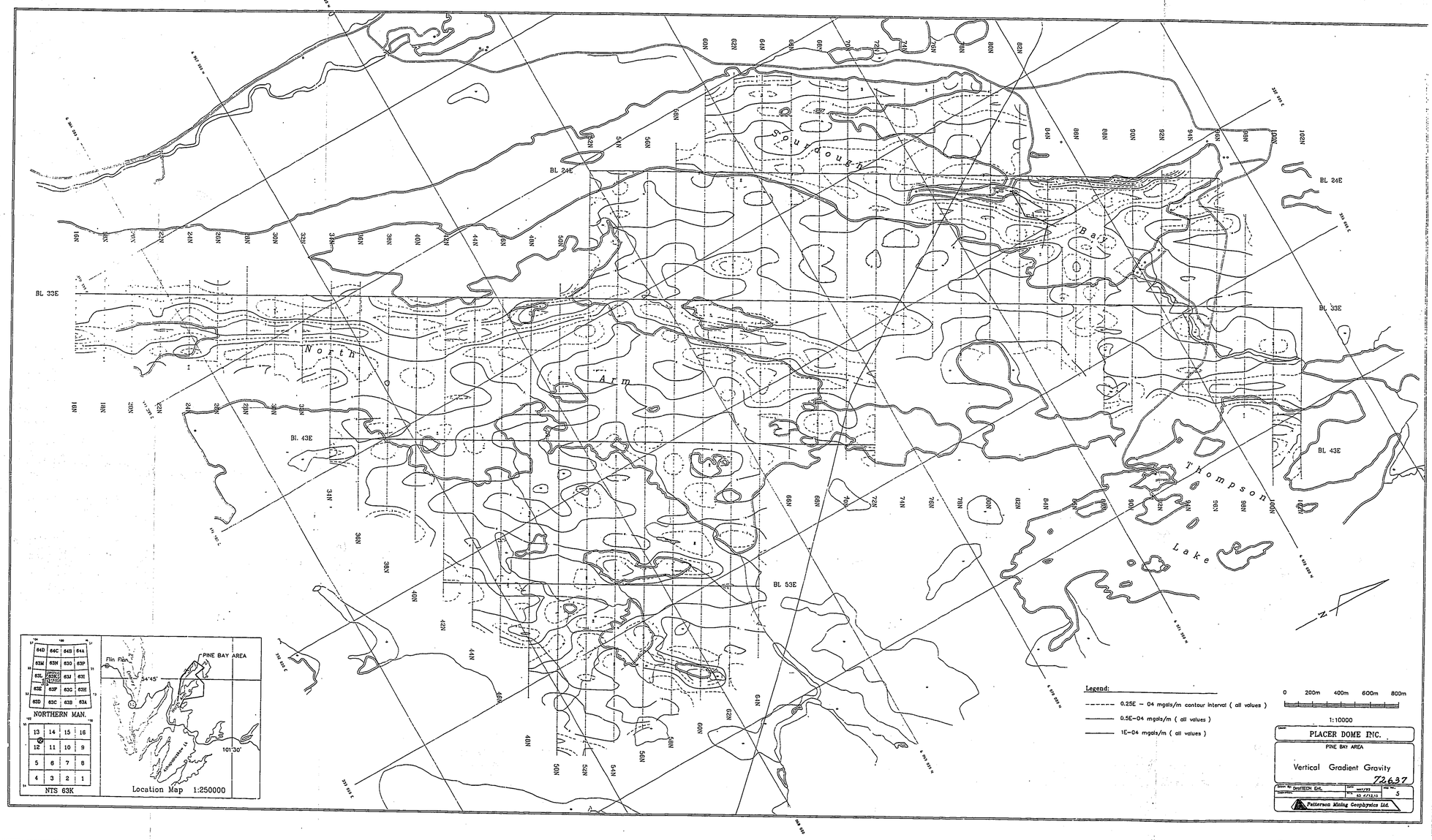

1xDBX/140us nV/m^2; TXC 1
.5
1
3
30
-600
-500
-400
-300
-200
-100
-605
-595
-590
-585
-580
-575
-570
-565
-560
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-540
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-140
-130
-120
-110
-90
-80
-70
-60
-50
-40
-30
-20
-10
Metres
16-19
11-15
6-10
1-5
Section G23
Hole BP-4-92
East Loop
Geonics PROTEM
72637

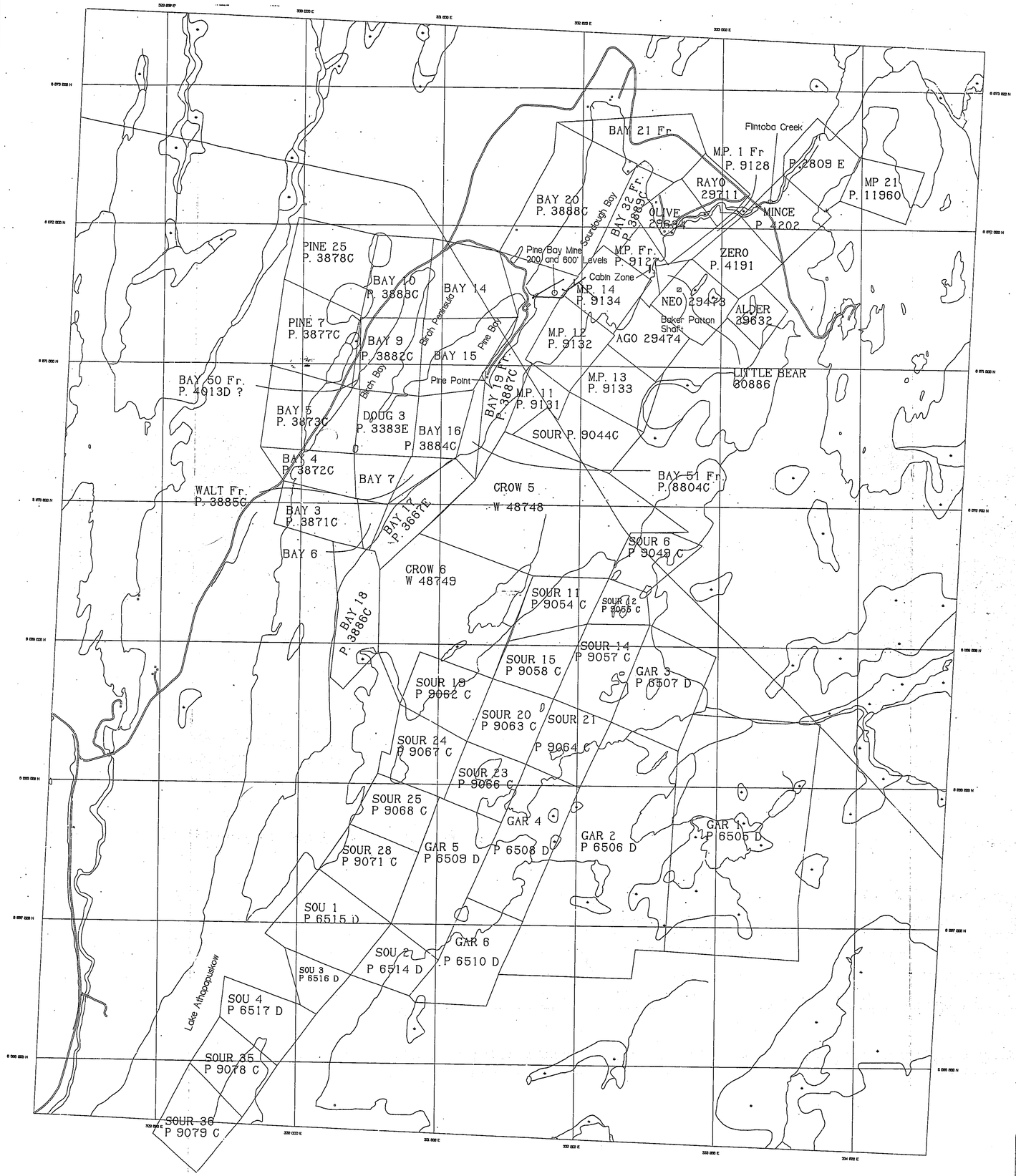

Geonics PROTEM
16-19
11-15
6-10
1-5
1xDBX/142us nV/m^2; TXC 1
.5
1
3
30
Section G24
Hole BP-4-92
West Loop
72637
Metres


BL 24E
BL 33E
BL 43E
BL 53E
Thompson
Lake
N
Legend:
0.1 mgals contour interval (up to 104 mgals)
0.5 mgals (all values)
1.0 mgals (all values)
Latitude , elevation (including free air and Bouguer) and terrian corrections have been applied.
A density of 2.67 g/cm³ used for Bouguer corrections.
0 200m 400m 600m 800m
1:10000
PLACER DOME INC.
PINE BAY AREA
Bouguer Anomaly
72,637
Drawn by: OneTECH Ltd.
Date: MAY/93
Dwg. No. 3
Patterson Mining Geophysics Ltd.
NORTHERN MAN.
64D 64C 64B 64A
63M 63N 63O 63P
63L 63K 63J 63I
63E 63F 63G 63H
63D 63C 63B 63A
13 14 15 16
12 11 10 9
5 6 7 8
4 3 2 1
NTS 63K
PINE BAY AREA
Fin Fish
54°45'
101°30'
Athapapuskow L.
Location Map 1:250000

30X


BL 24E
BL 33E
BL 43E
BL 53E
North
Lake
Thompson
Bay
Southern
Lake
PINE BAY AREA
Flin Flon
54°45'
101°30'
Location Map 1:250000
NORTHERN MAN.
NTS 63K
Legend:
0.1 mgals contur interval (all values)
0.5 mgals (all values)
1.0 mgals (all values)
0 200m 400m 600m 800m
1:10000
PLACER DOME INC.
PINE BAY AREA
Residual Gravity
72637
Drawn by: DraftTECH Ltd.
Date: MAY/93
Fig. No. 4
Petterson Mining Geophysics Ltd.


BL 24E
BL 33E
BL 43E
BL 53E
Southough
Bay
North
Arm
Thompson
Lake
Flin Flon
PINE BAY AREA
54°45'
101°30'
Saskatchewan R.
NORTHERN MAN.
NTS 63K
Location Map 1:250000
Legend:
0.25E – 04 mgals/m contour interval (all values)
0.5E–04 mgals/m (all values)
1E–04 mgals/m (all values)
0 200m 400m 600m 800m
1:10000
PLACER DOME INC.
PINE BAY AREA
Vertical Gradient Gravity
72,637
Patterson Mining Geophysics Ltd.



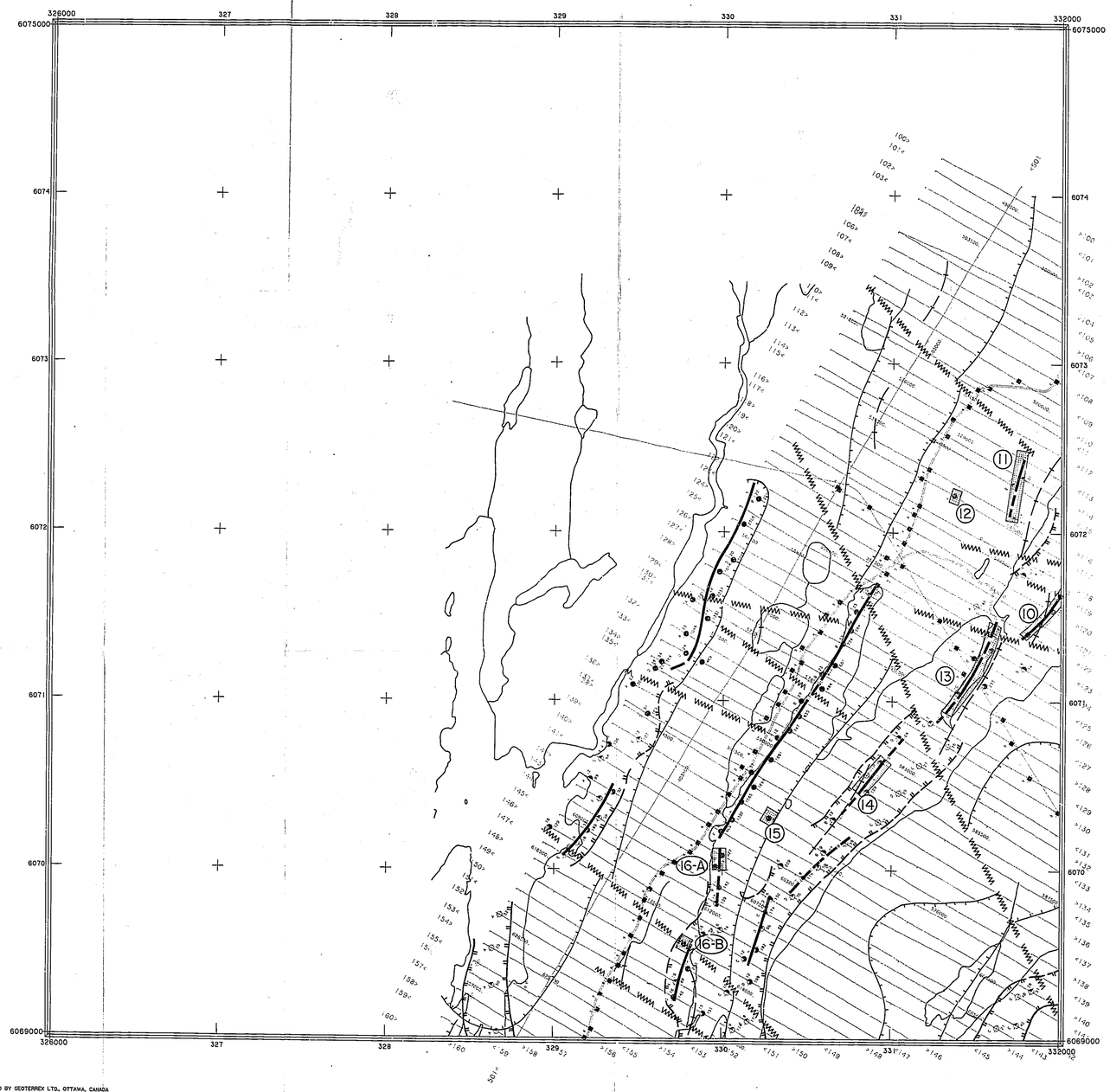
PLACER DOME INC.

CLAIM OUTLINE - PINEBAY, THOMPSON BAY AND CROW PROJECTS

72637

REVISIONS	DATE	BY	DRAWN:	DATE:
3b			TRACED:	SCALE: 1:10,000

30X



GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
	1-2 Channels
	3-4 Channels
	5-6 Channels
	7-8 Channels
	9-10 Channels
	11-12 Channels

Anomaly Letter
Apparent Conductance (Siemens)
Type of Source not Clear
Decay in Amplitudes Weak

Conture Response

Anomaly Letter
Type of Source not Clear

MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
CENTRAL MERIDIAN : 93 DEGREES WEST
LATITUDE ORIGIN : 0 DEGREES
FALSE NORTHING : 0 METRES
SCALE FACTOR : 0.9996

INTERPRETATION LEGEND

...Discrete conductor axis,(probable, possible)

...Limit of broader conductive unit(s),(probable, possible)

...Positive magnetic axis

...Magnetic/lithologic contact, may be faulted

...Magnetic discontinuity, probable fault

② ...GEOTEM conductor described in report

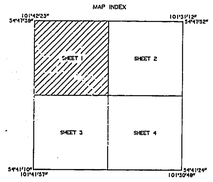
N

SCALE 1:10000

200 0 200 400 600 800 Metres

1000 0 1000 2000 3000 4000 Feet

MAP INDEX



SURVEYED, COMPILED & INTERPRETED BY geoterrex

FOR PLACER DOME INC. 72637

AIRBORNE GEOTEM / MAGNETIC SURVEY

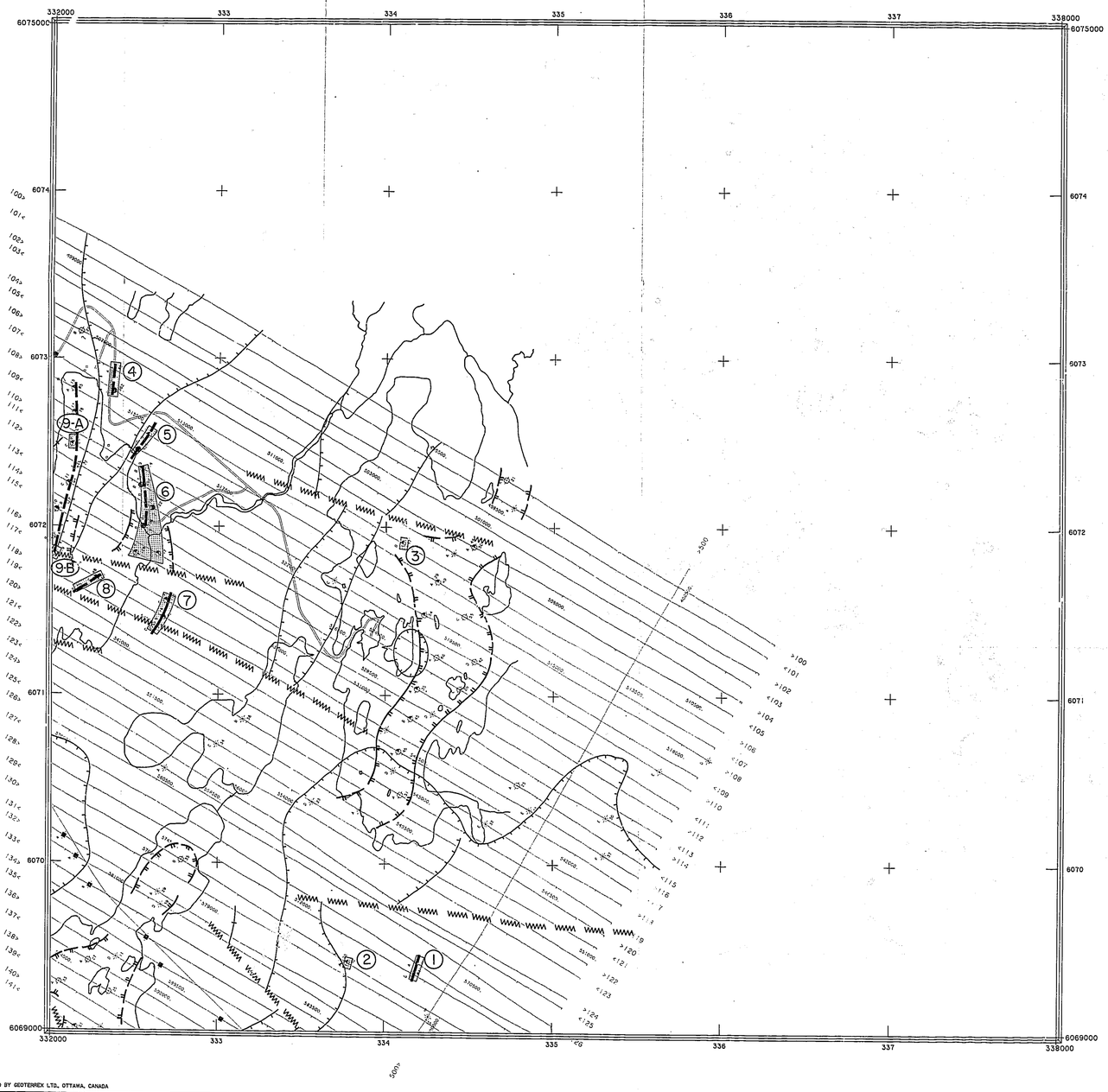
PINEBAY AREA

GEOTEM ELECTROMAGNETIC

QUALITATIVE INTERPRETATION MAP

SHEET 1 OF 4	POSITIONAL CONTROL ..... BASED ON	SURVEY ALTITUDE 120 M.	CHECKED BY:
SCALE 1: 10000	KINECONTROLLED PHOTOMOSAICS,GPS,DOPPLER	DATE: APRIL 1991	GEOTERREX PROJECT NO. 826

30X



COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
	1-2 Channels
	3-4 Channels
	5-6 Channels
	7-8 Channels
	9-10 Channels
	11-12 Channels

Anomaly Letter — Number Designation (Optional)
Type of Source not Clear
Type of Source not Clear
Culture Resistive
Anomaly Letter
Type of Source not Clear

MAP PROJECTION	: UTM
SPHEROID	: CLARKE 1866
CENTRAL MERIDIAN	: 81 DEGREES WEST
FALSE EASTING	: 500000 METRES
FALSE NORTHING	: 0 METRES
SCALE FACTOR	: 1.0000

INTERPRETATION LEGEND

...Discrete conductor axis,(probable, possible

...Limit of broader conductive unit(s),(probable, possible)

...Positive magnetic axis

...Magnetic/lithologic contact, may be faulted

...Magnetic discontinuity, probable fault

② ...GEOTEM conductor described in report

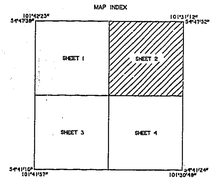
N

SCALE 1:10000

200 0 200 400 600 800 Metres

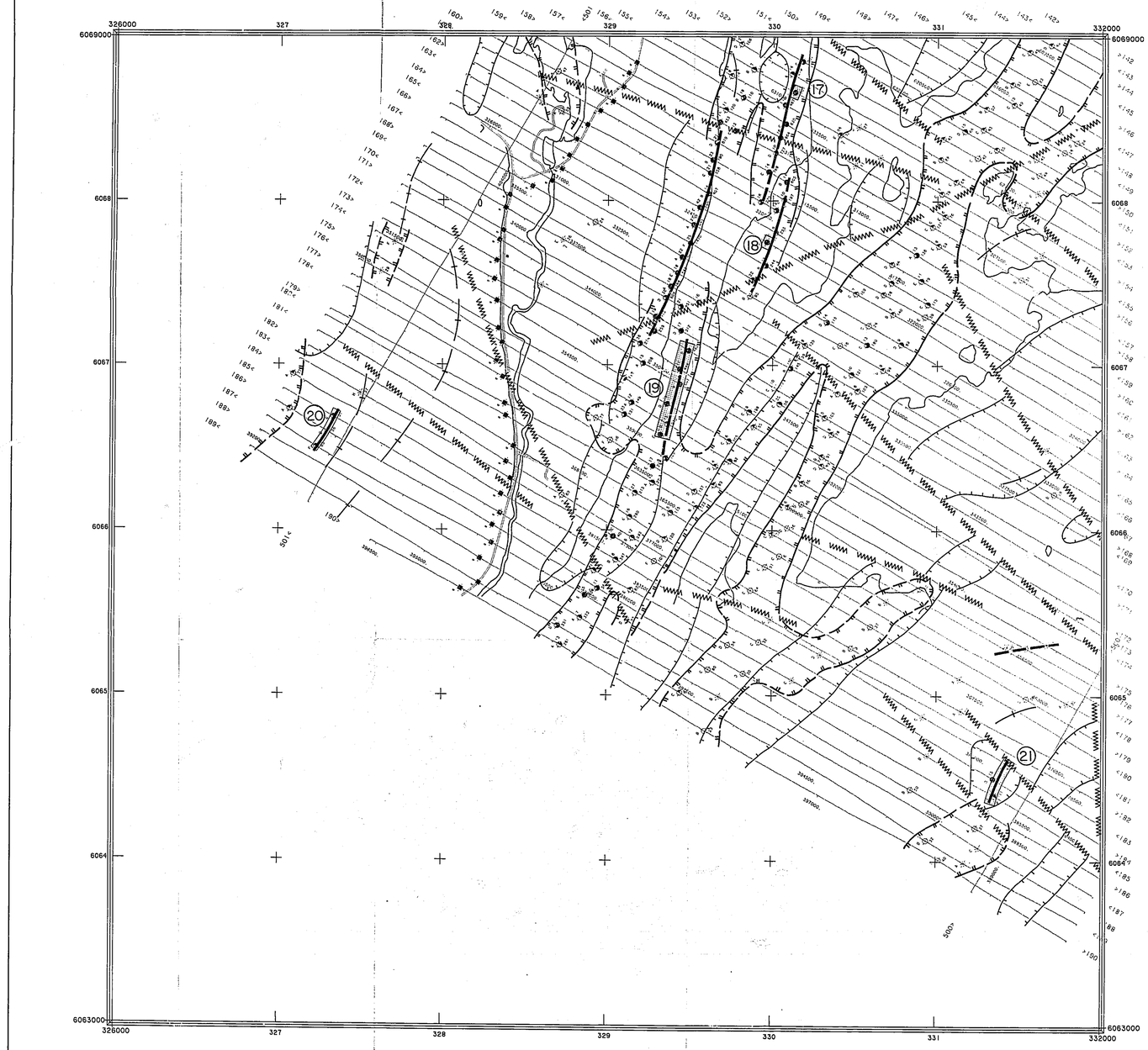
1000 0 1000 2000 3000 4000 Feet

MAP INDEX



SURVEYED, COMPILED & INTERPRETED BY geoterrex ltd.		FOR PLACER DOME INC.
AIRBORNE GEOTEM / MAGNETIC SURVEY		
PINEBAY AREA		GEOTEM ELECTROMAGNETIC QUALITATIVE INTERPRETATION MAP
SHEET 2 OF 4	PROFILING CONTROL ..... BASED ON	SURVEY ALTITUDE 120 M.
SCALE 1:10000	RDI CONTROLLED PHOTOGRAPHICS, GPS_DOPPLER	DATE: APRIL 1991
		CHECKED BY: 72637
		GEOTERREX PROJECT NO. 615

30X



GEOTEM® Peak Response Symbols

ANOMALY CLASSIFICATION

- 1-2 Channels
- 3-4 Channels
- 5-6 Channels
- 7-8 Channels
- 9-10 Channels
- 11-12 Channels

Amplitude Letter
Amplitude Conductance (Conductivity)
Time of Decay
Time of Source not Clear
Ch. # Amplitude Drop

Culture Response

Anomaly Letter
Time of Source not Clear

MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
CENTRAL MERIDIAN : 81 DEGREES WEST
FALSE EASTING : 500,000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

INTERPRETATION LEGEND

- ...Discrete conductor axis,(probable, possible)
- ...Limit of broader conductive unit(s),(probable, possible)
- ...Positive magnetic axis
- ...Magnetic/lithologic contact, may be faulted
- ...Magnetic discontinuity, probable fault
- ② ...GEOTEM conductor described in report

N

SCALE 1:10000

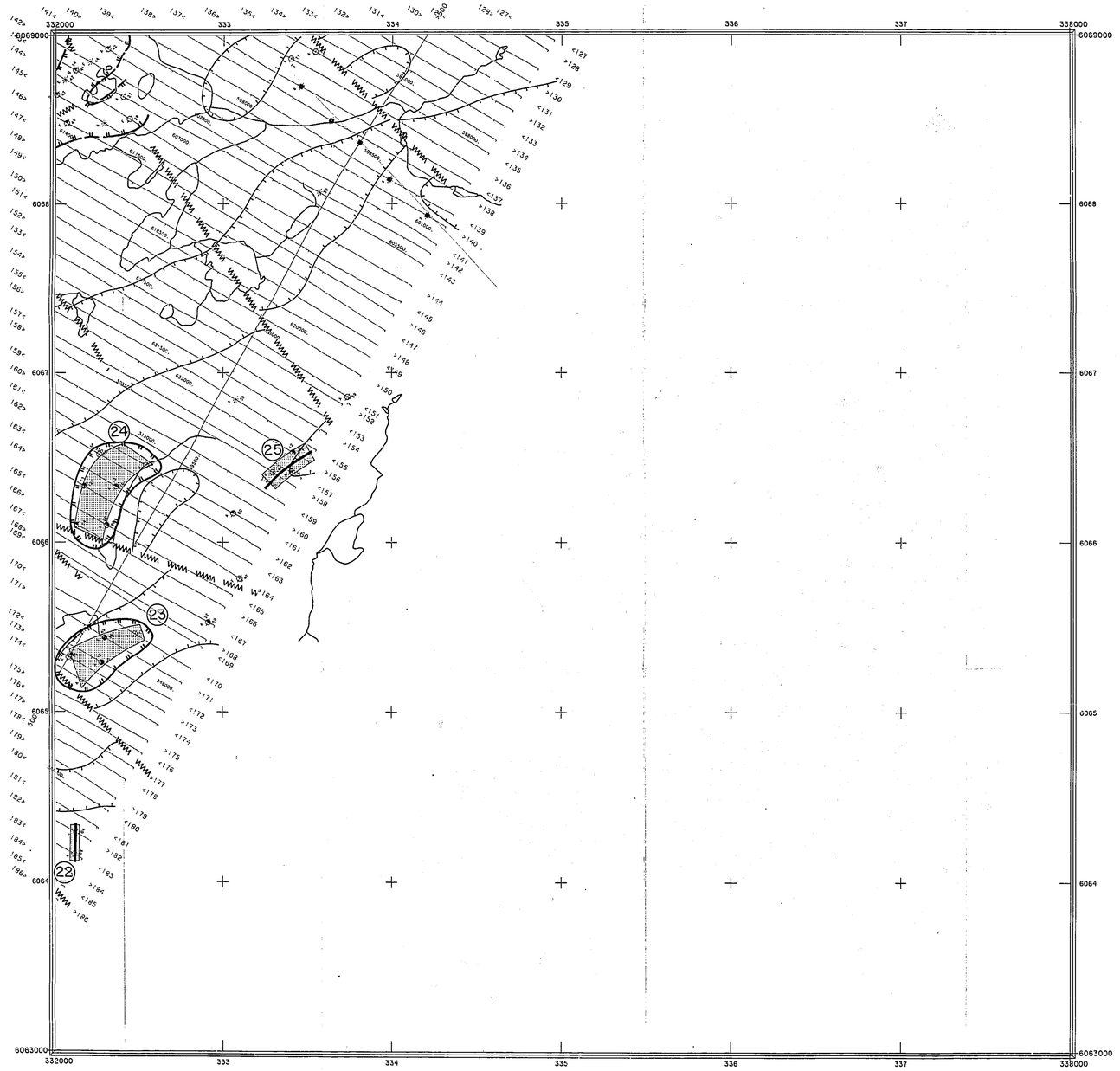
200 0 200 400 600 800 Metres
1000 0 1000 2000 3000 4000 Feet

MAP INDEX

SHEET 1 | SHEET 2 | SHEET 3 | SHEET 4

SURVEYED, COMPILED & INTERPRETED BY geoterrex		FOR PLACER DOME INC.
AIRBORNE GEOTEM / MAGNETIC SURVEY		
PINEBAY AREA		GEOTEM ELECTROMAGNETIC QUALITATIVE INTERPRETATION MAP
SHEET 3 OF 4	POSITIONAL CONTROL ..... BASED ON	SURVEY ALTITUDE 120 M. / CHECKED BY: 72637
SCALE 1: 10000	EDM CONTROLLED PHOTOMOSAICS, RPK SUPPLIED	DATE: APRIL 1991 / GEOTERREX PROJECT NO. 656

30X



GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
⊹	1-2 Channels
⊕	3-4 Channels
◑	5-6 Channels
◕	7-8 Channels
◕	9-10 Channels
●	11-12 Channels

Anomaly Letter — Maximum Conductance Number

Type of Source not Clear — Decay

Culture Response

Anomaly Letter

Type of Source not Clear

MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
CENTRAL MERIDIAN : 85 DEGREES WEST
FALSE EASTING : 500000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

INTERPRETATION LEGEND

...Discrete conductor axis,(probable, possible)

...Limit of broader conductive unit(s),(probable, possible)

...Positive magnetic axis

...Magnetic/lithologic contact, may be faulted

...Magnetic discontinuity, probable fault

② ...GEOTEM conductor described in report

N

SCALE 1:10000

200 0 200 400 600 800 Metres

1000 0 1000 2000 3000 4000 Feet

MAP INDEX

101°14'23" 54°47'32" — 101°13'13" 54°47'32"

SHEET 1 | SHEET 2 | SHEET 3 | SHEET 4

54°41'10" 101°14'23" — 54°43'24" 101°13'13"

SURVEYED, COMPILED & INTERPRETED BY
geoterrex ltd.

FOR
PLACER DOME INC.

AIRBORNE GEOTEM / MAGNETIC SURVEY

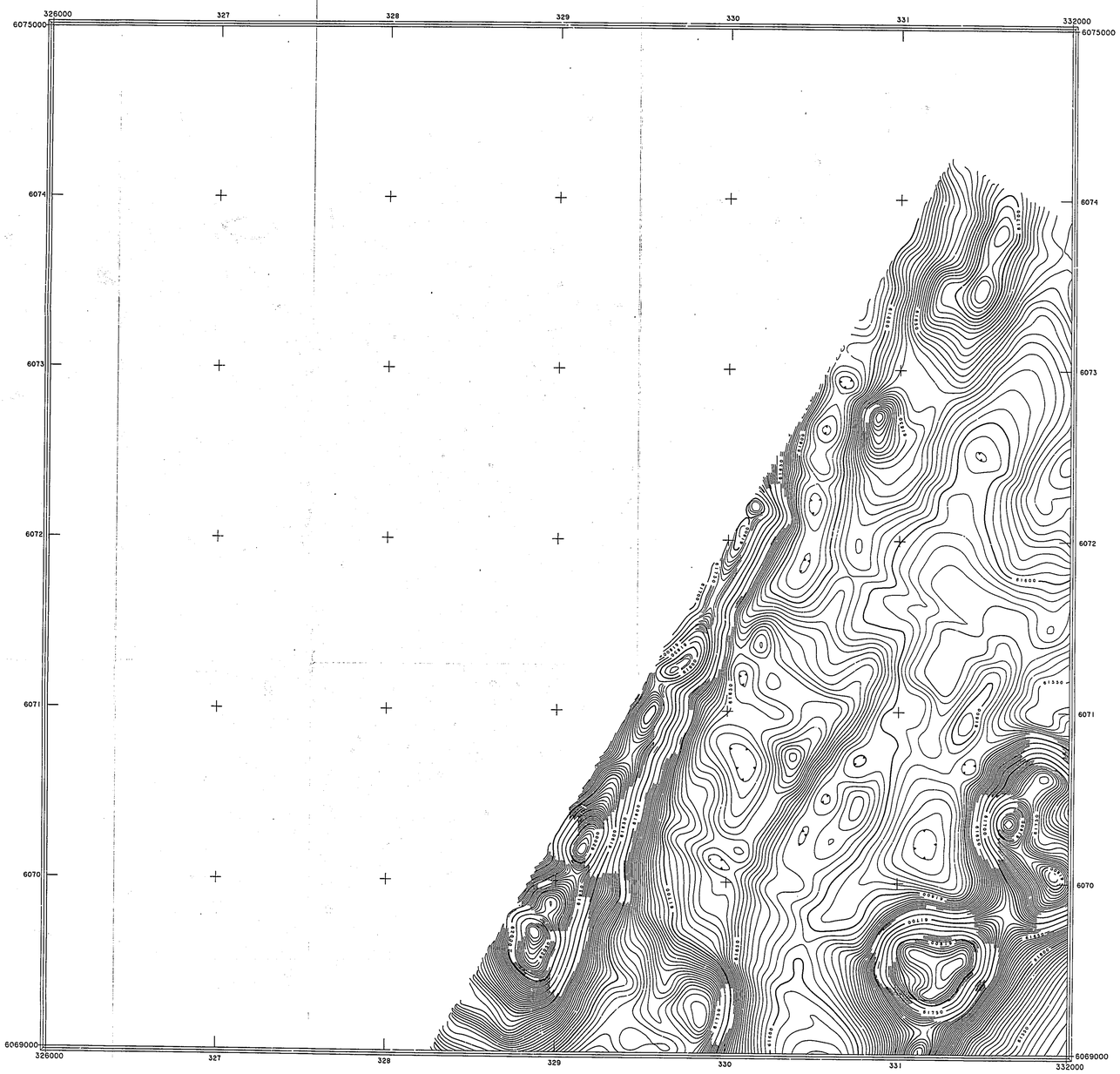
PINEBAY AREA

GEOTEM ELECTROMAGNETIC
QUALITATIVE INTERPRETATION MAP

SHEET 4 OF 4	POSITIONAL CONTROL ..... BASED ON	SURVEY ALTITUDE 120 M.	CHECKED BY: 72637
SCALE 1: 10000	VISUAL/INSTALLED PHOTOMOSAICS, GPS, DOPPLER	DATE: APRIL 1991	GEOTERREX PROJECT NO. 656

COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

30X



LEGEND

100 gammas .....
25 gammas .....
5 gammas .....
Magnetic low .....
CONTOUR INTERVAL 5 gammas

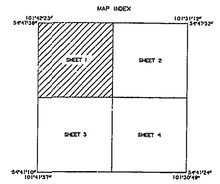
MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
PRIME MERIDIAN : 90 DEGREES WEST
FALSE EASTING : 500,000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : 1.0000

N

SCALE 1:10000

200 0 200 400 600 800 Metres
1000 0 1000 2000 3000 4000 Feet

MAP INDEX



COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

SURVEYED, COMPILED & INTERPRETED BY geoterrex ltd.

FOR PLACER DOME INC.

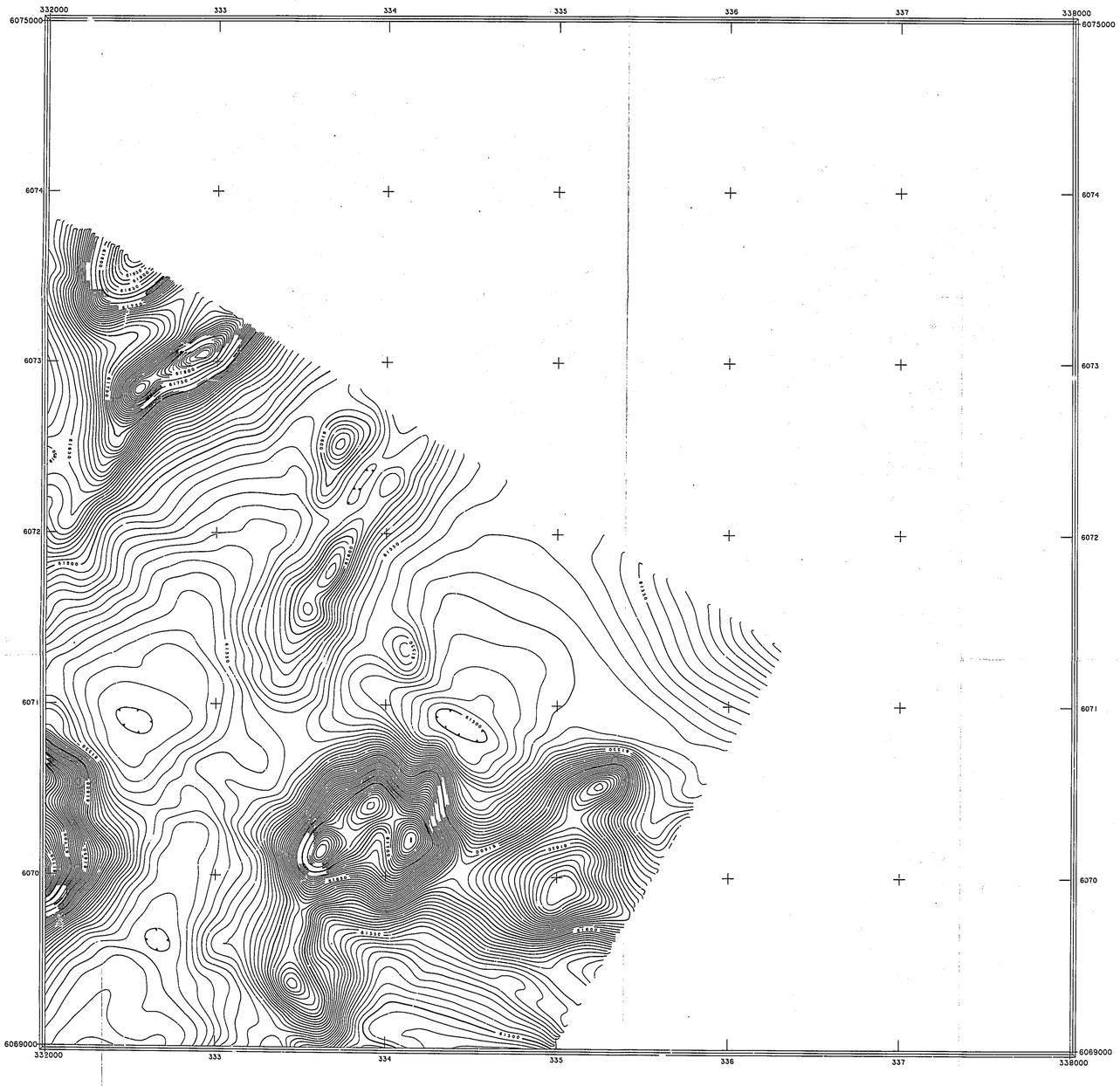
AIRBORNE GEOTEM / MAGNETIC SURVEY

PINEBAY AREA

TOTAL MAGNETIC FIELD CONTOUR MAP 72637

SHEET 1 OF 4 | POSITIONAL CONTROL ..... TAKEN IN EQUIPMENT | SURVEY ALTITUDE 120 M. | CHECKED BY:
SCALE 1:10000 | DATE: APRIL 1991 | GEOTERREX PROJECT NO. 836

30X



LEGEND

100 gammas .....
25 gammas .....
5 gammas .....

Magnetic low .....

CONTOUR INTERVAL 5 gammas

MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
CENTRAL MERIDIAN : 136 DEGREES WEST
FALSE EASTING : 500,000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

N

SCALE 1:10000

200 0 200 400 600 800 Metres

1000 0 1000 2000 3000 4000 Feet

MAP INDEX

SHEET 1 | SHEET 2 | SHEET 3 | SHEET 4

COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

SURVEYED, COMPILED & INTERPRETED BY geoterrex ltd.

FOR PLACER DOME INC.

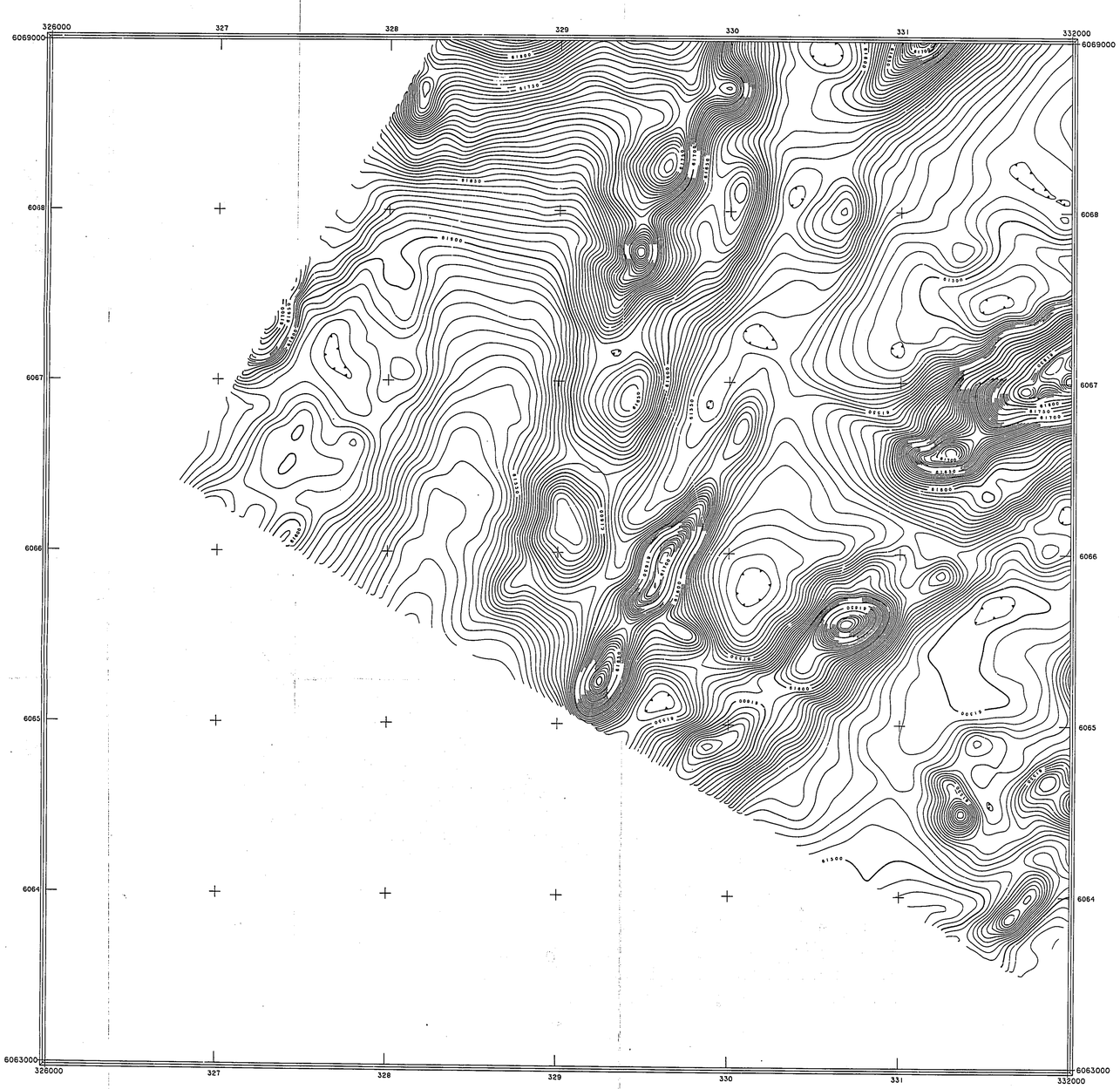
AIRBORNE GEOTEM / MAGNETIC SURVEY

PINEBAY AREA

TOTAL MAGNETIC FIELD CONTOUR MAP 72637

SHEET 2 OF 4	POSITIONAL CONTROL . . . BASED ON	SURVEY ALTITUDE 120 M.	CHECKED BY:
SCALE 1:10000	EDITED CONTROLLED PHOTOMOSAICS, GPS SUPPLIED	DATE: APRIL 1991	GEOTERREX PROJECT NO. 856

30X



COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

LEGEND

100 gammas .....
25 gammas .....
5 gammas .....

Magnetic low .....

CONTOUR INTERVAL 5 gammas

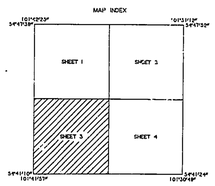
MAP PROJECTION : UTM
SPHEROID : CLARKE-1866
CENTRAL MERIDIAN : 81 DEGREES WEST
FALSE EASTING : 500000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

N

SCALE 1:10000

200 0 200 400 600 800 Metres
1000 0 1000 2000 3000 4000 Feet

MAP INDEX



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geoterrex

FOR
PLACER DOME INC.

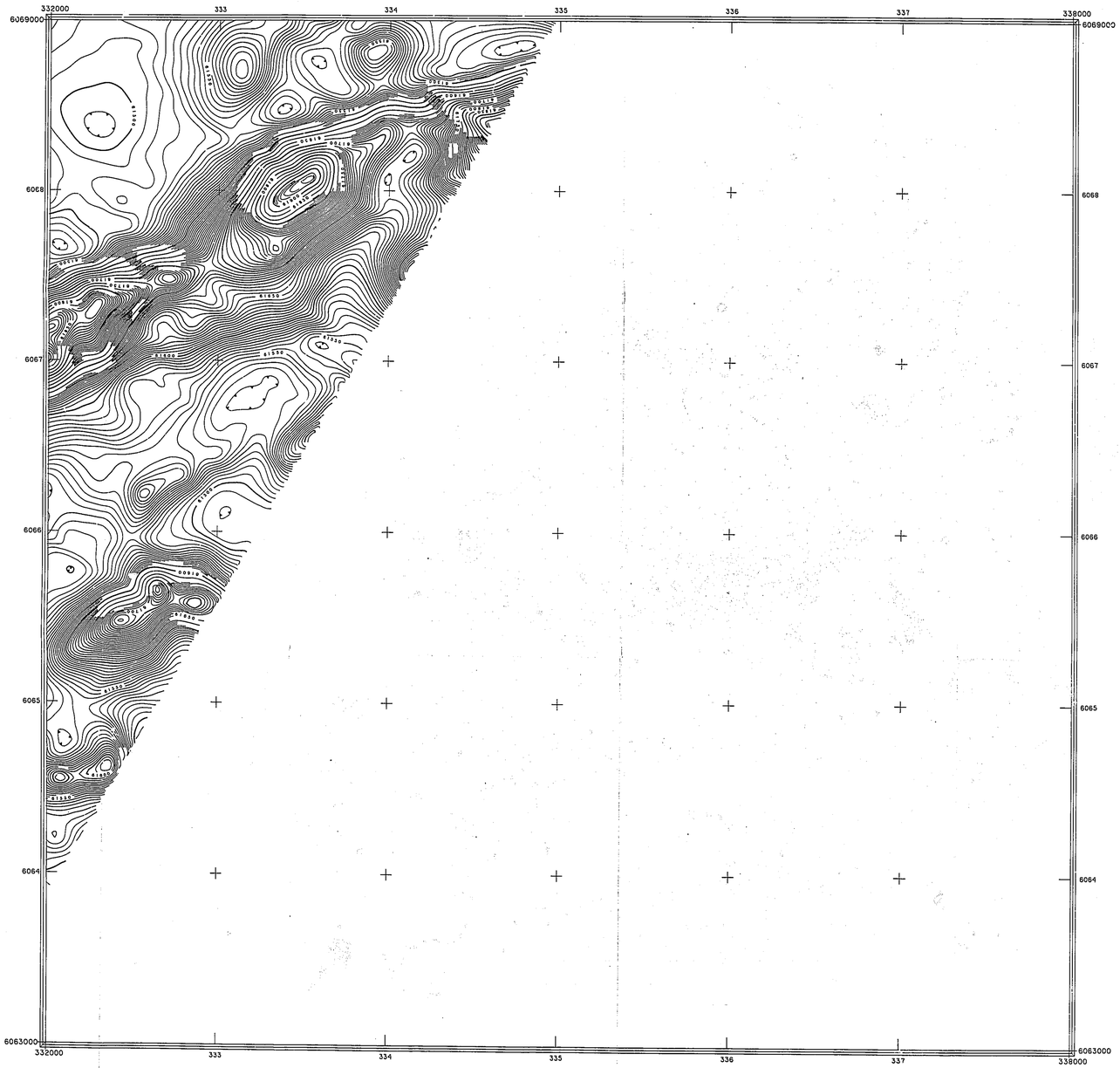
AIRBORNE GEOTEM / MAGNETIC SURVEY

PINEBAY AREA

TOTAL INTENSITY MAGNETIC
CONTOUR MAP 72637

SHEET 3 OF 4	POSITIONAL CONTROL . . . . . BASED ON	SURVEY ALTITUDE 120 M.	CHECKED BY:
SCALE 1: 10000	RECTIFIABLE PHOTOMOSAICS SUPPLIED	DATE: APRIL 1991	GEOTERREX PROJECT NO. 636

30X



LEGEND

100 gammas .....

25 gammas .....

5 gammas .....

Magnetic low .....

CONTOUR INTERVAL 5 gammas

MAP PROJECTION : UTM
GEODETIC DATUM : NAD 1983
CENTRAL MERIDIAN : 123 DEGREES WEST
FALSE EASTING : 500000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

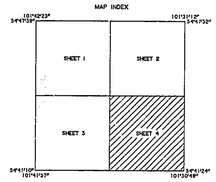
N

SCALE 1 : 10000

200 0 200 400 600 800 Metres

1000 0 1000 2000 3000 4000 Feet

MAP INDEX



SURVEYED, COMPILED & INTERPRETED BY

geoterrex ltd

FOR

PLACER DOME INC.

AIRBORNE GEOTEM / MAGNETIC SURVEY

PINEBAY AREA

TOTAL MAGNETIC FIELD CONTOUR MAP 72637

SHEET 4 OF 4 | POSITIONAL CONTROL . . . . . based on | SURVEY ALTITUDE 120 M. | CHECKED BY:

SCALE 1: 10000 | ASSIGNMENTS\PROJECTS\96\96-010.SPS,SEPFILES | DATE: APRIL 1997 | GEOTERREX PROJECT NO. 656

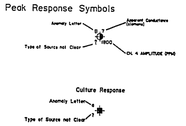
COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

30X



GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
✳	1-2 Channels
⊕	3-4 Channels
⊕	5-6 Channels
⊕	7-8 Channels
⊕	9-10 Channels
⊕	11-12 Channels



MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
CENTRAL MERIDIAN : 80 DEGREES WEST
FALSE EASTING : 500000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : 0.9996

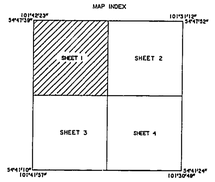
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SCALE 1:10000

200 0 200 400 600 800 Metres

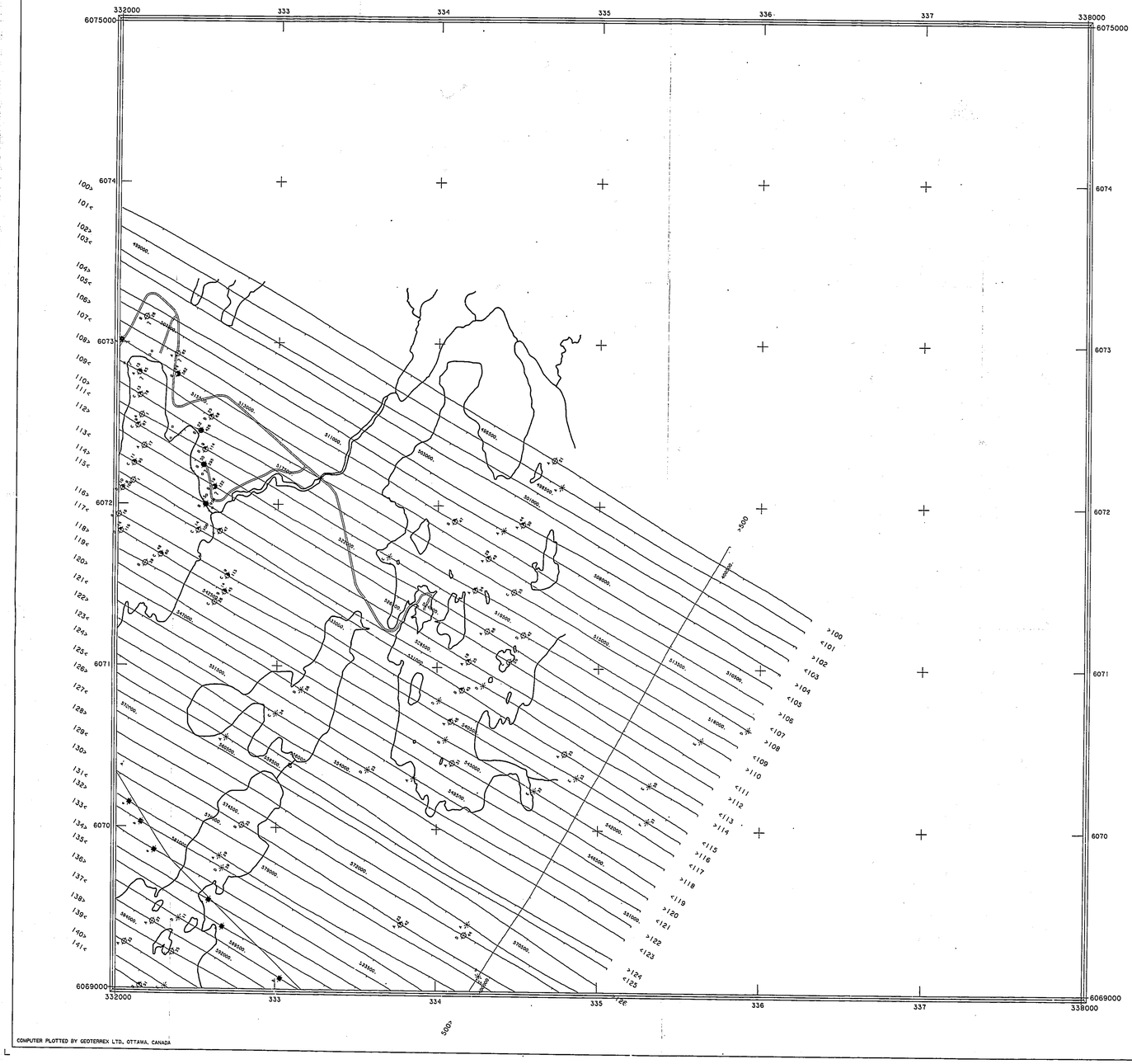
1000 0 1000 2000 3000 4000 Feet

MAP INDEX



SURVEYED, COMPILED & INTERPRETED BY: geoterrex ltd.		FOR: PLACER DOME INC.
AIRBORNE GEOTEM / MAGNETIC SURVEY		
PINEBAY AREA		GEOTEM ELECTROMAGNETIC ANOMALY MAP 76637
SHEET 1 OF 4	POSITIONAL CONTROL ..... BASED ON	SURVEY ALTITUDE 120 M. / CHECKED BY:
SCALE 1:10000	EDP-CONTROLLED PHOTOMOSAICS, GPS, DOPPLER	DATE: APRIL 1991 / GEOTERREX PROJECT NO. 656

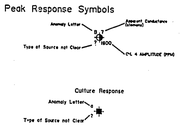
30X



COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
	1-2 Channels
	3-4 Channels
	5-6 Channels
	7-8 Channels
	9-10 Channels
	11-12 Channels



MAP PROJECTION : UTM
SPHEROID : CLARKE 1866
CENTRAL MERIDIAN : 81 DEGREES WEST
FALSE EASTING : 0 METRES
FALSE NORTHING : 0 METRES
ZONE : 17
SCALE FACTOR : 0.9996

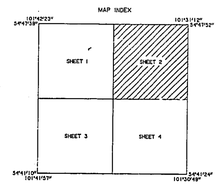
N

SCALE 1:10000

200 0 200 400 600 800 Metres

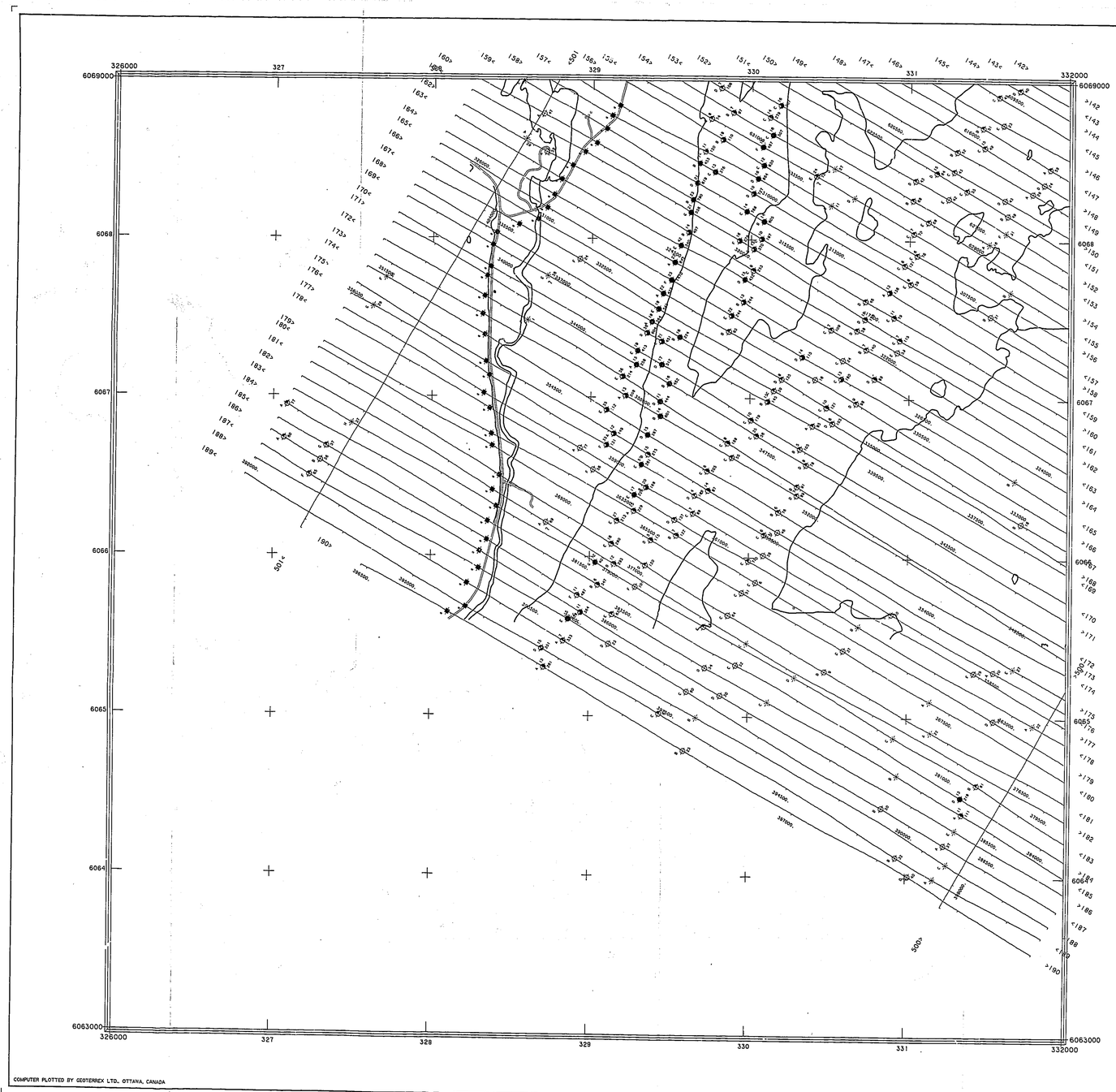
1000 0 1000 2000 3000 4000 Feet

MAP INDEX



SURVEYED, COMPILED & INTERPRETED BY geoterrex		FOR PLACER DOME INC.
AIRBORNE GEOTEM / MAGNETIC SURVEY		
PINEBAY AREA		GEOTEM ELECTROMAGNETIC ANOMALY MAP TL637
SHEET 2 OF 4	POSITIONAL CONTROL ..... BASED ON	SURVEY ALTITUDE 120 M. / CHECKED BY:
SCALE 1:10000	EQUIPMENT/FLIGHT PHOTOGRAPHS, GPS, SUPPLIED	DATE: APRIL 1991 / GEOTERREX PROJECT NO. 616

30X



GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
✳	1-2 Channels
✳	3-4 Channels
✳	5-6 Channels
✳	7-8 Channels
✳	9-10 Channels
✳	11-12 Channels

Anomaly Letter — Decimal Conductance (mhos) — Type of Source not Clear — Ch. # AMPLITUDE (PPM)

Culture Response

Anomaly Letter — Type of Source not Clear

MAP PROJECTION : UTM
CONTROID : CLARKE 1866
CENTRAL MERIDIAN : 93 DEGREES WEST
FALSE EASTING : 500,000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

SCALE 1:10000

200 0 200 400 600 800 Metres

1000 0 1000 2000 3000 4000 Feet

MAP INDEX

SHEET 1	SHEET 2
SHEET 3	SHEET 4

SURVEYED, COMPILED & INTERPRETED BY geoterrex ltd.

FOR PLACER DOME INC.

AIRBORNE GEOTEM / MAGNETIC SURVEY

PINEBAY AREA

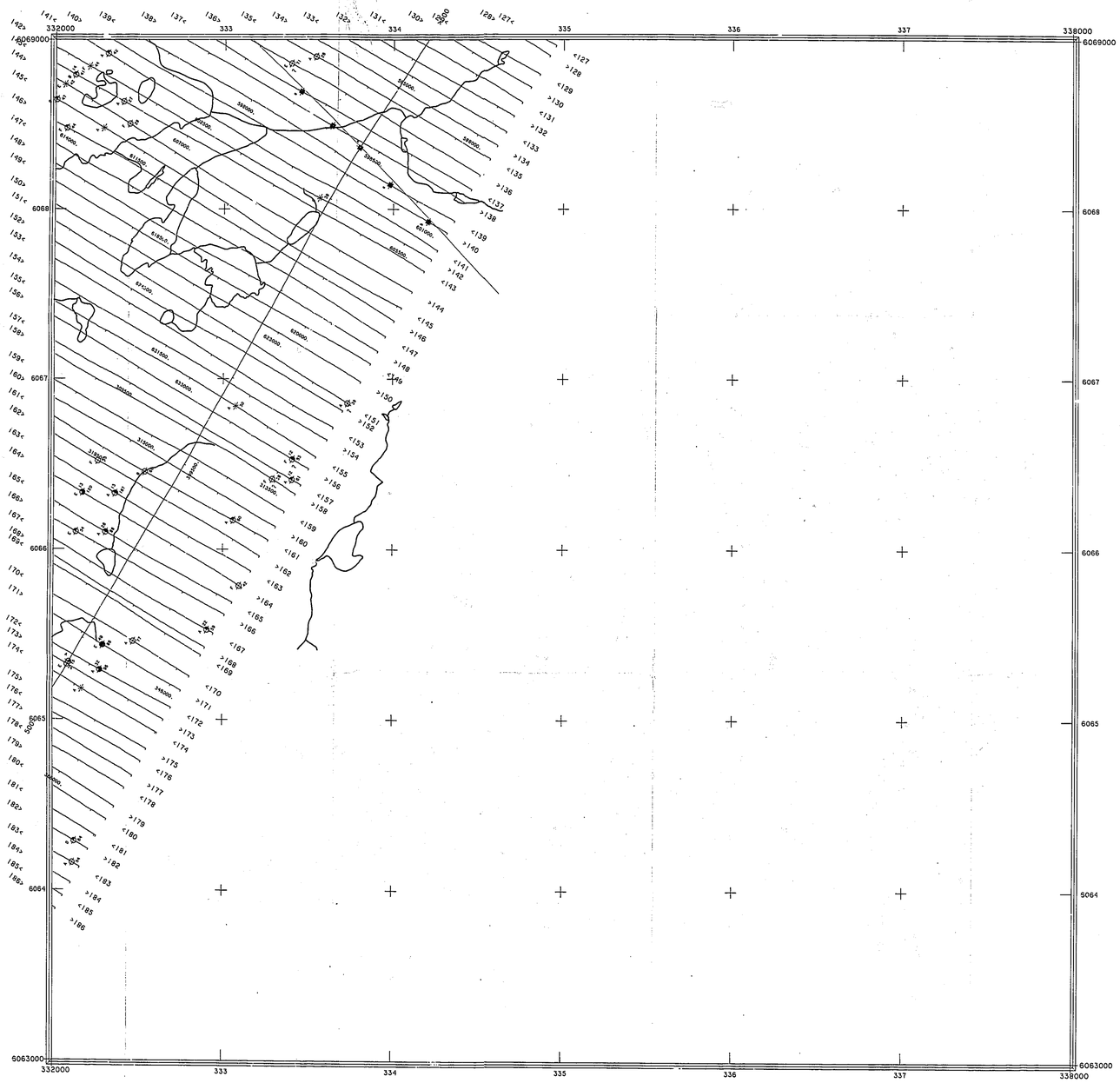
GEOTEM ELECTROMAGNETIC ANOMALY MAP 12637

SHEET 3 OF 4	POSITIONAL CONTROL . . . . . BASED ON	SURVEY ALTITUDE 120 M.
SCALE 1: 10000	HORIZONTALLED PHOTOMOSAICS, GPS, DOPPLER	DATE: APRIL 1991

CHECKED BY:

GEOTERREX PROJECT NO. 656

30X



COMPUTER PLOTTED BY GEOTERREX LTD., OTTAWA, CANADA

GEOTEM® Peak Response Symbols

ANOMALY	CLASSIFICATION
✳	1-2 Channels
◈	3-4 Channels
◈	5-6 Channels
◈	7-8 Channels
◈	9-10 Channels
◆	11-12 Channels

Anomaly Letter — Decay Constant (Optional)
Type of Source not Clear — Dx = AMPLITUDE (PPM)

Culture Response
Anomaly Letter
Type of Source not Clear

MAP PROJECTION : UTM
DATUM : CLARKE 1866
CENTRAL MERIDIAN : 81°30'00" WEST
FALSE EASTING : 500,000 METRES
FALSE NORTHING : 0 METRES
SCALE FACTOR : .9996

SCALE 1:10000

200 0 200 400 600 800 Metres
1000 0 1000 2000 3000 4000 Feet

MAP INDEX

81°14'03" 54°47'23" — 81°21'28" 54°47'32"
SHEET 1 | SHEET 2
SHEET 3 | SHEET 4
81°14'03" 54°42'17" — 81°21'24" 54°42'26"

SURVEYED, COMPILED & INTERPRETED BY geoterrex ltd.		FOR PLACER DOME INC.
AIRBORNE GEOTEM / MAGNETIC SURVEY		
PINEBAY AREA		GEOTEM ELECTROMAGNETIC ANOMALY MAP 72637
SHEET 4 OF 4	POSITIONAL CONTROL . . . . BASED ON	SURVEY ALTITUDE 120 M. CHECKED BY:
SCALE 1:10000	RADIO-CONTROLLED PHOTOGRAPHS, GPS, DOPPLER	DATE: APRIL, 1991 GEOTERREX PROJECT NO. 656

30X

North Star Road

Sourdough Bay Fault

Cabin Zone
70,000 t 6.86 Au 36 Ag

Baker Patton
14,000 t 6.4 Au 32 Ag
0.21 g/t Au 0.3 g/t Ag

Pine Bay Deposit
1.8 Mt 1.86 Au

North Star Mine
340 000 t 9.24 Au

Sourdough Bay
(Athapapuskow Lake)

Murray Lake

Thompson Lake

Thompson Bay
(Athapapuskow Lake)

LEGEND

INTRUSIVE ROCKS

UNIT	ROCK TYPE
16a	Diatreme
16b	Granodiorite
15a	Quartz-feldspar porphyry dyke
15b	Quartz-feldspar porphyry intrusion
15c	Clastic dyke
14a	Gabbro
14b	Fine grained mafic intrusion
14c	Lamprophyre
14d	Diorite
14e	"Spherulitic" dacitic intrusion

AMSK GROUP
SEDIMENTARY AND VOLCANIC ROCKS

UNIT	ROCK TYPE
13a	Basaltic to andesitic hyaloclastic
12a	Laminated chert, greywacke
12b	Cherty mudstone
12c	Graphite-Pyrite horizon
12d	Epiclastic, tuffaceous, andesitic
11a	Rhyolitic lapilli to tuff breccia
11b	Heterolithic rhyolitic breccia
11c	Aphyric rhyolitic dykes
11d	Rhyolitic flow, hyaloclastite, lobes
10a	Vesicular basalt flow
10b	Aphyric basalt flow
10c	Basaltic flow breccia, silicified and pyritized
10d	Basalt flow, pillowed, flow brecciated
10e	Magnetic basalt, flow brecciated, felsic breccias
9a	Andesitic tuff
9b	Andesitic lapilli tuff
9c	Plagioclase phyric andesitic flow
9d	Andesitic flow breccia
8a	Semi-massive, massive sulphide
8b	Tuffite, sulphide/chert beds
8c	Sulphide-rich veins
8d	Bedded cherty tuff
7a	Rhyolite tuff
7b	Rhyodacitic tuff
7c	Dacitic tuff
6a	Aphyric dacite flows
6b	Rhyolitic subvolcanic centre, dykes
6c	Aphyric rhyodacitic breccia, lobes
6d	White aphyric rhyolite flow
5a	Massive rhyolite flows
4a	Rhyolite flow breccia
3a	Heterolithic rhyolite breccia
3b	Amygdaloidal rhyolite flow
3c	Rhyolite flow breccia
2a	Rhyolitic/rhyodacitic flows
2b	Rhyodacite flows
2c	Dacite flow
1a	"Two-quartz" crystal rich, rhyolite lapilli tuff
1b	Aphyric rhyolite breccia
1c	Aphyric rhyolite flows

SYMBOLS

	Geological contact	(defined, approximate, assumed)
	Schistosity, foliation	(horizontal, inclined vertical, dip unknown)
	Bedding	(horizontal, inclined vertical, dip unknown)
	Facing direction of strata	
	Anticline	(defined, approximate)
	Syncline	(defined, approximate)
	Fault	(defined, approximate, assumed)
	Direction of displacement	
	Outcrop	
	Subcrop	
	Shaft	(vertical)
124-76	Drill hole	(vertical projection)
	Contour of Hashimoto Index higher than 90	

UTM NORTH IS 2 DEG 19 MIN WEST OF TRUE NORTH

0 200 400 600
METRES

PLACER DOME INC. 12637

DRAWN LD/GNL	PINEBAY PROPERTY
DATE 83.01.08	GEOLOGY
SCALE 1:2000	

Thompson Lake

Murray Lake

Sourdough Bay (Athapapuskow Lake)

Thompson Bay

DATA PLOTTED ON THIS MAP:

FIELD FILE
× POINTS: HASH 529.STA

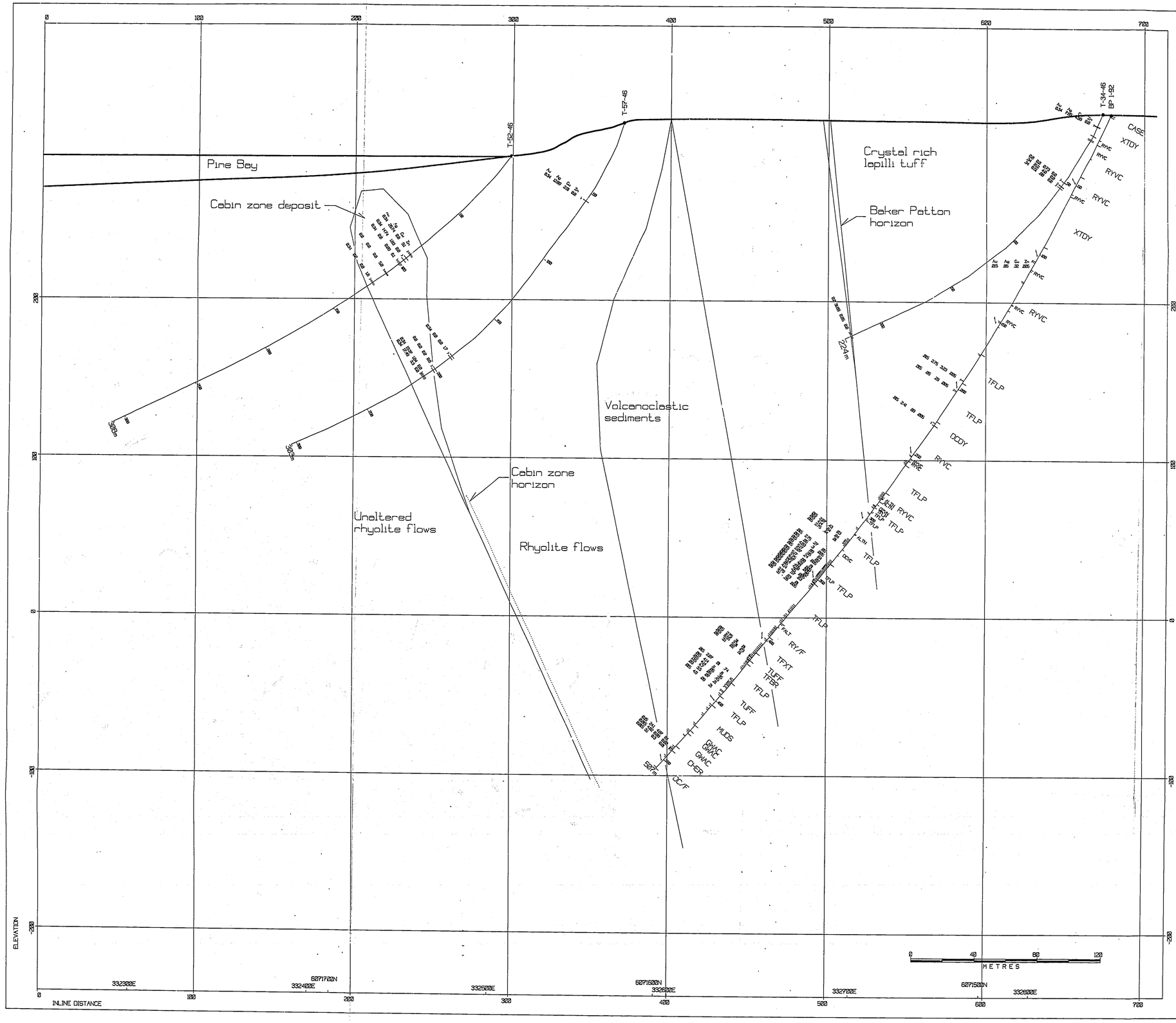
METRES

PLACER DOME INC. 72637
PINE BAY (284)
HASHIMOTO INDEX

DRAWN LAG
DATE FEB/ 5/93
SCALE 1:5000

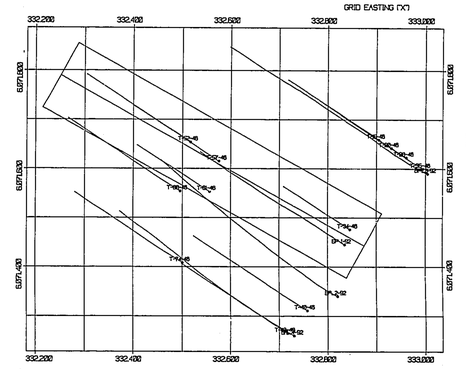
FIG. PLATE

30X



GEOLOGIC LEGEND

CASE - Casing
AN/F - Andesitic flow
ANVC - Andesitic debris flow
BAST - Basalt flow, flow breccia
CHER - Bedded cherty tuff
CHTF - Cherty rhyolitic tuff
CSSZ - Chloritic sulphide stringer zone
DCDY - Dacitic dyke
DC/F - Dacitic flow
DCVC - Dacitic flow breccia
DIOR - Diorite dyke
EPIC - Conglomeratic debris flow
GWAC - Thinly bedded siltstone
HYAL - Hyaloclastitic rhyolite
MUDS - Mudstone
RYVC - Crystal rich rhyolitic lapilli tuff
RY/F - Rhyolitic flows
SHER - Fault zone
TFBR - Rhyolitic tuff breccia
TFLP - Rhyolitic lapilli tuff
TFXT - Rhyolitic crystal tuff
TUFF - Finely bedded tuff
XTDY - Clastic dyke



0 100 200 300 400
METRES

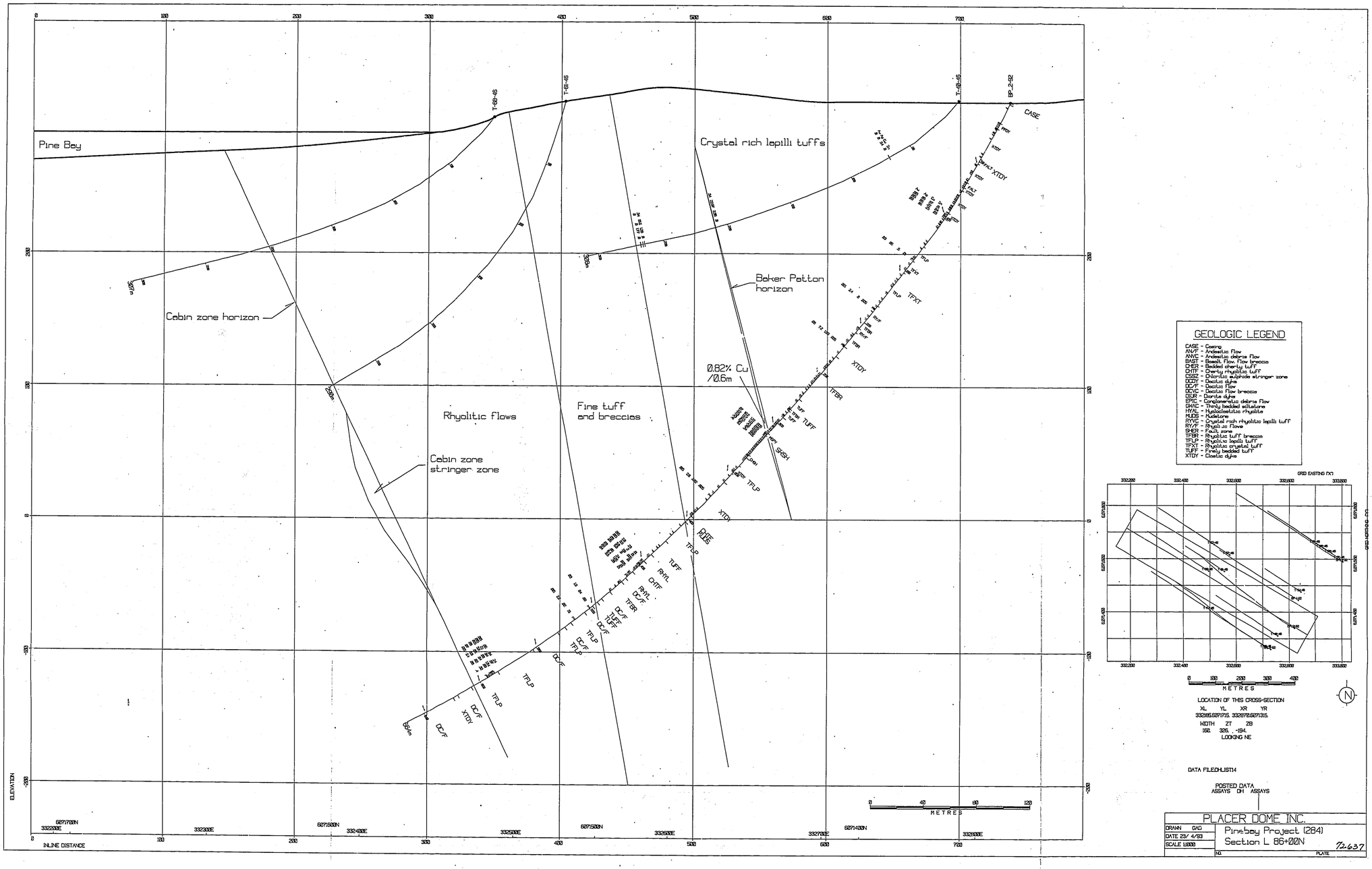
LOCATION OF THIS CROSS-SECTION
XL YL XR YR
332250.6071730. 332875.6071443.
WIDTH ZT ZB
150. 326. -194.
LOOKING NE

DATA FILE:CHLIST14

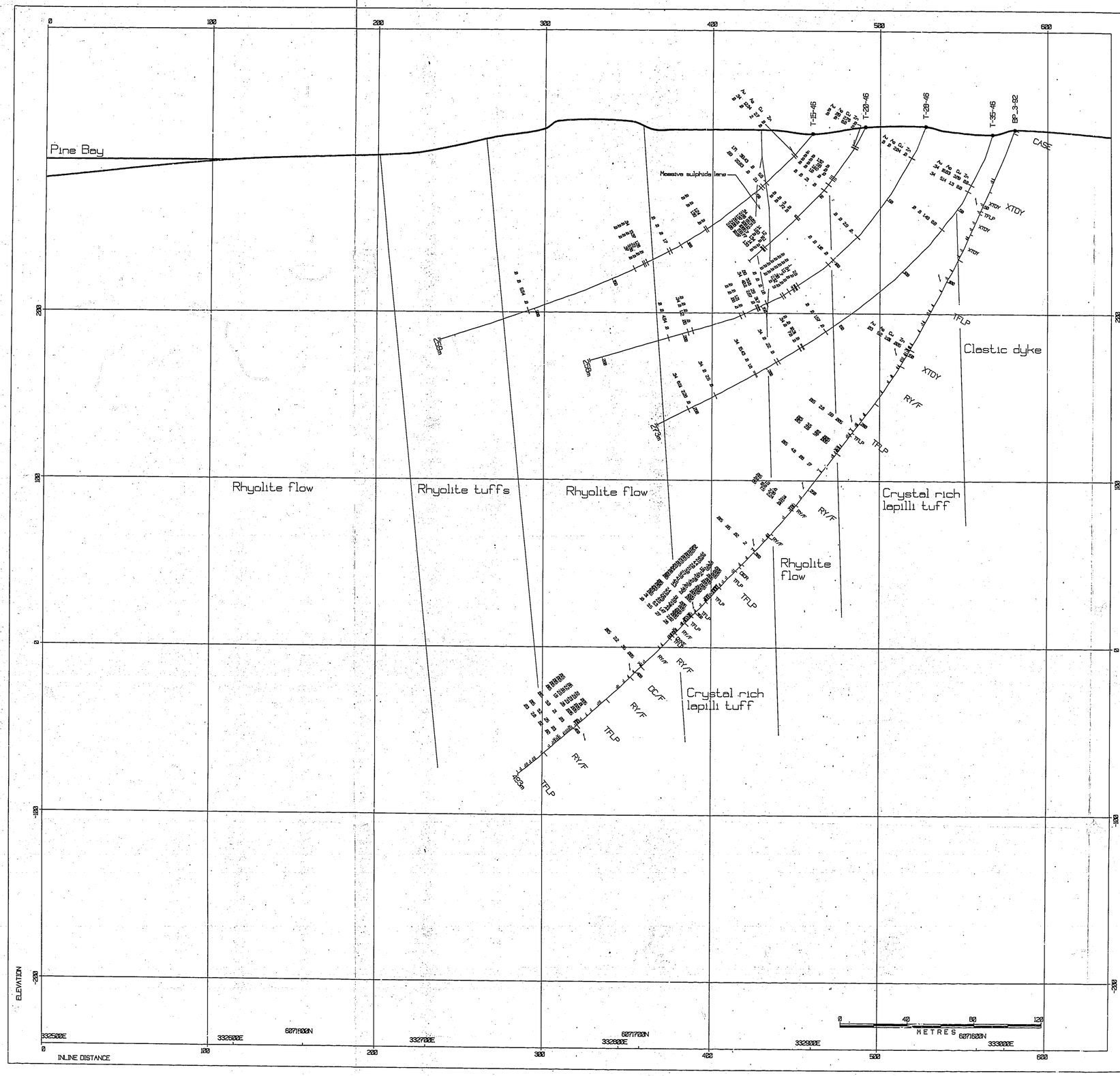
POSTED DATA
ASSAYS DH ASSAYS

PLACER DOME INC.	
DRAWN GAD	Pine Bay project (284)
DATE 23/ 4/93	Section L 87+00n
SCALE 1:1000	NO. 72637 PLATE

GAD DESIGN PANFILE: 9 23/ 4/93

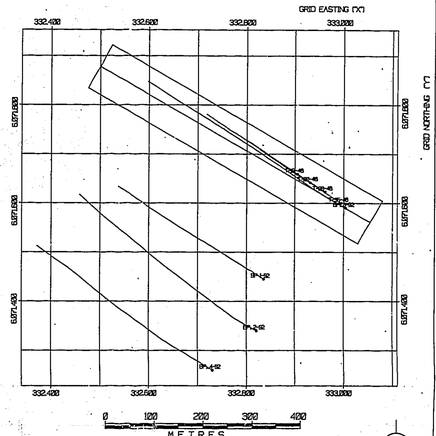

Pine Bay
Crystal rich lapilli tuffs
Baker Patton horizon
Cabin zone horizon
Cabin zone stringer zone
Rhyolitic flows
Fine tuff and breccias
0.82% Cu /0.6m
T-69-46
T-61-46
T-49-46
BP_2-92
CASE
ANVT
XTDY
TFXT
TFBR
TUFF
TFLP
RHYL
DCYF
DIOR
SHSH
ELEVATION
INLINE DISTANCE
METRES
GEOLOGIC LEGEND
CASE - Casing
ANVT - Andesitic flow
AVBX - Andesitic debris flow
BAST - Basalt flow flow breccia
CHER - Bedded cherty tuff
CHTF - Cherty rhyolitic tuff
CSBZ - Chloritic sulphide stringer zone
DCDY - Dacitic dyke
DCYF - Dacitic flow
DDVC - Dacitic flow breccia
DIOR - Diorite dyke
EPIC - Conglomeratic debris flow
GWAC - Thinly bedded siltstone
HYAL - Hyaloclastitic rhyolite
MUDS - Mudstone
RYVC - Crystal rich rhyolitic lapilli tuff
RYZF - Rhyolite flows
SHSH - Fault zone
TFBR - Rhyolitic tuff breccia
TFLP - Rhyolitic lapilli tuff
TFXT - Rhyolitic crystal tuff
TUFF - Finely bedded tuff
XTDY - Clastic dyke
GRID EASTING (m)
GRID NORTHING (m)
METRES
LOCATION OF THIS CROSS-SECTION
XL YL XR YR
332185 5971715 332870 5971315
WIDTH ZT ZB
162 325 -134
LOOKING NE
DATA FILE:HLIST14
POSTED DATA
ASSAYS DH ASSAYS
PLACER DOME INC.
DRAWN GAG
DATE 23/ 4/93
SCALE 1:1000
Pinsbey Project (284)
Section L 86+00N
NO
PLATE
72637

30X



GEOLOGIC LEGEND

CASE - Casing
ANVF - Andesitic flow
ANVC - Andesitic debris flow
BAST - Basalt flow, flow breccia
CHER - Bedded cherty tuff
CHTF - Cherty rhyolitic tuff
CSBZ - Chloritic sulphide stringer zone
DDDY - Dacitic dyke
DCVF - Dacitic flow
DDVC - Dacitic flow breccia
DIOR - Diorite dyke
EPIC - Conglomeratic debris flow
GMAC - Thinly bedded siltstone
HYAL - Hyaloclastitic rhyolite
MUDS - Mudstone
RYVC - Crystal rich rhyolitic lapilli tuff
RY/F - Rhyolitic flows
SHER - Fault zone
TFBR - Rhyolitic tuff breccia
TFLP - Rhyolitic lapilli tuff
TFXT - Rhyolitic crystal tuff
TUFF - Finely bedded tuff
XTDY - Clastic dyke



LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332500.6071878.		333054.6071561.	

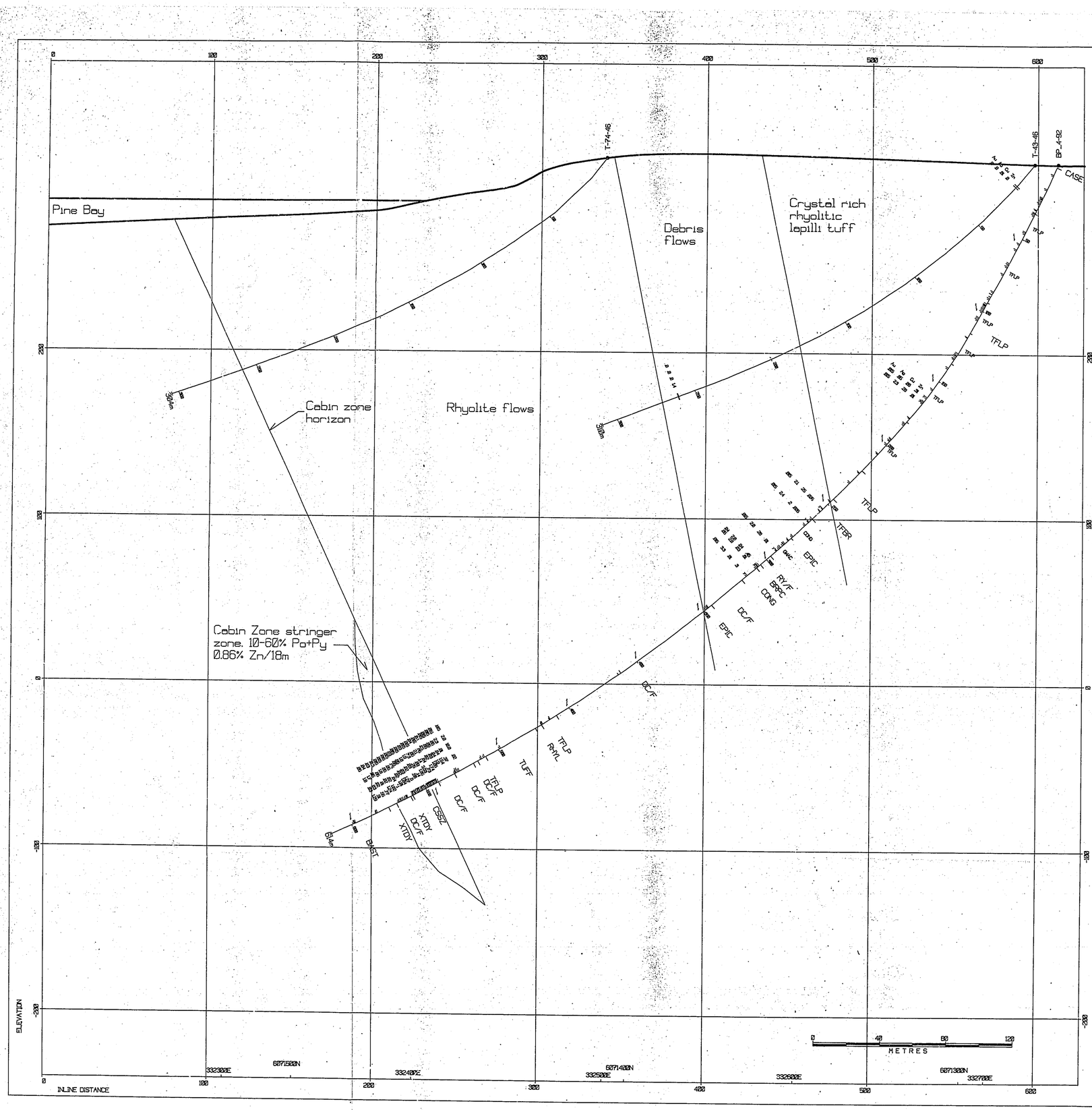
WIDTH	ZT	ZB
100.	322.	-194.

LOOKING NE

DATA FILE:CHLIST14

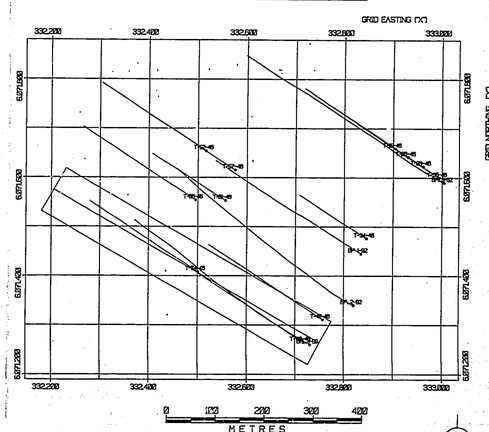
POSTED DATA
ASSAYS DH ASSAYS

PLACER DOME INC.	7:637
DRAWN : GAD	Pine Bay project (284)
DATE 27/ 4/93	Section L 89+00N
SCALE 1:1000	
NO.	PLATE



GEOLOGIC LEGEND

CASE - Casing
AN/F - Andesitic flow
ANVC - Andesitic debris flow
BAST - Basalt flow, flow breccia
CHER - Bedded cherty tuff
CHTF - Cherty rhyolitic tuff
CSSZ - Chloritic sulphide stringer zone
DCDY - Dacitic dyke
DC/F - Dacitic flow
DCVC - Dacitic flow breccia
DIOR - Diorite dyke
EPIC - Conglomeratic debris flow
GWAC - Thinly bedded siltstone
HYAL - Hyaloclastitic rhyolite
MUDS - Mudstone
RYVC - Crystal rich rhyolitic lapilli tuff
RY/F - Rhyolitic flows
SHER - Fault zone
TFBR - Rhyolitic tuff breccia
TFLP - Rhyolitic lapilli tuff
TFXT - Rhyolitic crystal tuff
TUFF - Finely bedded tuff
XTDY - Clastic dyke



LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332205.	6071575.	332752.	6071264.

WIDTH	ZT	ZB
100.	326.	-194.

LOOKING NE

DATA FILE:CHLIST14

POSTED DATA
ASSAYS DH ASSAYS

PLACER DOME INC. 72637

DRAWN GAD	Pine Bay project (284)
DATE 23/ 4/93	Section L 85+00n
SCALE 1:1000	
NO.	PLATE

Thompson Lake

Murray Lake

Sourdough Bay (Lake Athapapuskow)

Thompson Bay (Lake Athapapuskow)

UTM NORTH IS 2 DEG 58 MIN WEST OF TRUE NORTH

0 200 400 600 METRES

PLACER DOME INC.	72637
DRAWN T.J.C	PINEBAY AREA
DATE 821214	PINEBAY PROPERTY
SCALE 1:5000	SAMPLE LOCATION
	NS



331 000 E
332 000 E
333 000 E
334 000 E
6 073 000 N
6 072 000 N
6 071 000 N

Flintoba Creek
Sourdough Bay
Birch Peninsula
Pine Bay
Birch Bay
Pine Point

Pine Bay Deposit
1.18 million tonnes
1.5% Cu

Cabin Zone
72,000 tonnes 6.9% Zn, 1% Cu

Baker Patton
45,000 tonnes .31 g/t Au, 11.0 g/t Ag, 0.47% Cu, 3.75% Zn
27,000 tonnes .31 g/t Au, 11.0 g/t Ag, 1.66% Cu, 1.85% Zn
23,000 tonnes 2.48 g/t Au, 195.42 g/t Ag, 0.42 % Cu, 8.26% Zn

1-67, 2-67, 3-67, 4-67, 5-67, 6-67, 7-67, 8-67, 9-67, 10-67, 11-67, 12-67, 13-67, 14-67, 15-67, 16-67, 17-67, 18-67, 19-67, 20-67, 21-67, 22-67, 23-67, 24-67, 25-69, 26-69, 27-67, 28-67, 29-67, 30-67, 31-67, 32-67, 33-67, 34-67, 35-67, 36-67, 37-67, 38-67, 39-67, 40-67, 41-67, 42-67, 43-67, 44-67, 45-67, 46-67, 47-67, 48-67, 49-67, 50-67, 7-68, 8-68

0 100 200 300
METRES

PLACER DOME INC.	
DRAWN MRC	PINEROOT MINERAL ENTERPRISES
DATE 91/11/13	DIAMOND DRILL HOLE PLAN
SCALE 1:5000	1967 – 1969 72637
FA91C012	NO. PLATE 5

30X

PLACER DOME INC.

PINEBAY MINES LIMITED

DIAMOND DRILL HOLE PLAN

1976 – 1977

72637

PLATE 6

DRAWN: MRC | DATE: 8/11/12 | SCALE: 1:2000 | FM15110 | NO. 10050

METRES 0 200 400 600 800

SCALE 1:2500

Flintoba Creek

Sourdough Bay

Old Patton Mine

Pine Bay Decline 135 Ore Stope

POWER LINE

Pine Bay

Pine Point

Birch Peninsula

Birch

Birch Trail

DDH-1-76

GRID NORTHING (Y's)

GRID EASTING (X's)

6,062,000 6,063,000 6,064,000 6,065,000 6,066,000 6,067,000 6,068,000 6,069,000 6,070,000 6,071,000 6,072,000 6,073,000

326,000 327,000 328,000 329,000 330,000 331,000 332,000 333,000

30X

PLACER DOME INC.

DRAWN	MEC
DATE	91/11/13
SCALE	1:10000
JOB	91G1011

GRANGES EXPLORATION LIMITED

DIAMOND DRILL HOLE PLAN

1986 – 1987

No. 7 PAGE 7

74-37

0 200 400 600 800

METRES

329 000 E 330 000 E 331 000 E 332 000 E 333 000 E 334 000 E

6 066 000 N 6 067 000 N 6 068 000 N 6 069 000 N 6 070 000 N 6 071 000 N 6 072 000 N 6 073 000 N

Lake Ahnapaduskow

Pine Point

Birch Bay

Birch Peninsula

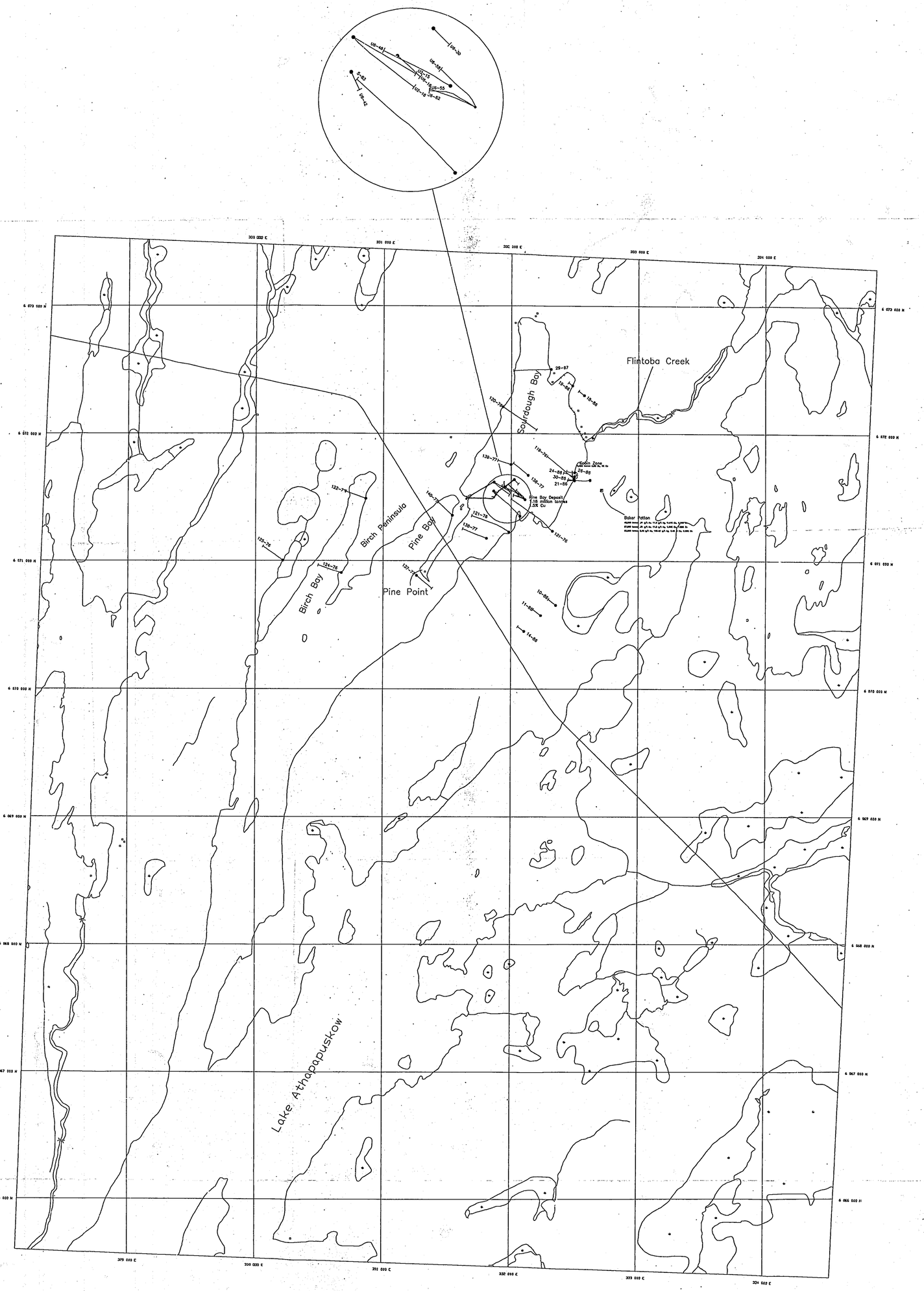
Pine Bay

Sourdough Bay

Flintobo Creek

SCALE 1:2500

25-86 21-86 30-86 29-86 24-86 26-86 28-86 27-86 20-86 24-86



PLACER DOME INC.

DRAWN MRC	PLAN OF RE-LOGGED DRILL HOLES
DATE 91/11/13	1991 FIELD SEASON
SCALE 1:10000	72637
FASHCRD.	NO. PLATE 8

30X

331 000 E
332 000 E
333 000 E
334 000 E
6 073 000 N
6 072 000 N
6 071 000 N
6 070 000 N

Flintoba Creek
Sourdough Bay
Pine Bay
Birch Peninsula
Birch Bay
Pine Point
Sourdough Bay Fault
Cabin Zone
72,000 tonnes 6.9% Zn, 2% Pb
Pine Bay Deposit
18 million tonnes
1.5% Cu
Baker Patton
45,000 tonnes .31 g/t Au, 11.5 g/t Ag, 0.47% Cu, 3.75% Zn
27,000 tonnes .31 g/t Au, 11.5 g/t Ag, 1.66% Cu, 1.85% Zn
23,000 tonnes 2.48 g/t Au, 195.42 g/t Ag, 0.42 % Cu, 8.20% Zn
29-87
Birch Bay Pyroclastic Sequence
Centennial–Sourdough Sequence
Sourdough Bay Volcaniclastic Sequence
Baker Patton Felsic Complex

SYMBOLS

- Geological contact (defined, approximate, assumed)
- Schistosity, foliation (horizontal, inclined vertical, dip unknown)
- Bedding (horizontal, inclined vertical, dip unknown)
- Facing direction of strata
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Fault (defined, approximate, assumed)
- Direction of displacement
- Outcrop
- Subcrop
- Shaft (vertical)
- Drill hole (vertical projection) 124-76

LEGEND:

POST–MISSI INTRUSIVE ROCKS

UNIT	ROCK TYPE
16a	Diatreme
16b	Diatreme?–amygdaloidal?–spherulitic?
15a	Quartz–feldspar dyke
15b	Quartz–feldspar phyric intrusion
14a	Gabbro
14b	Fine grained mafic intrusions/dykes
14c	Lamprophyre
14d	Diorite

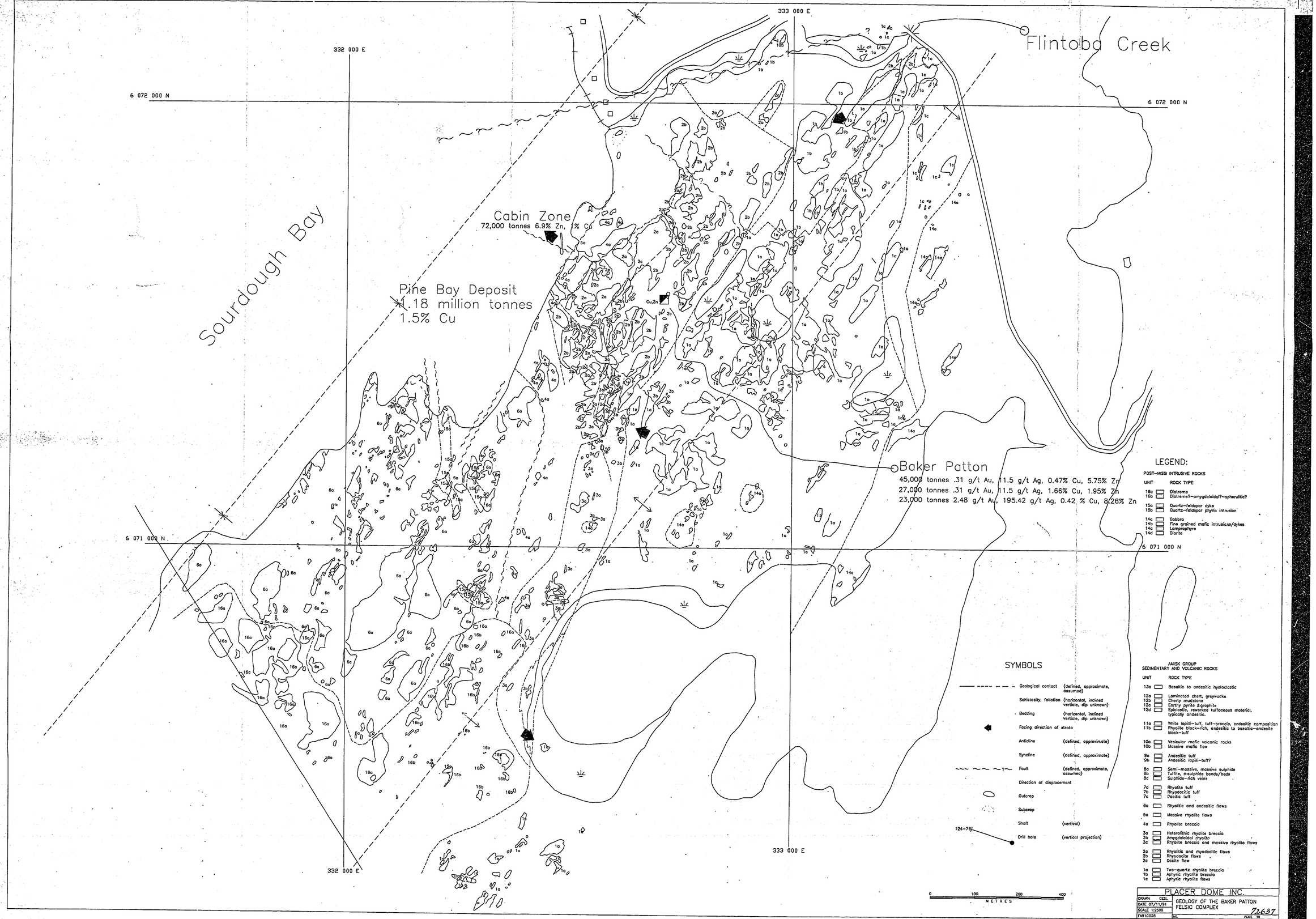
AMISK GROUP
SEDIMENTARY AND VOLCANIC ROCKS

UNIT	ROCK TYPE
13a	Basaltic to andesitic hyaloclastic
12a	Laminated chert, greywacke
12b	Cherty mudstone
12c	Earthy pyrite ±graphite
12d	Epiclastic, reworked tuffaceous material, typically andesitic.
11a	White lapilli–tuff, tuff–breccia, andesitic composition
11b	Rhyolite block–rich, andesitic to basaltic–andesite block–tuff
10a	Vesicular mafic volcanic rocks
10b	Massive mafic flow
9a	Andesitic tuff
9b	Andesitic lapilli–tuff?
8a	Semi–massive, massive sulphide
8b	Tuffite, ±sulphide bands/beds
8c	Sulphide–rich veins
7a	Rhyolite tuff
7b	Rhyodacitic tuff
7c	Dacitic tuff
6a	Rhyolitic and andesitic flows
5a	Massive rhyolite flows
4a	Rhyolite breccia
3a	Heterolithic rhyolite breccia
3b	Amygdaloidal rhyolite
3c	Rhyolite breccia and massive rhyolite flows
2a	Rhyolitic and rhyodacitic flows
2b	Rhyodacite flows
2c	Dacite flow
1n	Two–quartz rhyolite breccia
1b	Aphyric rhyolite breccia
1c	Aphyric rhyolite flows

0 200 400 600
METRES

PLACER DOME INC.	
DRAWN CESL	GEOLOGY OF THE SOURDOUGH BAY AREA
DATE 07/11/91	
SCALE 1:5000	72,637
FAS1C009	NO. PLATE 10

30X


333 000 E
332 000 E
Flintobd Creek
6 072 000 N
Sourdough Bay
Cabin Zone
72,000 tonnes 6.9% Zn, % Cu
Pine Bay Deposit
1.18 million tonnes
1.5% Cu
Cu,Zn
Baker Patton
45,000 tonnes .31 g/t Au, 11.5 g/t Ag, 0.47% Cu, 5.75% Zn
27,000 tonnes .31 g/t Au, 11.5 g/t Ag, 1.66% Cu, 1.95% Zn
23,000 tonnes 2.48 g/t Au, 195.42 g/t Ag, 0.42 % Cu, 8.26% Zn
6 071 000 N
332 000 E
333 000 E
LEGEND:
POST-MISSI INTRUSIVE ROCKS
UNIT ROCK TYPE
16a Diatreme
16b Diatreme?-amygdaloidal?-spherulitic?
15a Quartz-feldspar dyke
15b Quartz-feldspar pityric intrusion
14a Gabbro
14b Fine grained mafic intrusions/dykes
14c Lamprophyre
14d Diorite
SYMBOLS
Geological contact (defined, approximate, assumed)
Schistosity, foliation (horizontal, inclined vertical, dip unknown)
Bedding (horizontal, inclined vertical, dip unknown)
Facing direction of strata
Anticline (defined, approximate)
Syncline (defined, approximate)
Fault (defined, approximate, assumed)
Direction of displacement
Outcrop
Subcrop
Shaft (vertical)
124-76 Drill hole (vertical projection)
AMISK GROUP
SEDIMENTARY AND VOLCANIC ROCKS
UNIT ROCK TYPE
13a Basaltic to andesitic hyaloclastic
12a Laminated chert, greywacke
12b Cherty mudstone
12c Earthy pyrite ±graphite
12d Epiclastic, reworked tuffaceous material, typically andesitic.
11a White lapilli-tuff, tuff-breccia, andesitic composition
11b Rhyolite block-rich, andesitic to basaltic-andesite block-tuff
10a Vesicular mafic volcanic rocks
10b Massive mafic flow
9a Andesitic tuff
9b Andesitic lapilli-tuff?
8a Semi-massive, massive sulphide
8b Tuffite, ±sulphide bands/beds
8c Sulphide-rich veins
7a Rhyolite tuff
7b Rhyodacitic tuff
7c Dacitic tuff
6a Rhyolitic and andesitic flows
5a Massive rhyolite flows
4a Rhyolite breccia
3a Heterolithic rhyolite breccia
3b Amygdaloidal rhyolite
3c Rhyolite breccia and massive rhyolite flows
2a Rhyolitic and rhyodacitic flows
2b Rhyodacite flows
2c Dacite flow
1a Two-quartz rhyolite breccia
1b Aphyric rhyolite breccia
1c Aphyric rhyolite flows
0 100 200 400
METRES
PLACER DOME INC.
DRAWN CCSL
DATE 07/11/91
SCALE 1:2500
FA91C03B
GEOLOGY OF THE BAKER PATTON FELSIC COMPLEX
71637
NO.
PLATE 12

30X

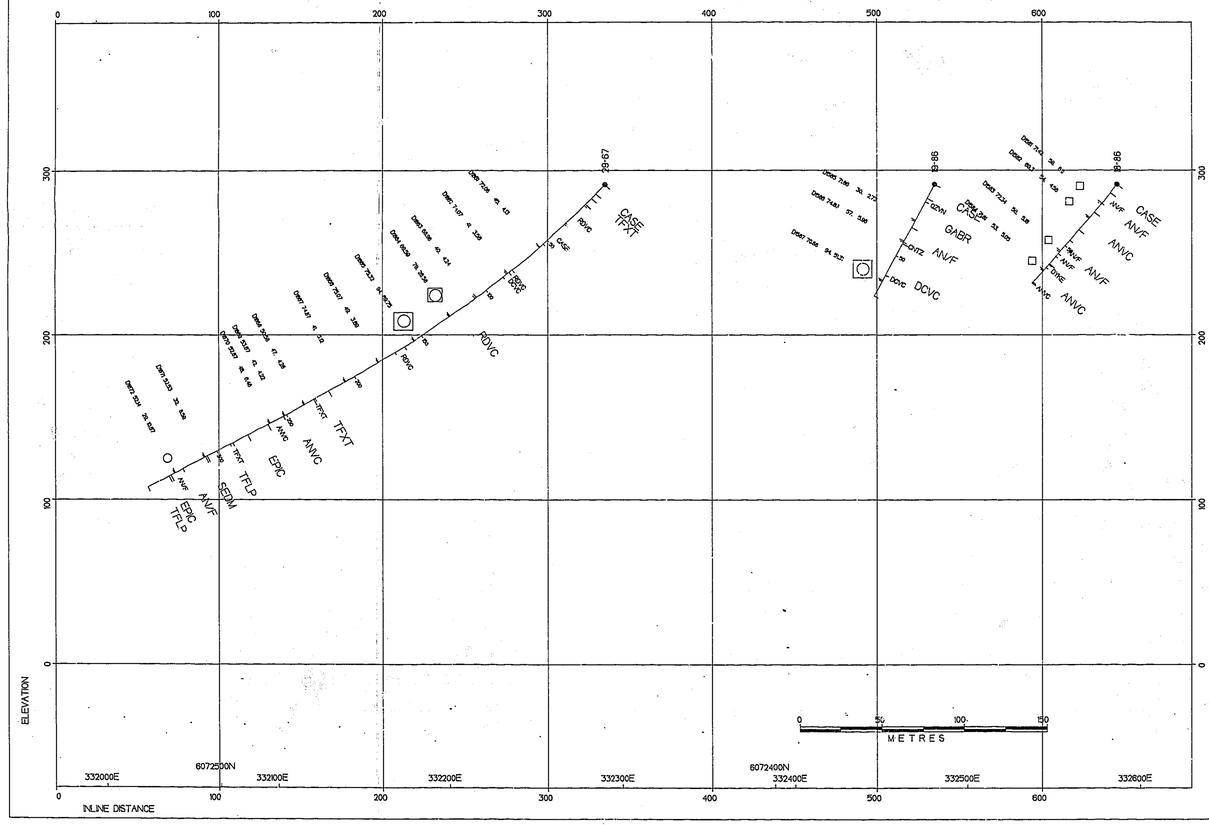
SYMBOLOGY FOR ALTERATION INDICES

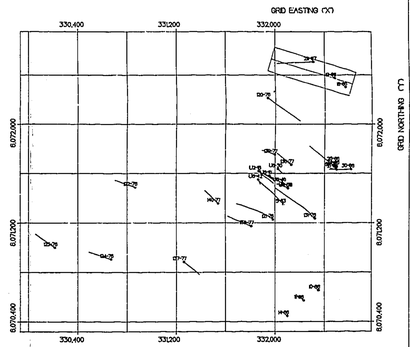
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

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LOOKING NE

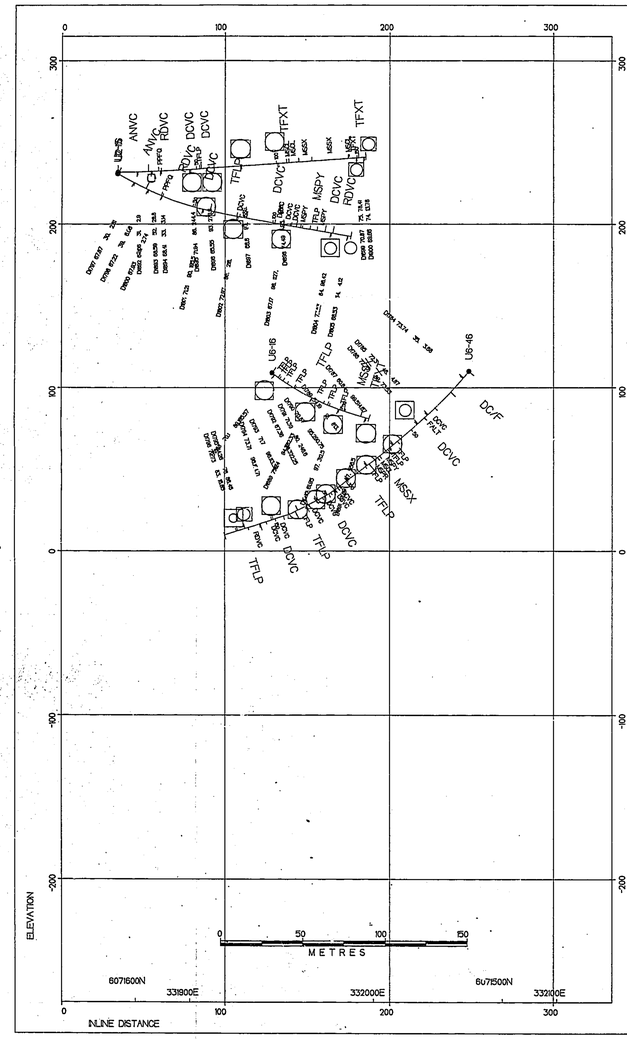
DATA FILE:HLIST.I1

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

DGM/ CREATED RUN FILE: 29 10/9/91

PLACER DOME INC.	72637
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:500	DDH 29-67, 18, AND 19-86
NO.	PLATE 13.1

STANLEY 1/16 Guard MADE IN U.S.A. PAT. NO. 3,313,036 24X



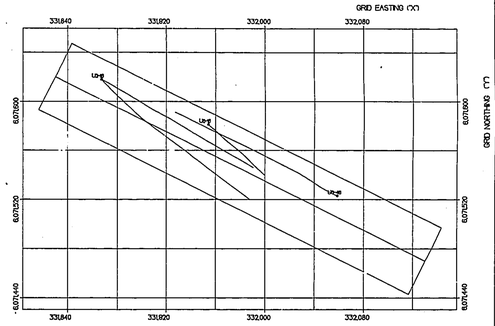
SYMBOLOGY FOR ALTERATION INDICES

ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED



LOCATION OF THIS CROSS-SECTION

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331830,6071620, 332230,6071470,

WIDTH ZT ZB
60, 241, -200,
LOOKING NE

DATA FILE:DHLIST12

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

PLACER DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 13/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:500	DDH U2-15,16, U8-16,46 72637
	NO. PLATE 13b

24X

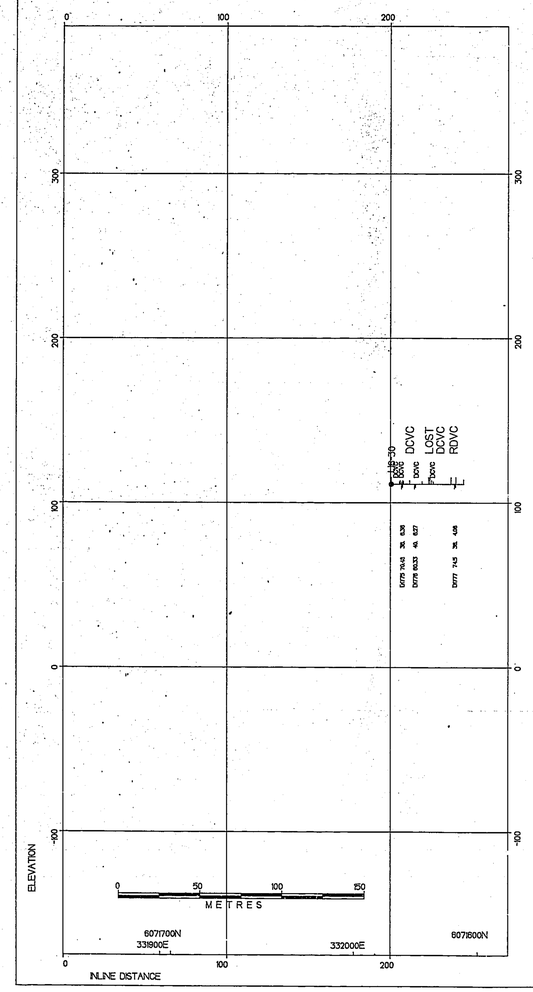
SYMBOLOGY FOR ALTERATION INDICES

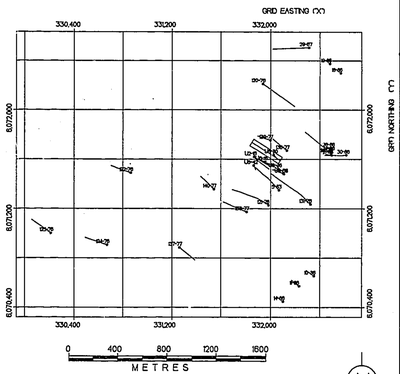
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

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WIDTH	ZT	ZB
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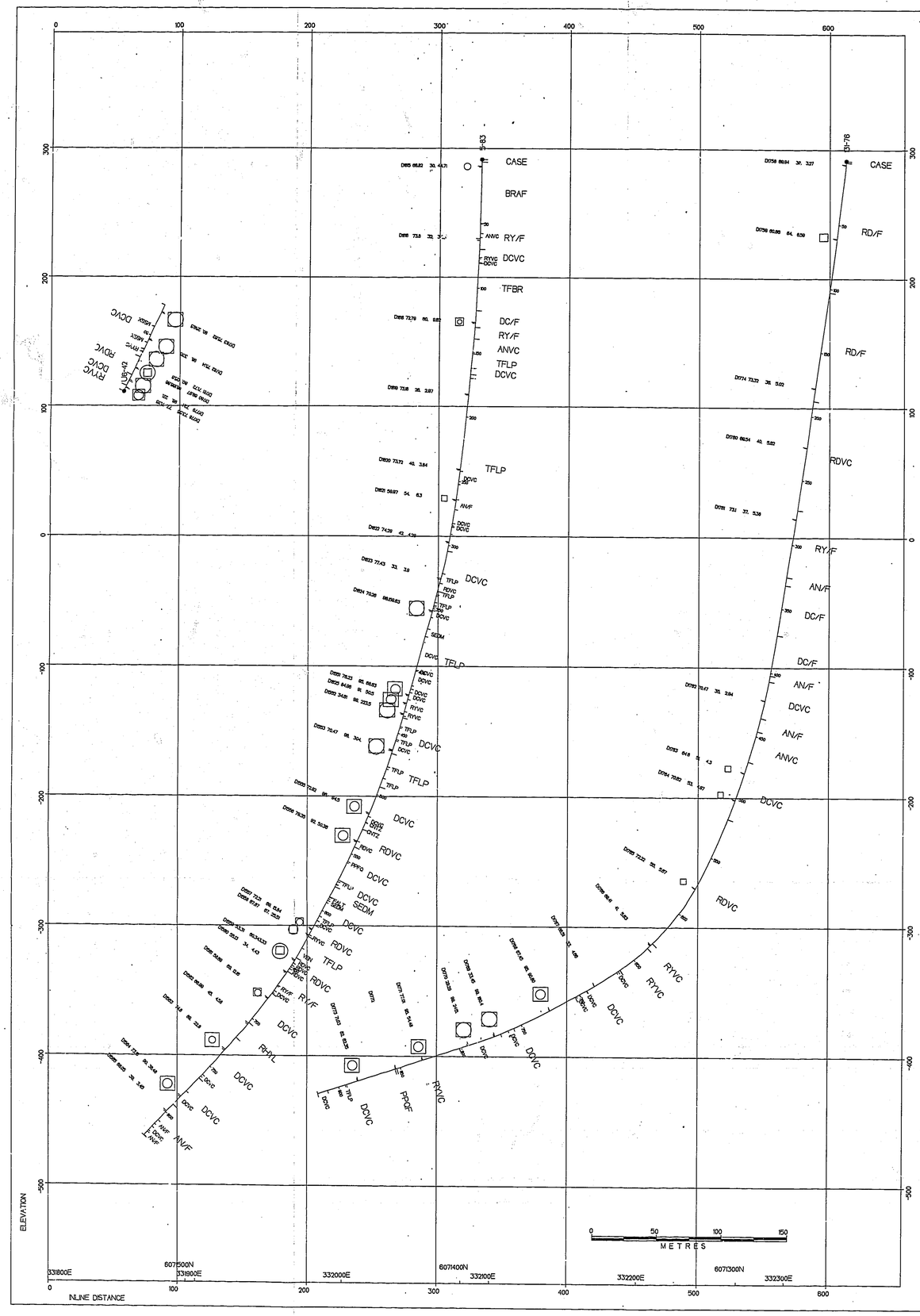
LOOKING NE

DATA FILE:DHLIST.II

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

DGM CREATED RUN FILE: 29 10/9/92

PLACER DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 16/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:500	DDH UG-30 72637
	NO. PLATE 13c


0
100
200
300
400
500
600
300
200
100
0
-100
-200
-300
-400
-500
CASE
BRAF
RY/F
ANVC
RYVC
DCVC
TFBR
DC/F
RY/F
ANVC
TFLP
DCVC
TFLP
DCVC
TFLP
DCVC
RDVC
DCVC
TFLP
DCVC
RDVC
DCVC
SEDM
DCVC
RDVC
TFLP
RDVC
RY/F
DCVC
RHYL
DCVC
DCVC
ANVC
DCVC
TFLP
DCVC
TFLP
DCVC
TFLP

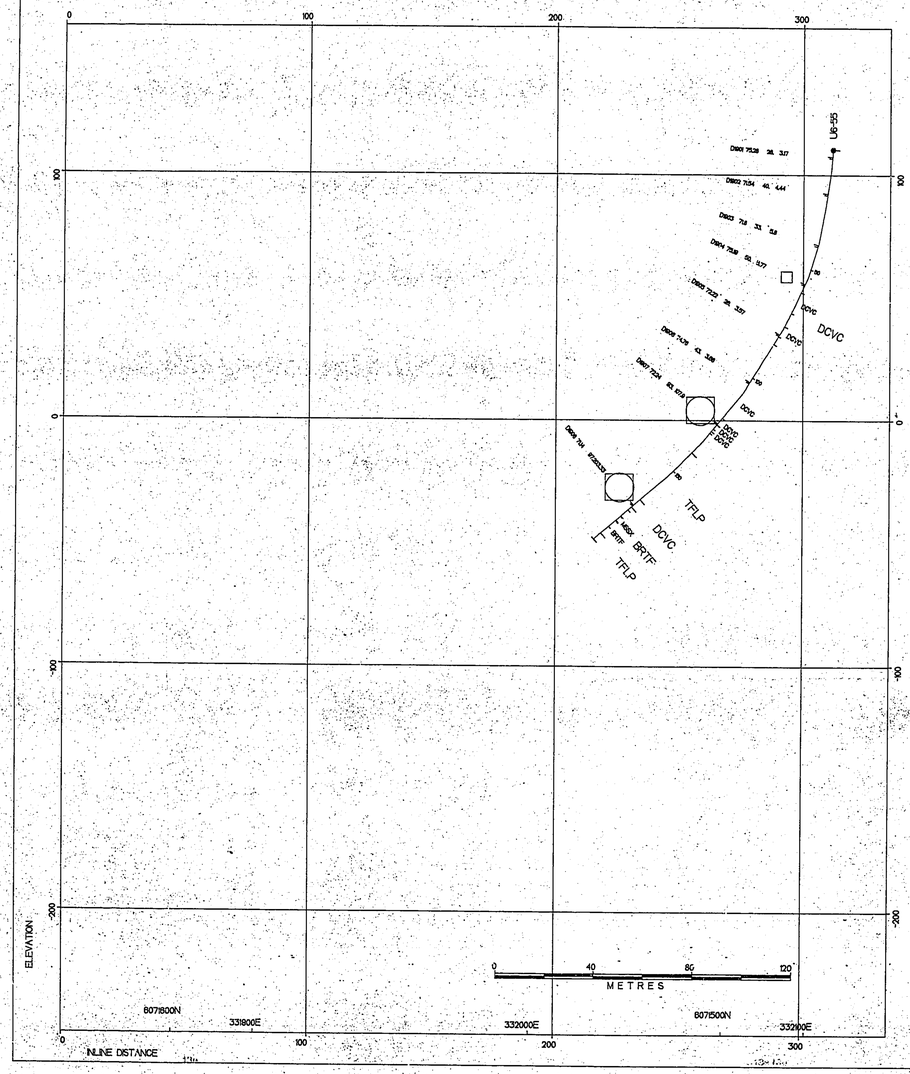
SYMBOLOGY FOR ALTERATION INDICES

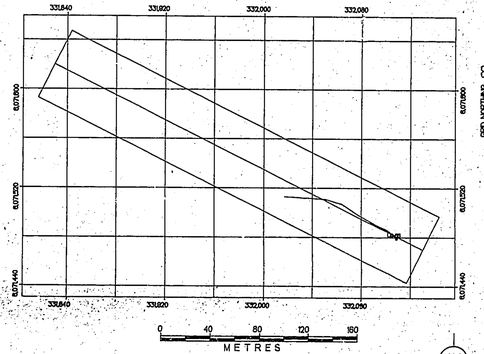
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
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WIDTH	ZT	ZB
60.	110.	-200.

LOOKING NE

DATA FILE:DHLIST3

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

DGM CREATED RUN FILE: 25 10 X 7.5

PLACER DOME INC. 72637

DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH U6-55
	NO. PLATE 13e

24X

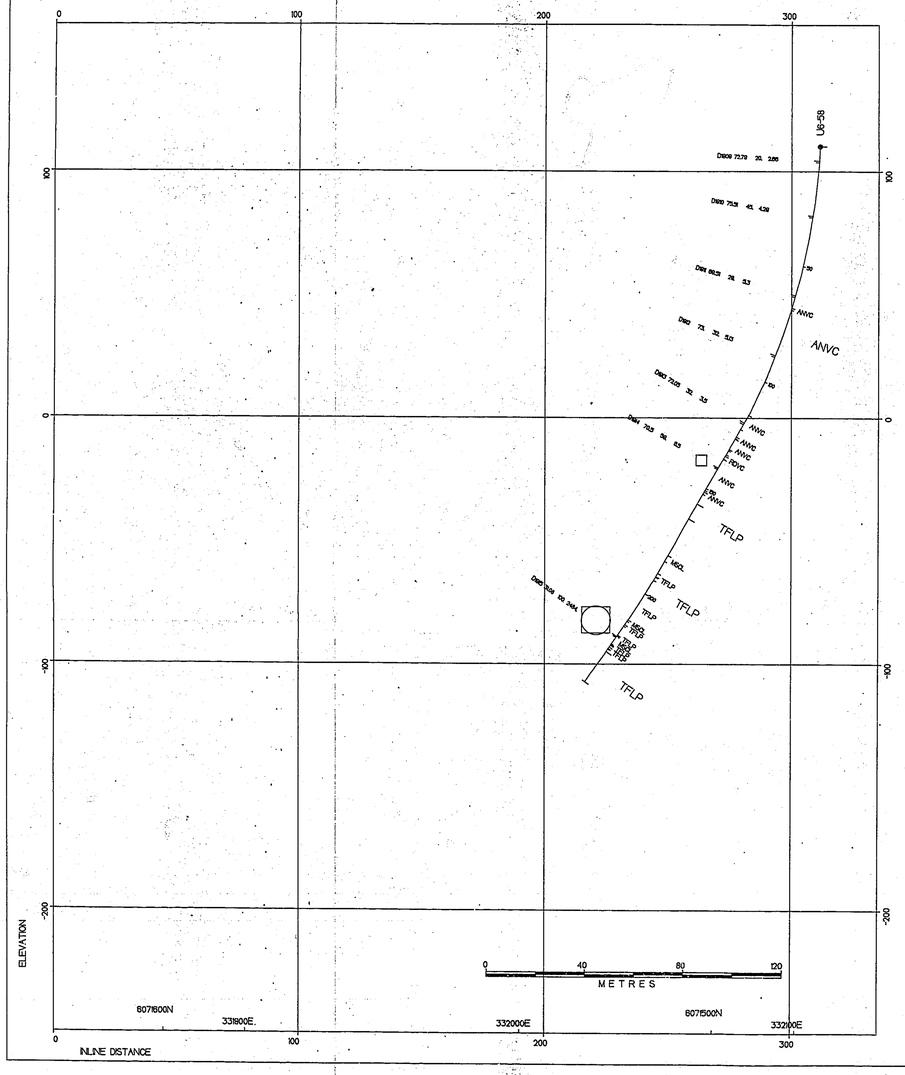
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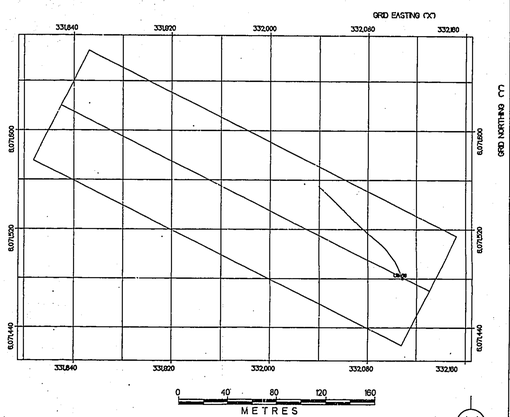
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
331830.	6071620.	332130.	6071470.

WIDTH	ZT	ZB
100.	110.	-200.

LOOKING NE

DATA FILE:DHLIST14

POSTED DATA
ASSAYS DH ROCK TYPE
S/MP PQ
SiO2 RI
Al

DGM CREATED RUN FILE: 26 10/9/26

PLACER·DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/82	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH U6-58 72.637
	NO. PLATE 13F

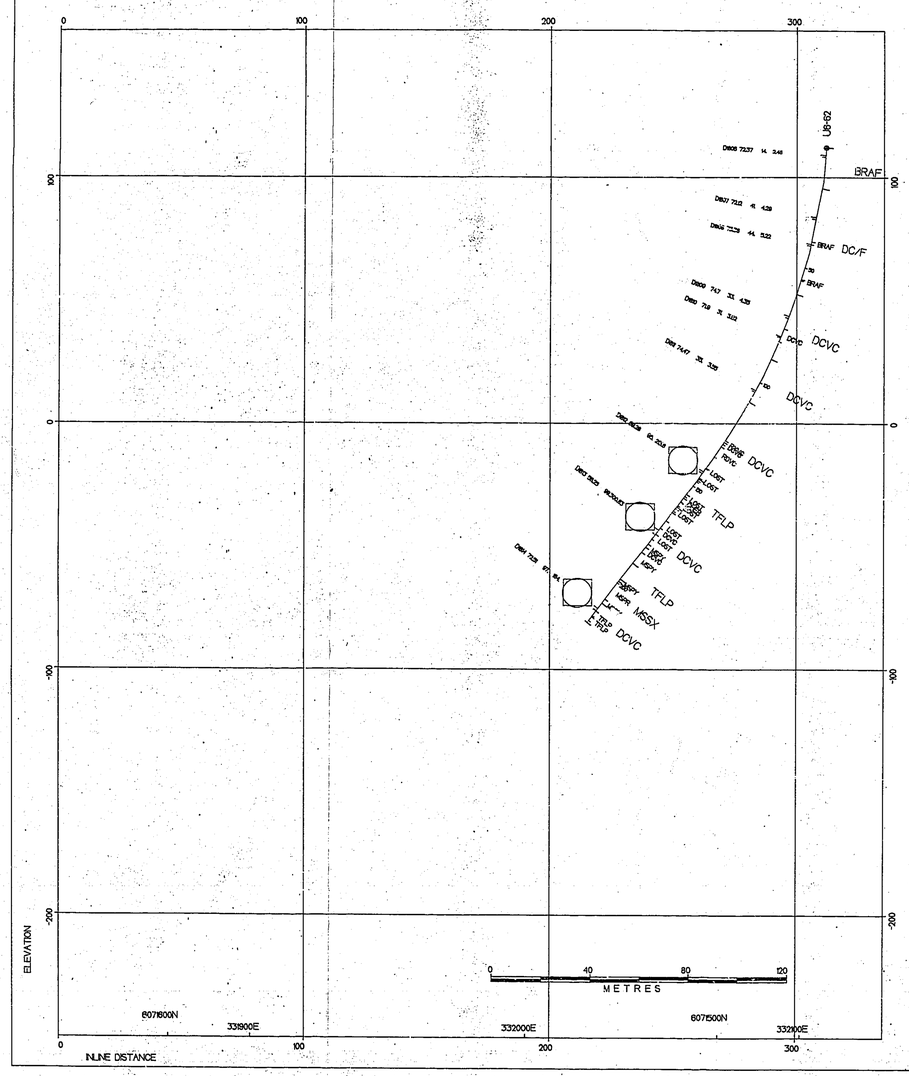
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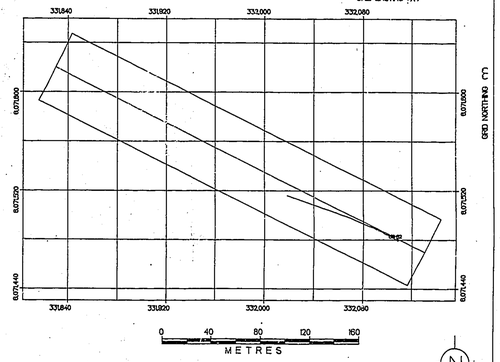
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
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WIDTH	ZT	ZB
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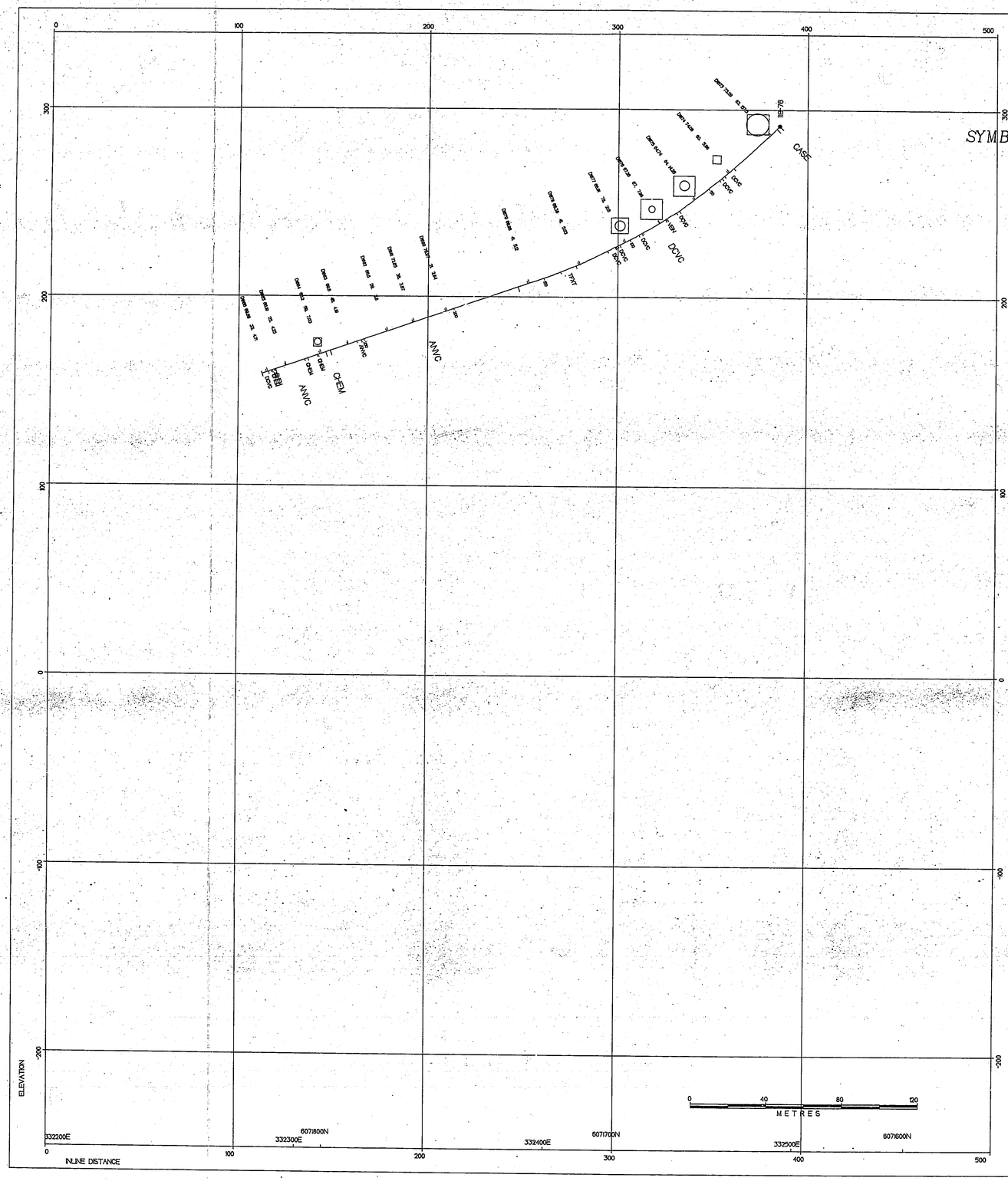
LOOKING NE

DATA FILE:DHLIST5

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

DGM CREATED RUN FILE: 256 10/10/91

PLACER DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH U6-62 72637
	NO. PLATE 13g



DGM CREATED RUN FILE 59 10/9/92

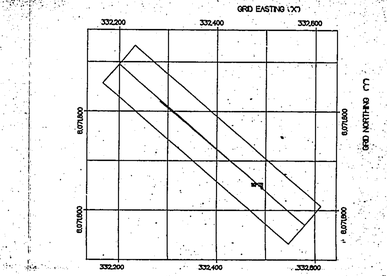
SYMBOLOGY FOR ALTERATION INDICES

ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED



0 100 200 300 400
METRES

LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
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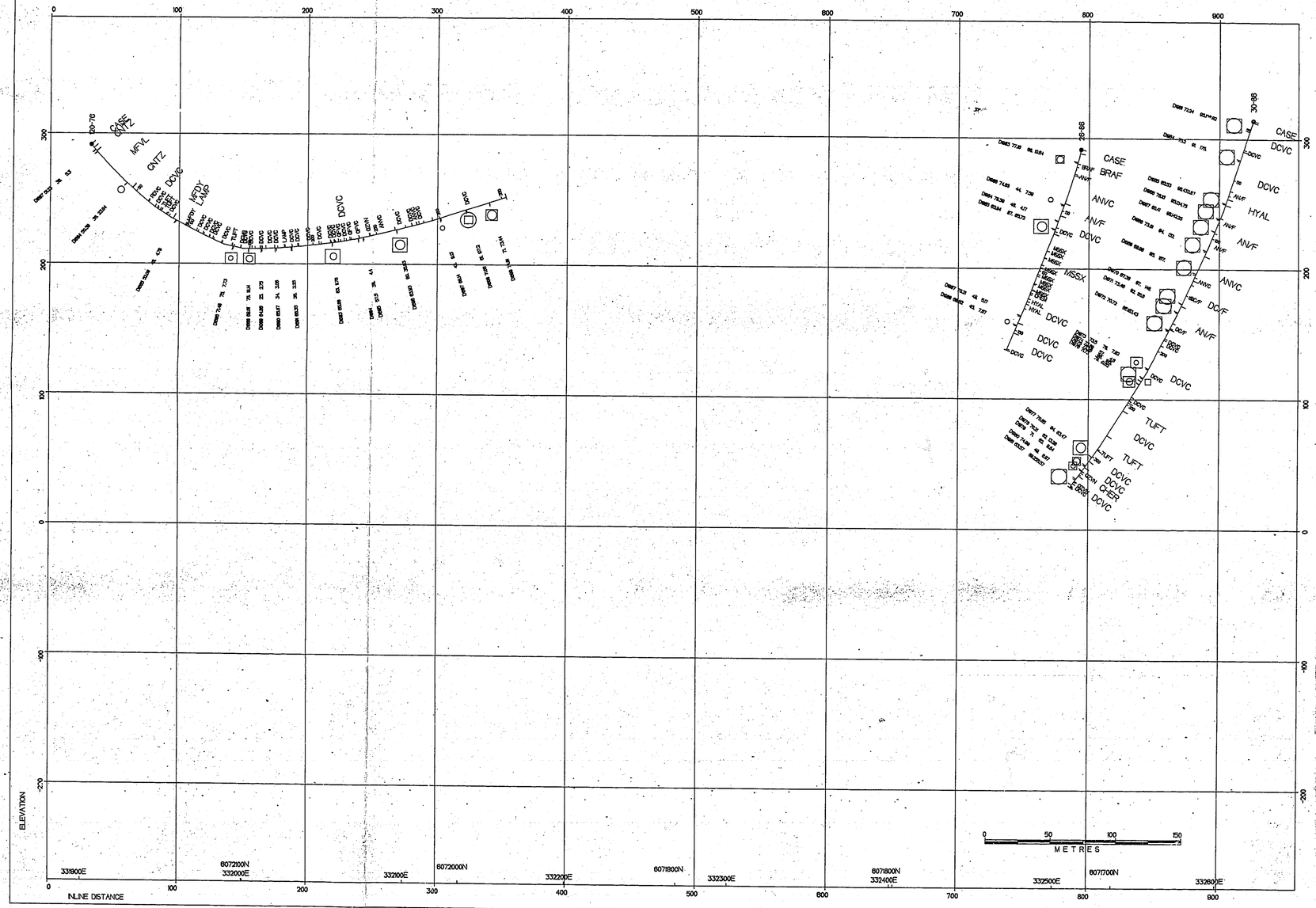
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LOOKING NE

DATA FILE:HLIST18

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SiO2 Ri
Al

PLACER DOME INC.		72637
DRAWN DGM	GEOLOGY AND ALTERATION PLOT	
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING	
SCALE 1:1000	DDH 119-76	
	NO.	PLATE 13h



DDM CREATED RUN FILE 58 10:10:18

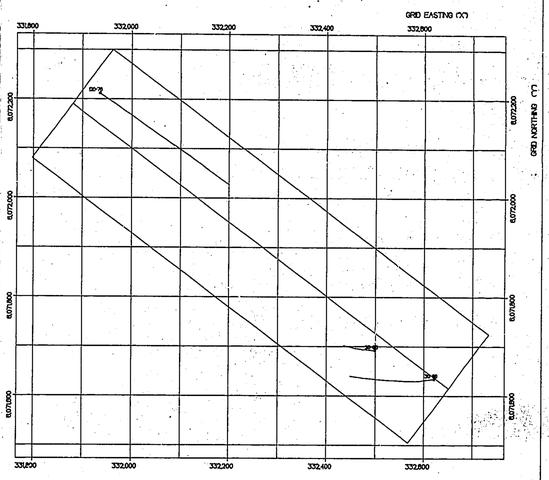
SYMBOLOGY FOR ALTERATION INDICES

ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED



LOCATION OF THIS CROSS-SECTION

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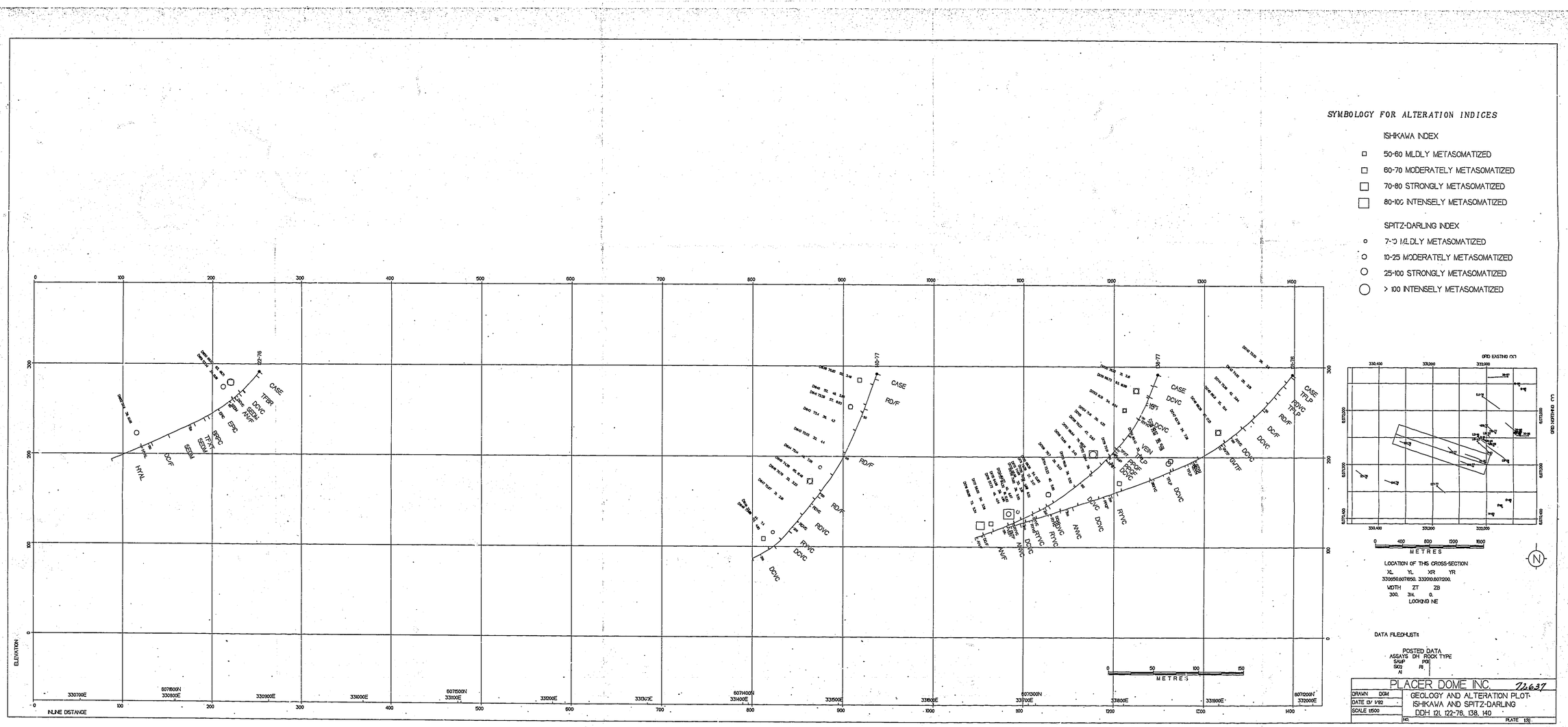
WDTH	ZT	ZB
275.	314.	-200.

LOOKING NE

DATA FILE:DHLIST18

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PQI
SIO2 RI
AI

PLACER DOME INC.		22637
DRAWN	DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92		ISHIKAWA AND SPITZ-DARLING
SCALE 1:500		DDH 26,30-86 AND 120-76
		NO. PLATE 13!


SYMBOLOGY FOR ALTERATION INDICES
ISHIKAWA INDEX
50-60 MILDLY METASOMATIZED
60-70 MODERATELY METASOMATIZED
70-80 STRONGLY METASOMATIZED
80-100 INTENSELY METASOMATIZED
SPITZ-DARLING INDEX
7-10 MILDLY METASOMATIZED
10-25 MODERATELY METASOMATIZED
25-100 STRONGLY METASOMATIZED
> 100 INTENSELY METASOMATIZED
ELEVATION
INLINE DISTANCE
METRES
LOCATION OF THIS CROSS-SECTION
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330650,6077650, 332010,6072200,
WIDTH ZT ZB
300, 314, 0,
LOOKING NE
DATA FILE/HLIST:
POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PDI
SIO2 RI
AI
PLACER DOME INC.
DRAWN DGM
DATE 09 V 82
SCALE 1:500
GEOLOGY AND ALTERATION PLOT
ISHKAWA AND SPITZ-DARLING
DDH 121, 122-76, 138, 140
PLATE 1(5)

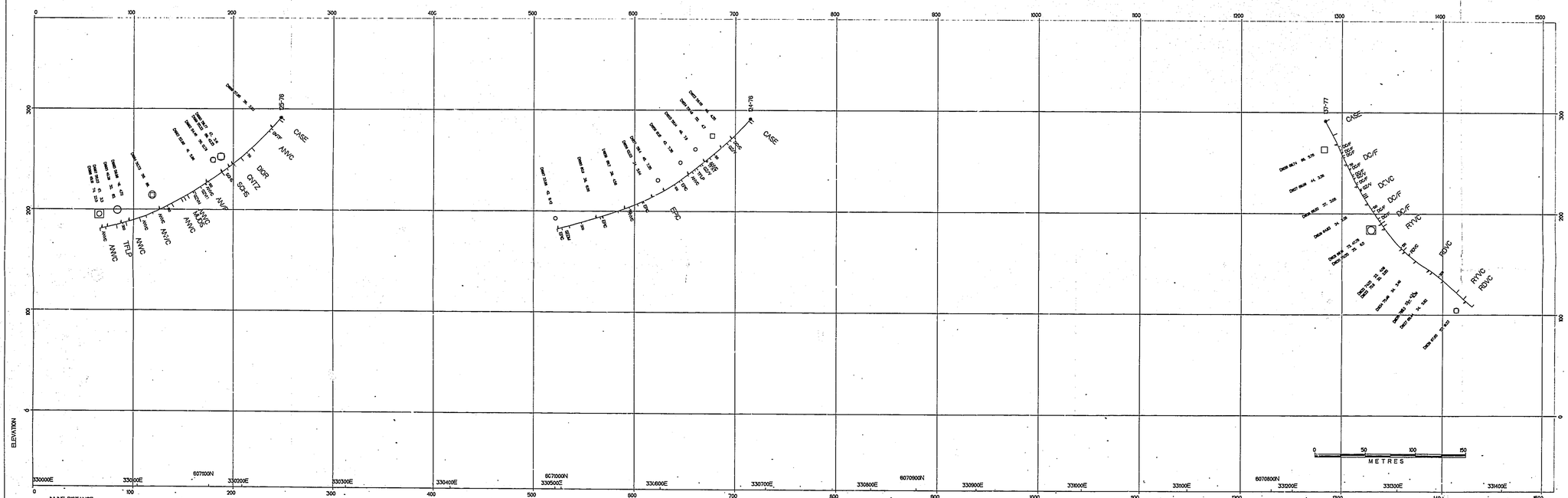
SYMBOLOGY FOR ALTERATION INDICES

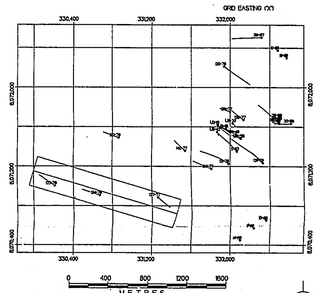
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

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LOOKING NE

DATA FILE:DHLIST.tt

POSTED DATA

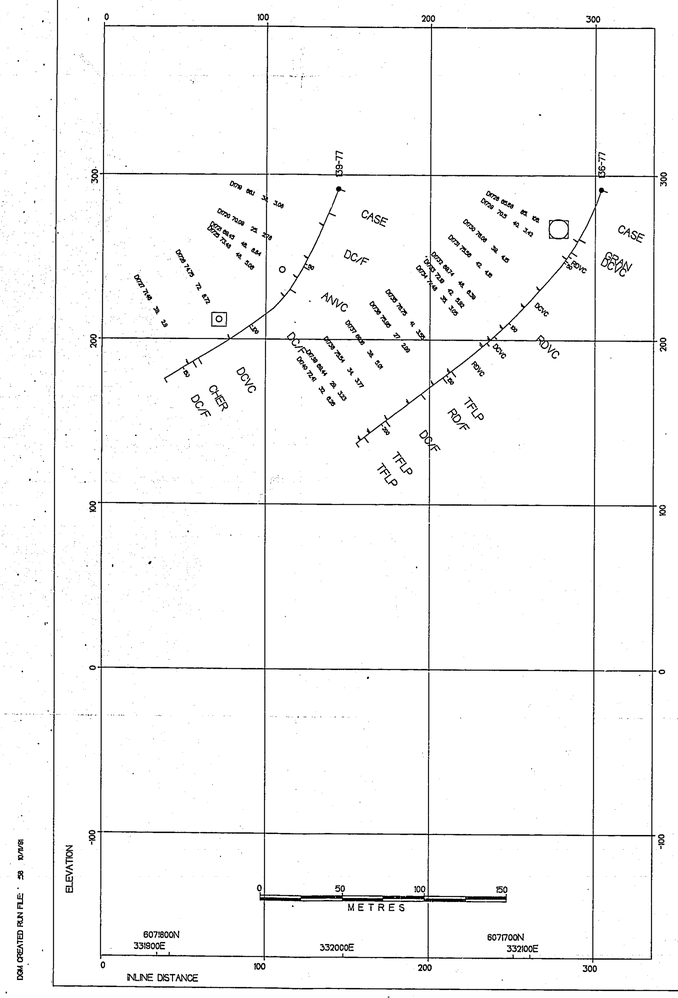
ASSAYS	DH	ROCK TYPE
SAMP		PDI
5902		R
AI		

0 50 100 150
METRES

PLACER DOME INC.

DRAWN DDM	GEOLOGY AND ALTERATION PLOT
DATE 15/ V/83	ISHIKAWA AND SPITZ-DARLING
SCALE 1:500	DDH 125, 124-76, 137-77
	NO. 72637 PLATE 13X





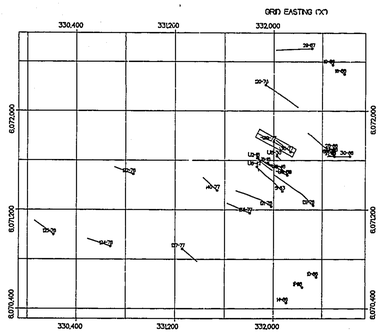
SYMBOLOGY FOR ALTERATION INDICES

ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED



LOCATION OF THIS CROSS-SECTION

XL YL XR YR
331870.6071820, 332185.6071660.
WIDTH ZT ZB
70. 314. -100.
LOOKING NE

DATA FILE:HUST11

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

PLACER DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:500	DDH 136, 139-77
	NO. PLATE 131

72.637

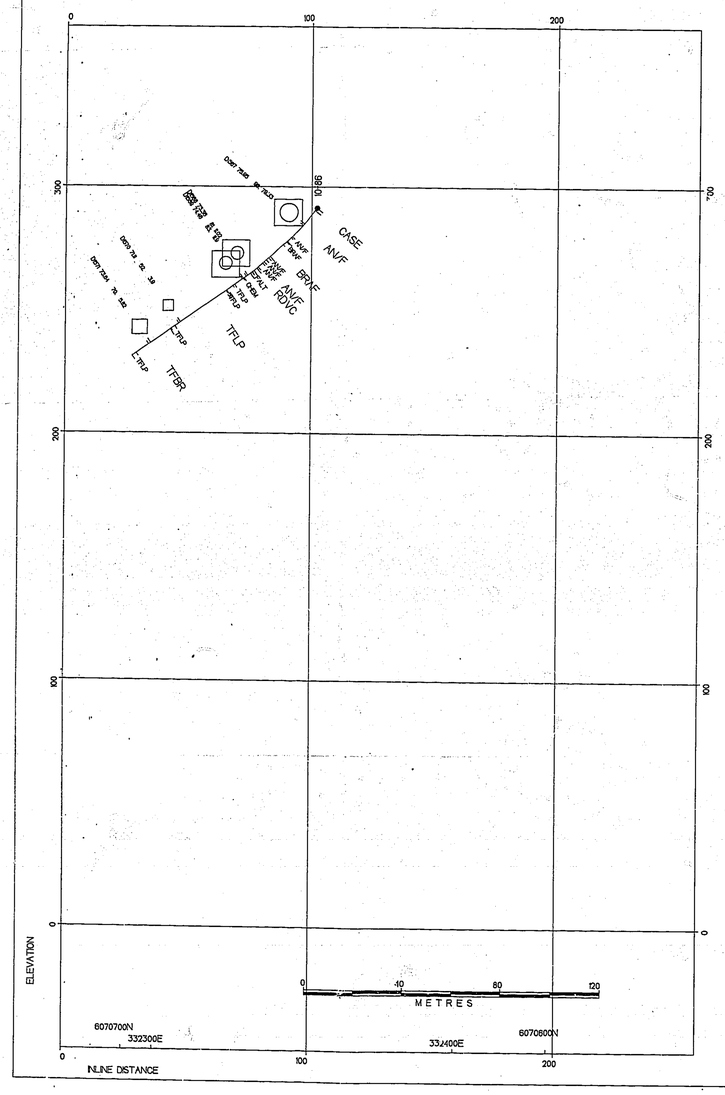
SYMBOLOGY FOR ALTERATION INDICES

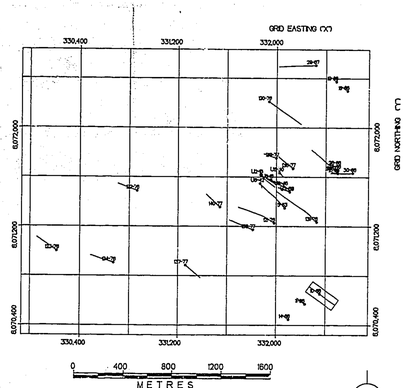
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332270.6070714.		332480.6070565.	

WIDTH	ZT	ZB
100.	314.	0.

LOOKING NE

DATA FILE:DHLIST1

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 R
AI

DGM CREATED RUN FILE: 259 10/5/91

PLACER DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH 10-86
NO.	PLATE 13m

72.637

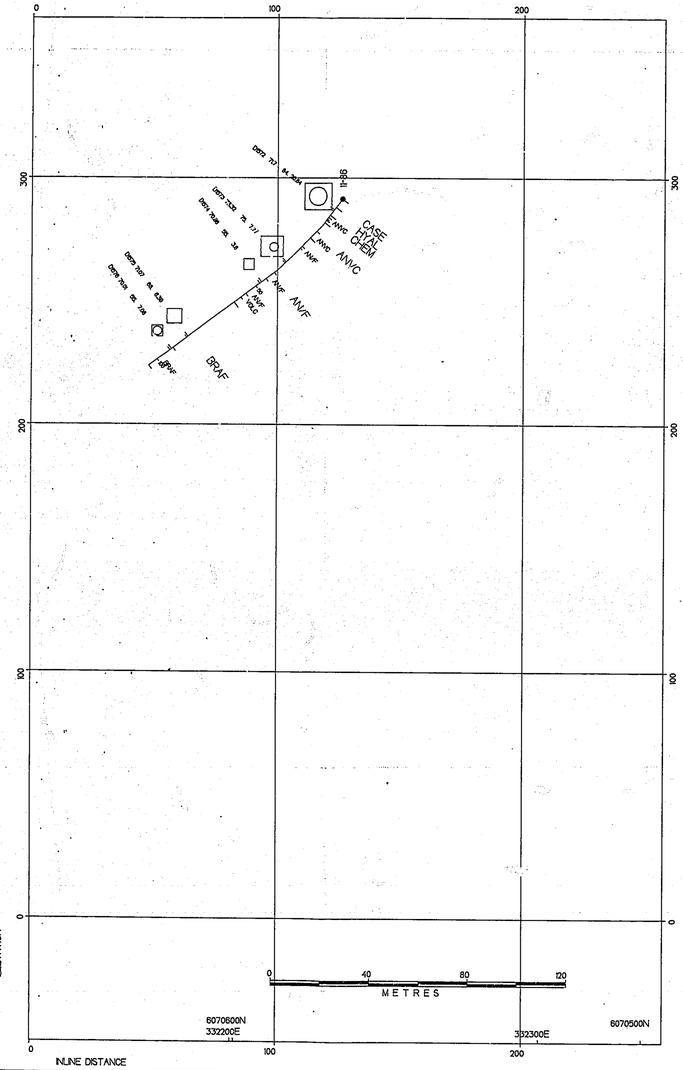
SYMBOLOGY FOR ALTERATION INDICES

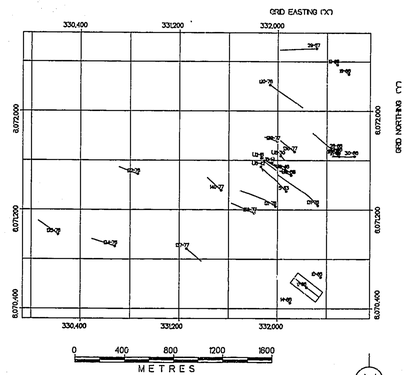
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332135.	8070650.	332340.	8070495.

WIDTH	ZT	ZB
100.	314.	0.

LOOKING NE

DATA FILE:DHLIST.II

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PCH
SIO2 RI
AI

DDH CREATED RUN FILE 59 10/5/91

PLACER DOME INC.	
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH 11-86 72637
	NO. PLATE 13n

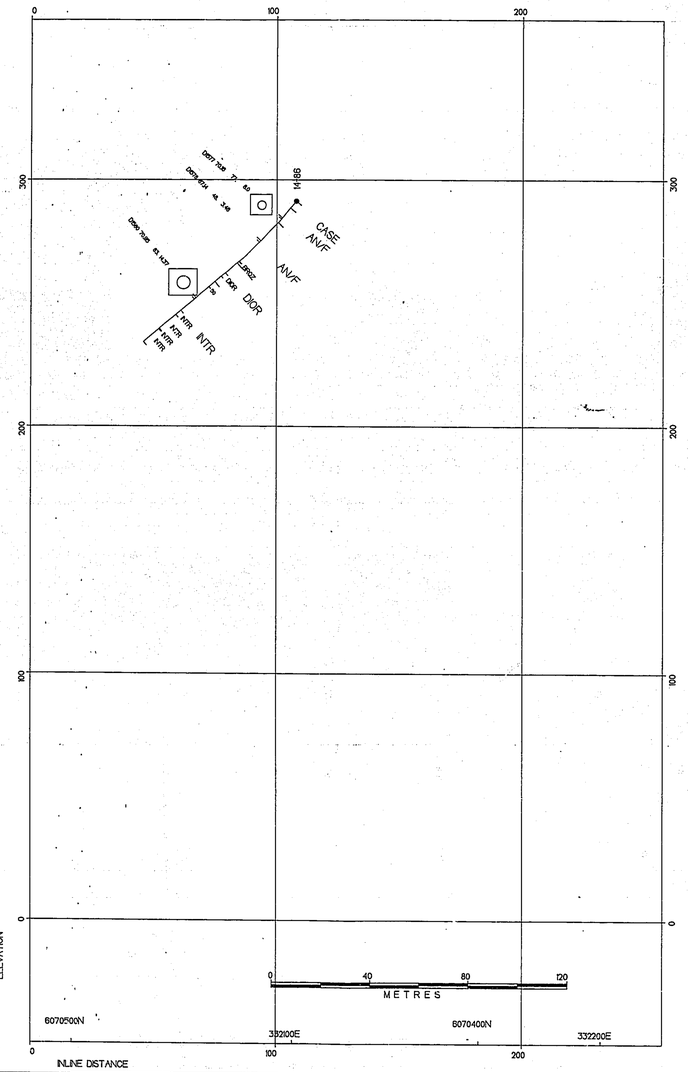
SYMBOLOGY FOR ALTERATION INDICES

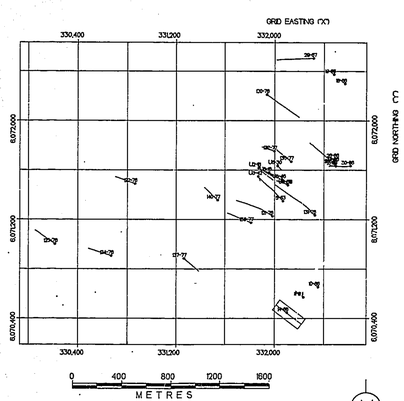
ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED





LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332015.6070510.		332220.6070355.	

WIDTH	ZT	ZB
100.	314.	0.

LOOKING NE

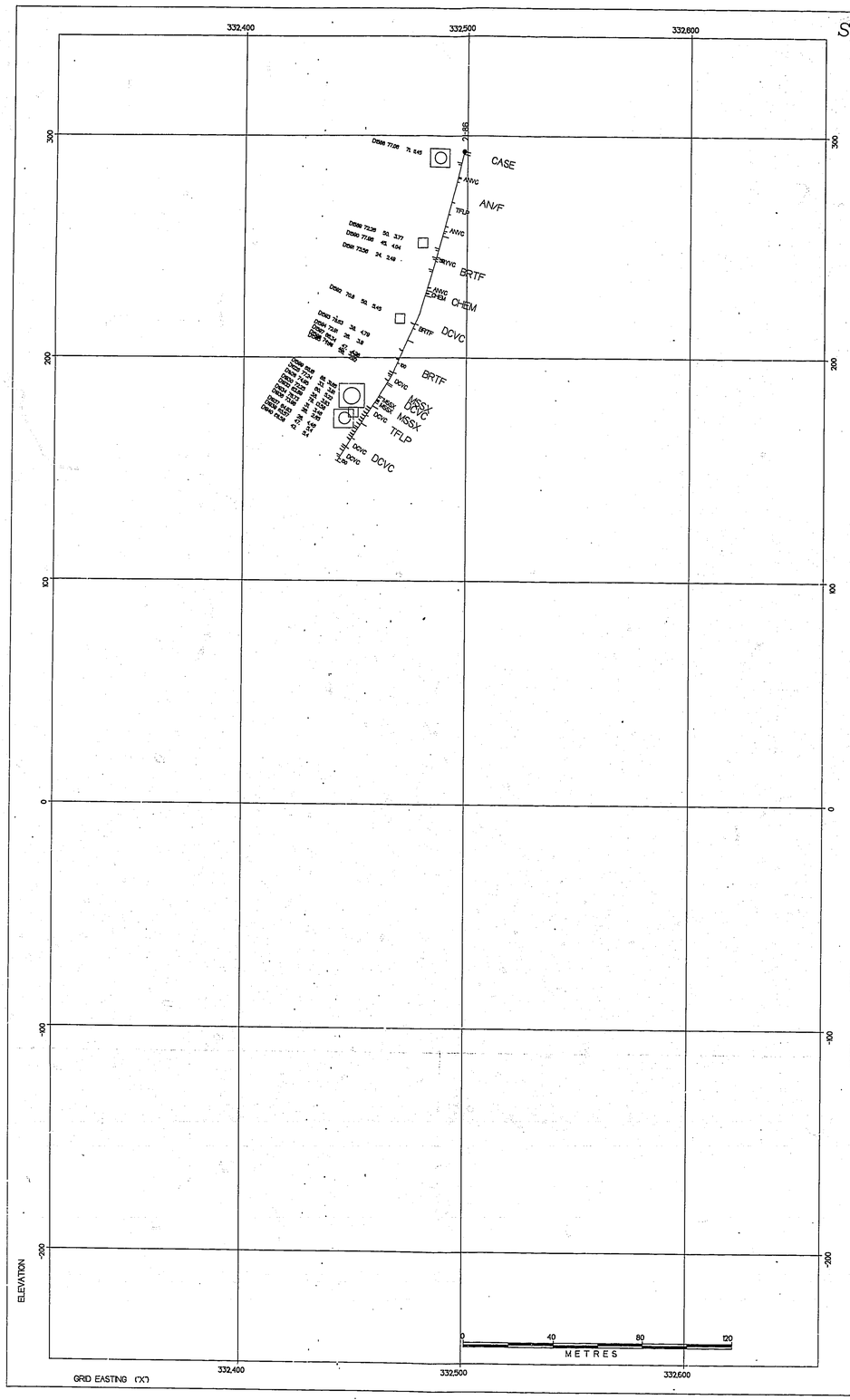
DATA FILE:DHLIST.II

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PQI
SIO2 RI
AI

DGM CREATED RUN FILE: 256 10/9/91

PLACER DOME INC.		
DRAWN DGM	GEOLOGY AND ALTERATION PLOT	
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING	
SCALE 1:1000	DDH 14-86	72637
	NO.	PLATE 13o

24X



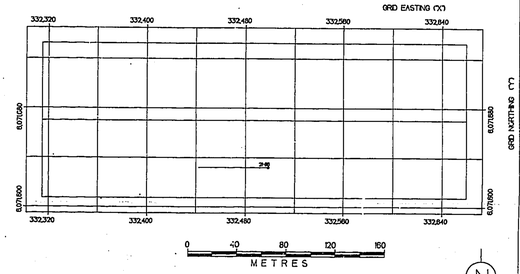
SYMBOLOGY FOR ALTERATION INDICES

ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED



LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332315.6071870.		332660.6071870.	

WIDTH	ZT	ZB
125.	293.	-200.

LOOKING N

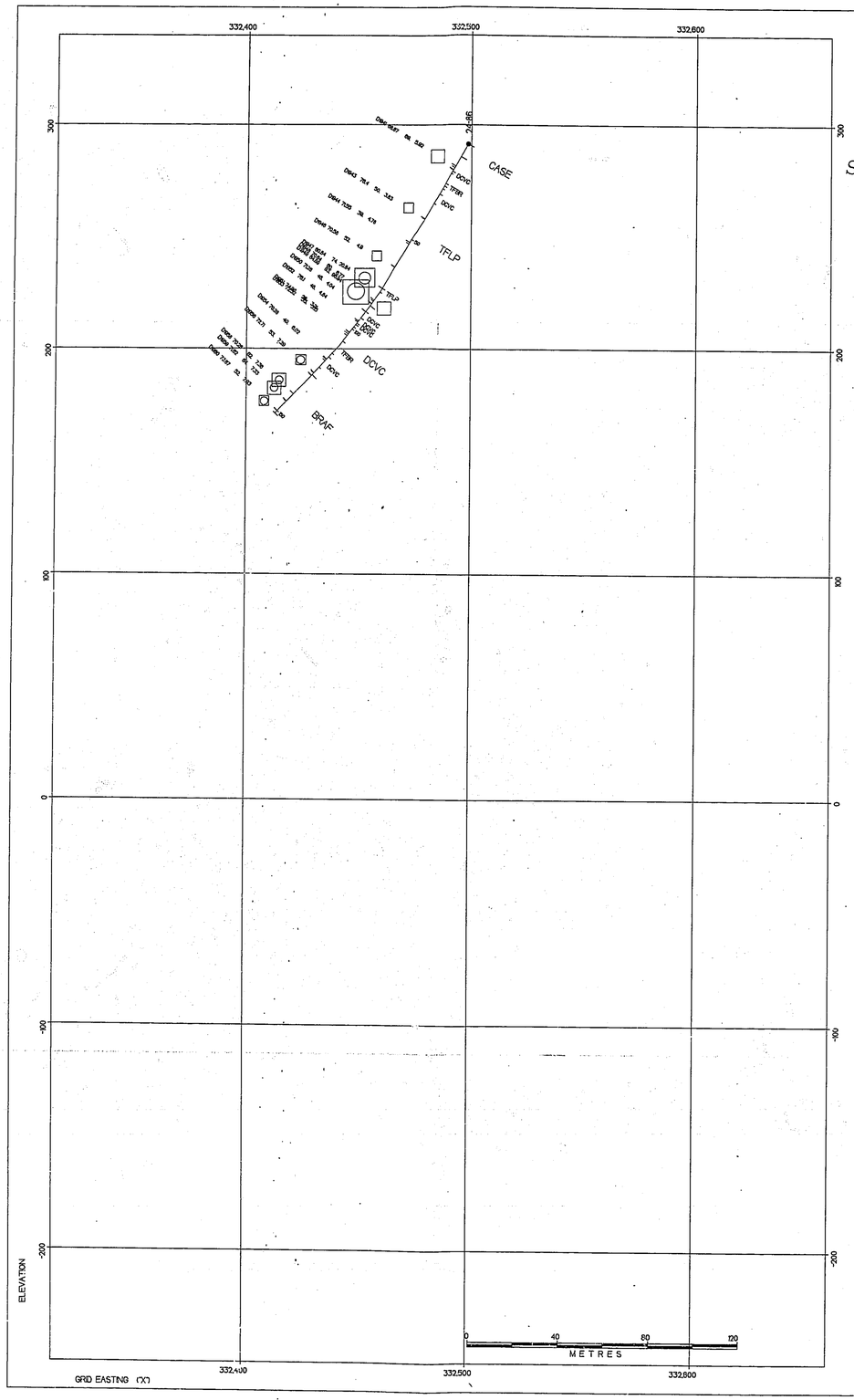
DATA FILE:DHLIST19

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PDI
SIO2 RI
AI

DGM CREATED RUN FILE: 59 10/9/91

PLACER DOME INC.	72637
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/92	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH 21-86
	NO. PLATE 13p

24X



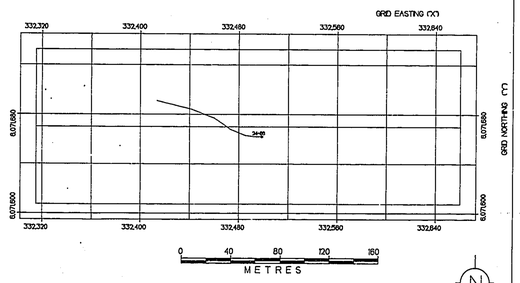
SYMBOLOGY FOR ALTERATION INDICES

ISHIKAWA INDEX

- 50-60 MILDLY METASOMATIZED
- 60-70 MODERATELY METASOMATIZED
- 70-80 STRONGLY METASOMATIZED
- 80-100 INTENSELY METASOMATIZED

SPITZ-DARLING INDEX

- 7-10 MILDLY METASOMATIZED
- 10-25 MODERATELY METASOMATIZED
- 25-100 STRONGLY METASOMATIZED
- > 100 INTENSELY METASOMATIZED



LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
332315.8071670.		332660.8071670.	

WIDTH	ZT	ZB
125.	291.	-200.

LOOKING N

DATA FILE:DHLIST17

POSTED DATA
ASSAYS DH ROCK TYPE
SAMP PGI
SIO2 RI
AI

DGM CREATED RUN FILE 29 10/1/82

PLACER DOME INC.	12637
DRAWN DGM	GEOLOGY AND ALTERATION PLOT
DATE 14/ 1/82	ISHIKAWA AND SPITZ-DARLING
SCALE 1:1000	DDH 24-86
	NO. PLATE 13q

24X

331 000 E

332 000 E

333 000 E

334 000 E

6 073 000 N

6 072 000 N

6 071 000 N

6 070 000 N

Sourdough Bay

Flintoba Creek

Pine Bay

Birch Bay

Birch point

Pine Point

SYMBOLS

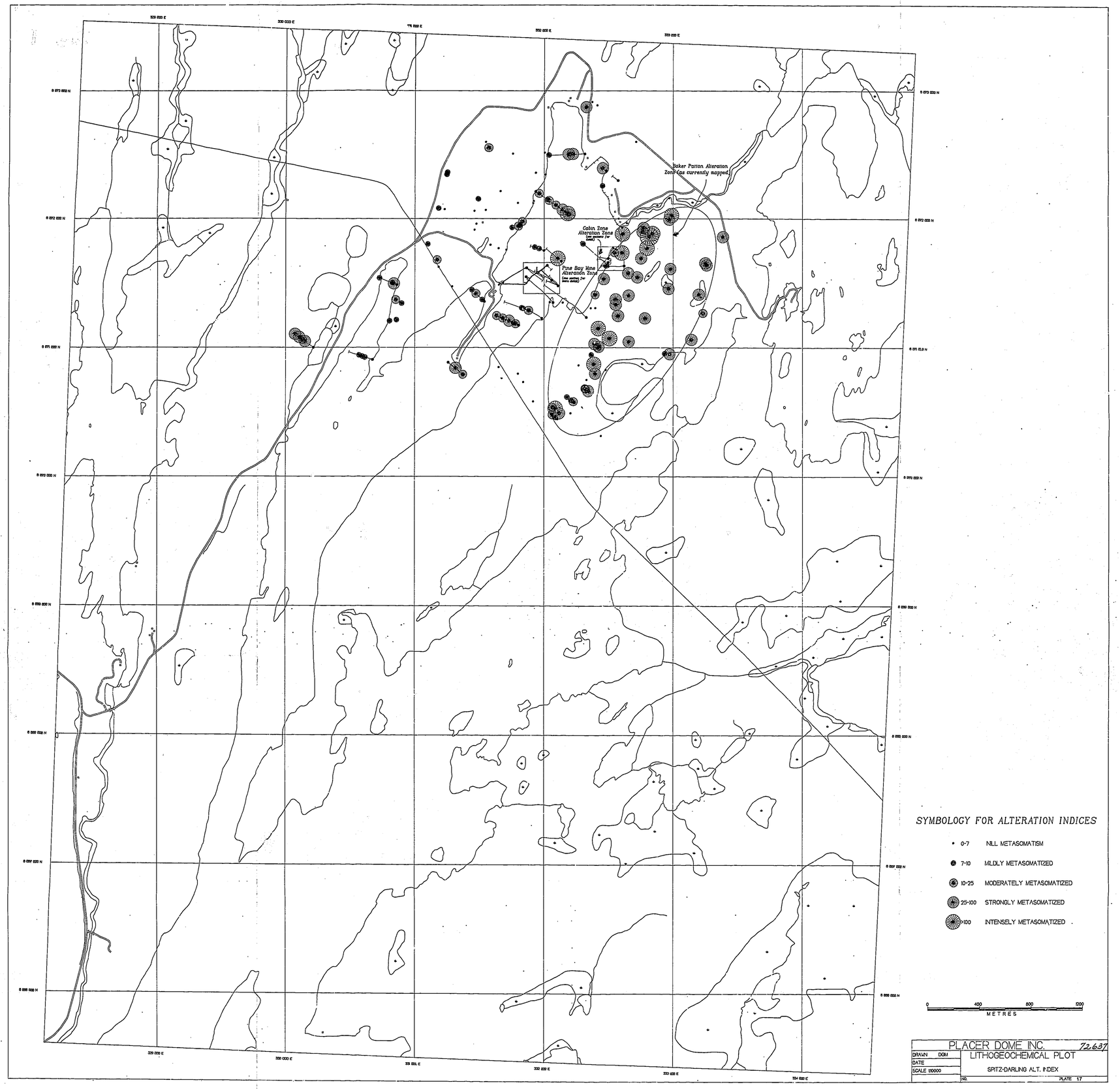
- Major and minor oxide sample site
- Major and minor oxide, trace element sample site
- Sample taken but not analyzed and/or data not available

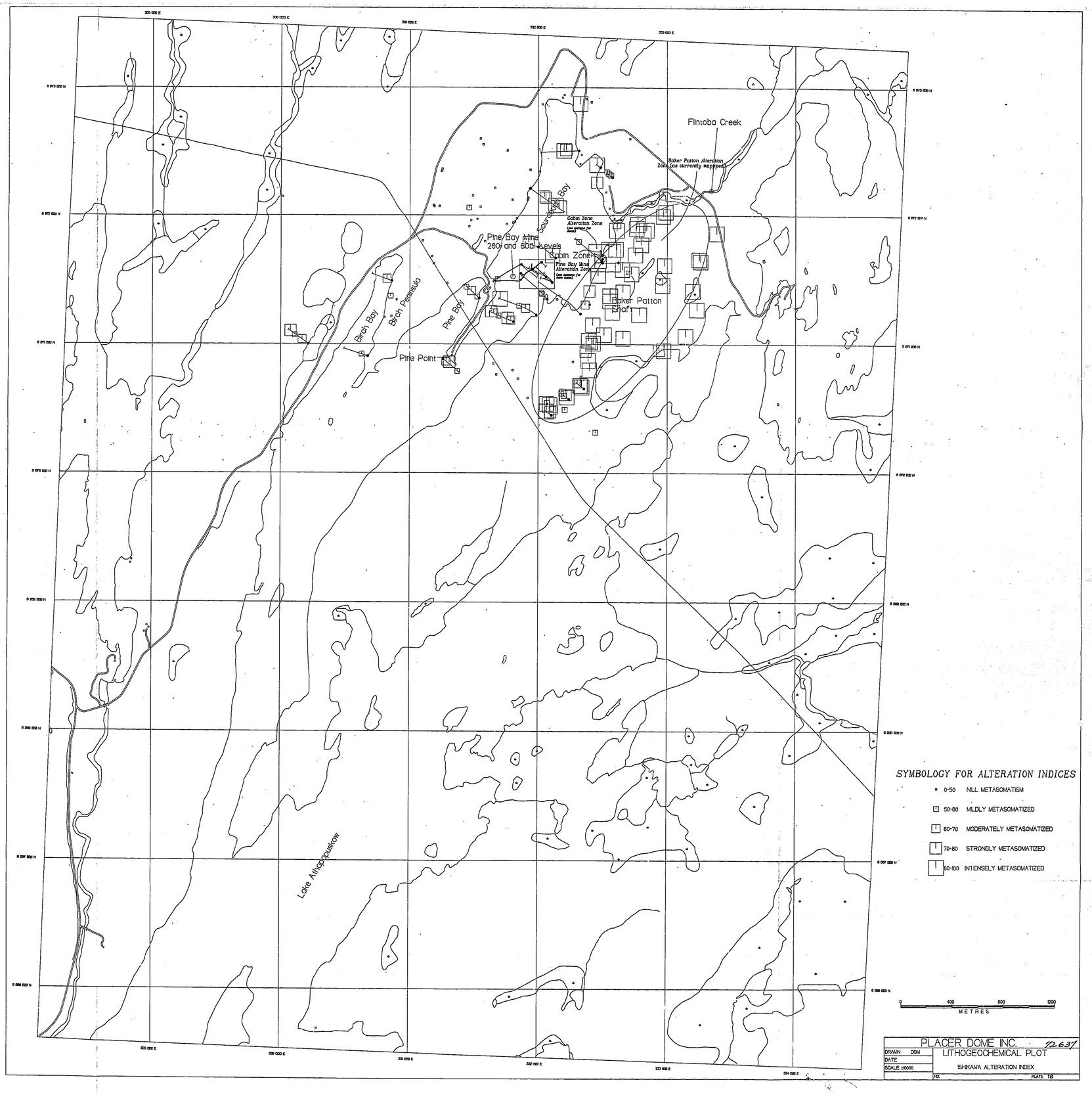
0 200 400 600

METRES

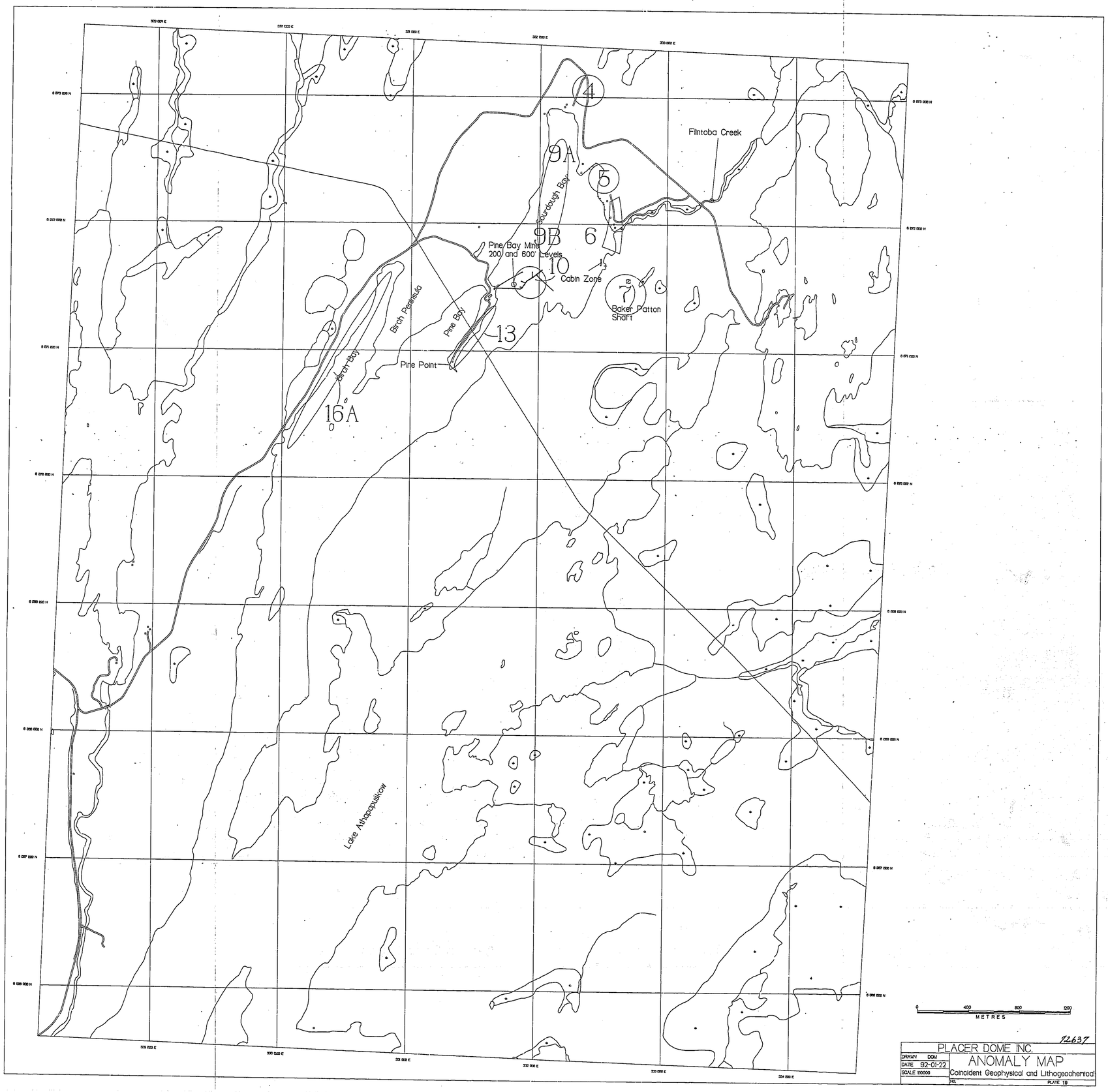
PLACER DOME INC. 72637	
DRAWN CESL	LITHOGEOCHEMICAL SAMPLE LOCATIONS IN THE SOURDOUGH BAY AREA
DATE 07/11/91	
SCALE 1:5000	
FASTCODE	NO. PLATE 1B

30X


329 000 E
330 000 E
330 500 E
331 000 E
331 500 E
6 973 000 N
6 972 000 N
6 971 000 N
6 970 000 N
6 969 000 N
6 968 000 N
Baker Patton Alteration Zone (as currently mapped)
Cabin Zone Alteration Zone (as currently mapped)
Pine Bay Mine Alteration Zone (as currently mapped)
SYMBOLOGY FOR ALTERATION INDICES
0-7 NILL METASOMATISM
7-10 MILDLY METASOMATIZED
10-25 MODERATELY METASOMATIZED
25-100 STRONGLY METASOMATIZED
>100 INTENSELY METASOMATIZED
0 400 800 1200
METRES
PLACER DOME INC. 72637
DRAWN DGM
DATE
SCALE 1:10000
LITHOGEOCHEMICAL PLOT
SPITZ-DARLING ALT. INDEX
NO. PLATE 17


Flintoba Creek
Baker Patton Alteration Zone (as currently mapped)
Gourdeau Bay
Cabin Zone Alteration Zone
Pine Bay Mine 260' and 600' Levels
Cabin Zone
Pine Bay Mine Alteration Zone
Baker Patton Shaft
Pine Bay
Birch Bay
Birch Peninsula
Pine Point
Lake Athapapuskow
SYMBOLOGY FOR ALTERATION INDICES
0-50 NILL METASOMATISM
50-60 MILDLY METASOMATIZED
60-70 MODERATELY METASOMATIZED
70-80 STRONGLY METASOMATIZED
80-100 INTENSELY METASOMATIZED
0 400 800 1200
METRES
PLACER DOME INC. 72.637
DRAWN DGM
DATE
SCALE 1:10000
LITHOGEOCHEMICAL PLOT
ISHKAWA ALTERATION INDEX
NO. PLATE 18

30X



72637

PLACER DOME INC.	
DRAWN DGM	ANOMALY MAP
DATE 92-01-22	Coincident Geophysical and Lithogeochemical
SCALE 1:10000	NO. PLATE 19

30X