GOLDEIDT EXPLORATIONS INCORPORATED

MACKLEM AND BOND TOWNSHIPS

PORCUPINE MINING DIVISION, ONTARIO

REVERSE CIRCULATION WORK REPORT

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BY

J. CHERNIS and S.A. AVERILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

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INTRODUCTION

Reverse Circulation Drill Exploration in Glaciated Areas

During the Pleistocene epoch of the Quaternary period, the crowns of all ore bodies that subcropped beneath the continental ice sheets of North America were eroded and were dispersed down-ice in the glacial debris. The dispersion mechanisms varied according to local conditions, but the resulting ore "trains" in the overburden are generally long, thin and narrow, and most importantly, are several hundred times larger than the parent ore bodies. These large trains can be used very effectively to locate the remaining roots of the ore bodies.

Because the dispersion trains originated at the base of the ice, they are either partly or entirely buried by younger, nonanomalous glacial debris. Many trains are confined to the bottom layer of glacial debris--the basal till. In fact, the sampling of glacial overburden for exploration purposes is commonly referred to as "basal till sampling". It is important to note, however, that in areas affected by multiple glaciations the bottom layer of debris in the overburden section may be only the lowermost of several stacked basal tills, and that a dispersion train may occur at any level within any one of the basal till horizons. Consequently, the term "basal till sampling" is not synonymous with the collection of samples from the base of the overburden section. Moreover, the term is not strictly correct because significant glacial dispersion trains can occur in formations other than basal till.

From the foregoing statements, it can be seen that glacial dispersion and glacial stratigraphy are interdependent. Consequently, the effectiveness of overburden sampling as an exploration method is related to the ability of the sampling equipment to deliver stratigraphic information from the unconsolidated glacial deposits. Most drills have been designed to sample bedrock and are unsuitable for overburden exploration, but the reverse circulation rotary system has been designed specifically for overburden sampling. This system delivers a continuous sample from surface through the overburden and into bedrock. The sample is disturbed but returns to surface instantly, and the precise positions of stratigraphic contacts can be identified. Full sample recovery is possible in all formations regardless of porosity or consistency. Moreover, the hole diameter is sufficient to provide the large samples that are needed to compensate for the natural inhomogeneities of glacial debris. The bedrock samples are used to determine overburden povenance (and, hence, the directions of glacial transport) and the inter-related bedrock and overburden data provide exceptionally comprehensive exploration coverage.

Most of the glacial overburden in Canada is fresh, and metals in the overburden occur in primary, mechanically dispersed minerals rather than in secondary chemical concentrations. While metal anomalies from ore mineral dispersion trains are very large, they are also weak and are difficult to identify from a normal "soil" analysis of the fine fraction of the samples. Consequently, heavy mineral concentrates are prepared to amplify the primary anomalies, and analysis of the fines is normally reserved for areas where significant post-glacial oxidation is evident. The heavy mineral concentrates are very sensitive, and special care must be taken to avoid the introduction of contaminants into the samples.

The Goldeidt Property

Goldeidt Explorations holds a 143-claim property in Macklem and Bond Townships, approximately eighteen miles east of Timmins, Ontario (Fig. 1). The property lies east of Nighthawk Lake and can be reached via Highway 101 and the Gibson Lake Road.

Many gold discoveries have been made in neighbouring townships, but almost all of the commercial discoveries are located north of the Porcupine-Destor fault, a regional east-west-trending structure that lies just north of Macklem and Bond Townships (Pyke et. al., 1971). Komatiitic rocks of the type that host the Timmins gold deposits do extend southward from the fault but are restricted to the northeast corner of Macklem Township (Pyke, 1978); the remainder of this township and all of Bond Township is underlain by tholeiitic and calc-alkalic volcanics that are considered to be more favourable for base metals mineralization. Past exploration (e.g. Hunt and Maharaj, 1980; Leahy, 1971) has generally focussed on the komatiitic rocks, and Asarco Exploration has recently made a significant gold discovery (The Northern Miner, Sept. 04, 1980) on its Aquarius property, which lies immediately north of the Goldeidt property. An underground exploration program is currently in progress on the discovery zone.

Thick deposits of glacial overburden obsure the bedrock on the Goldeidt property, and Goldeidt therefore commissioned Overburden Drilling Management to conduct a reverse circulation drilling program to test the metal potential of the property. Thirty-four holes were drilled in Macklem Township, and one in Bond Township. A list of the drill holes and claim numbers is shown on Pages 4 and 5.

Three profiles of holes were drilled west of the Gibson Lake road and one was drilled to the east. As the Macklem project was a regional, orientation study the holes were drilled at 1000 foot intervals along east-west profiles. Profiles A and B are 2500 feet apart and profiles B and C are 5000 feet apart. Spacings between holes varied considerably as drilling was confined to existing roads to minimize environmental damage by the heavy equipment. Some abandoned logging roads required clearing of brush and young trees before drilling could begin.

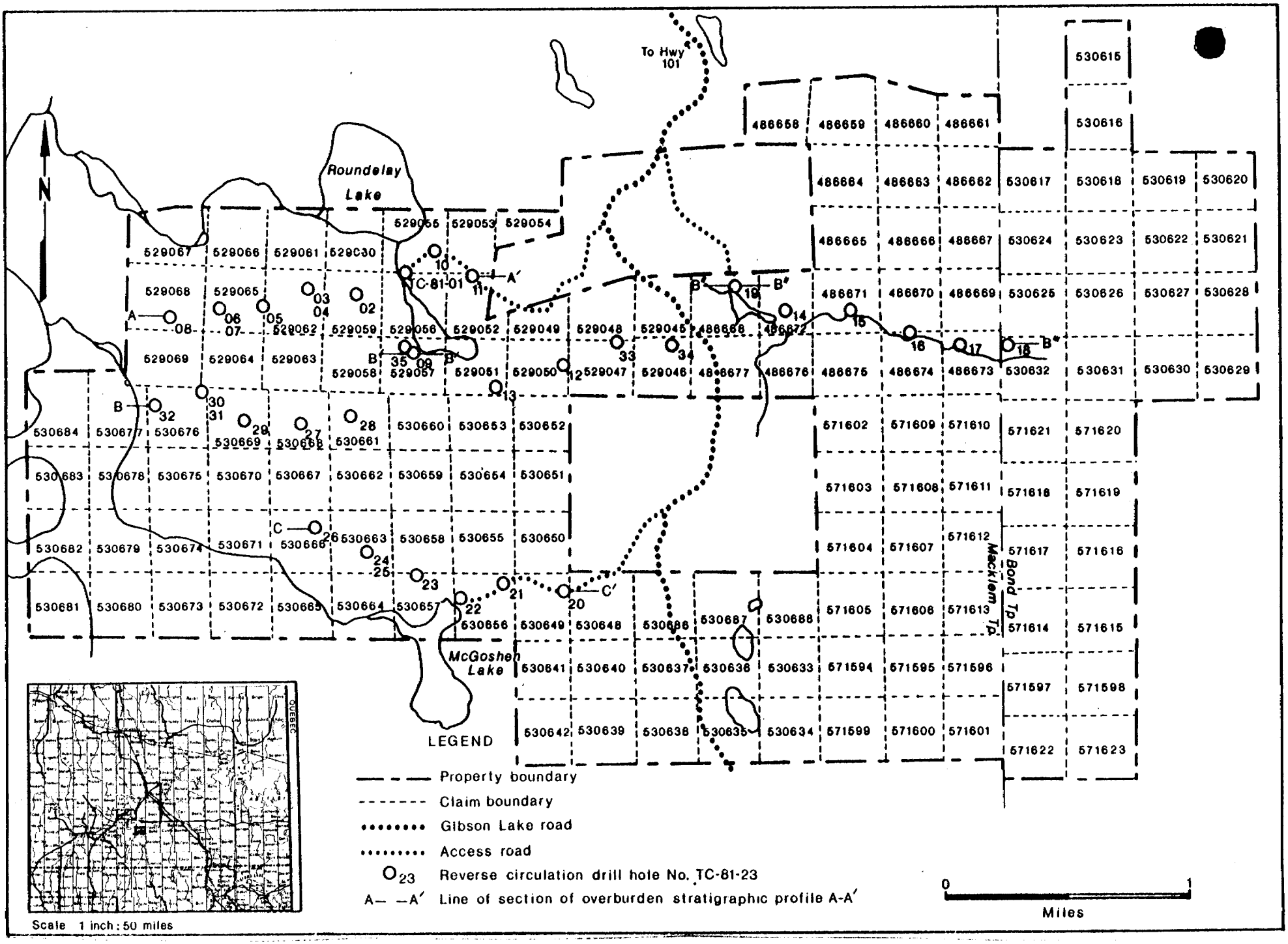


Fig. 1 Property location map

Claim No.	Hole No..	Claim No.	Hole No.
P486658		P529058	
659		059	TC-81-02
660		060	
661		061	
662		062	TC-81-03,04
663		063	
664		064	
665		065	TC-81-05,06,07
666		066	
667		067	
668	TC-81-19	068	TC-81-08
669		069	
670		P530615	
671	TC-81-15	616	
672	TC-81-14	617	
673	TC-81-17	618	
674	TC-81-16	619	
675		620	
676		621	
677		622	
P529045		623	
046	TC-81-34	624	
047	TC-81-33	625	
048		626	
049		627	
050	TC-81-12	628	
051	TC-81-13	629	
052	TC-81-11	630	
053		631	
054		632	TC-81-18
055	TC-81-01,10	633	
056		634	
057	TC-81-09,35	635	

Claim No.	Hole No.	Claim No.	Hole No.	Claim No.	Hole No.
P530636		P530671		P571607	
637		672		608	
638		673		609	
639		674		610	
640		675		611	
641		676	TC-81-30,31,32	612	
642		677		613	
P530648		678		614	
649	TC-81-20	679		615	
650		680		616	
651		681		617	
652		682		618	
653		683		619	
654		684		620	
655		P530686		621	
656	TC-81-21,22	687		622	
657	TC-81-23	688		623	
658		P571594			
659		595			
660		596			
661	TC-81-28	597			
662		598			
663	TC-81-24,25	599			
664		600			
665		601			
666	TC-81-26	602			
667		603			
668	TC-81-27	604			
669	TC-81-29	605			
670		606			

DRILLING AND SAMPLING

Drilling Equipment and Performance

The drilling contract was awarded to Heath and Sherwood Drilling of Kirkland Lake, Ontario. Drilling commenced September 30, 1981 and continued with one daily, ten hour shift, seven days a week until October 19, 1981. In this twenty day period 5284.3 feet of overburden and bedrock were drilled in 35 holes, including 4 repeat holes and 1 follow-up hole for an average of 151.0 feet per hole. An average of approximately 264 feet was drilled per day. Mechanical downtime totalled approximately 5 percent of available drill operating hours. Drill related costs, including all charges for drilling operations, moving between holes, road preparations, fuel, down-hole consumables, mobilization, demobilization and other charges were $70,780, or $13.39 per foot.

The Heath and Sherwood rig, like all reverse circulation rotary rigs that are used for stratigraphic sampling employs a mixture of compressed air and water as the drilling fluid to ensure that the sample returns to surface instantly. A compressor with a free-air delivery capacity of 100 cfm at 150 psi coupled with a high pressure pump having a water delivery capacity of 20 gallons per minute will provide full sample recovery over the entire range of overburden porosities. The Heath and Sherwood system employs a piston-type pump and compressor. An efficient, comfortable working environment is achieved by mounting all of the drilling and sampling equipment in one heated, winterized enclosure mounted on the bed of a Nodwell tracked carrier. With this fully unitized rig on the previously prepared roads, travel time between holes averaged 15 minutes.

Down-hole tools for reverse circulation rotary drilling are available in two sizes. The smaller size, with a rod diameter of 2.75 inches and a bit diameter of 3 inches has been modified to minimize carry-over of sample to the bit face from overlying sections, and is therefore most suitable for exploration drilling and was selected for the Macklem program.

Reverse circulation rods are of the dual tube type. The outer rod acts as a casing and is constructed 0.25 inches thick to withstand the high rotational and downward pressures that must be transferred from the drill to the bit. The inner tube is required only to deliver the sample to surface and is, therefore, of lighter construction. On the smaller, 2.75 inch rods, the inside diameter of the inner tube is 1 inch. A seal between the rods and the ground is maintained by an oversized 1 foot long "sub" that also serves to adapt the rods to the drill bit. The bit is of the tricone type and is faced with hard tungsten carbide buttons. It has been designed to cause minimal grinding while reducing coarse material to chips of less that 0.5 inches diameter that will readily pass through the inner sample-return tube. Air and water are injected to the bit face via the annulus between the two rod tubes, and the sample is delivered continuously to surface as a slurry. A geologist constantly monitors the sample and advises the driller immediately of any formational changes that may require adjustments to the air and water flow or to drilling speed and pressure.

The Heath and Sherwood rods have replaceable ends and a problem arose with these during the program. The bottom rod uncoupled from its replacement end when the bit reached the bedrock surface. Goldeidt was not charged for the lost equipment but redrilling of four holes was required.

Water was hauled to the drill site by one of two water carriers. While drilling on the logging roads, a wheeled Timberjack carrier with a 1000 gallon tank was used, but in swampier terrain a Go-Track 1000 with a smaller tank was found to be more serviceable. The drill water was recirculated to reduce consumption.

Logging Procedures

Glacial dispersion trains and glacial stratigraphy are closely inter-related (e.g. Averill, 1978), and accurate stratigraphic logging is an essential element of successful overburden exploration programs. In particular, tills that have been transported solely within the ice and contain a significant local component must be differentiated from gravels that have been transported partly within the ice and partly in glacial meltwater and consist primarily of foreign debris. Also, stacked tills of different ages must be differentiated from one another.

Both tills and gravels contain pebbles (0.2 to 2 inch clasts) and/or cobbles (2 to 6 inch clasts). These clasts are reduced to chips of < 0.5 inch diameter by the tricone bit, and any evidence of preferential rounding of the well-travelled gravel clasts is thereby obliterated. While tills by definition are unsorted and gravels are well-sorted, tills derived from crystalline Precambrian rocks such as those underlying the Macklem drill area normally have a very sandy or silty matrix and lack the clay that is characteristic of classical tills. In sandy tills, a major proportion of the sand is fine-grained, while the sorted matrix of most gravels consists of medium to coarse sand. Special attention was therefore paid to logging the relative porportions of fine and coarse sand in the clastic sections of the drill holes. The proportions of lithologically distinct local and foreign clasts (recorded as a percentage of total clasts) were also measured to assist in differentiating tills from gravels, and in determining the directions of transport for the different formations.

S. A. Averill of Overburden Drilling Management Limited supervised drill start-up and road cutting, logged the first hole and spotted all holes. A sampler and one of more geologists from Overburden Drilling Management were on site at all times.

Sampling Procedures

On a reverse circulation drill, the slurry sample returns to surface under high pressure and is delivered to a cyclone where the compressed air is removed to permit collection of the solids. The sample drops from the cyclone through a 1700-micron (10mesh) testing sieve and into a plastic bucket. The sieve is used to separate coarse rock cuttings from the sample as an aid to stratigraphic logging. On the Macklem program, the sample bucket was coupled to a second bucket to create a quiet settling environment. Silt and clay that remained in the overflow from the second bucket were separated from the drill water in a 200-gallon settling tank, and the clean water was recirculated.

On drill programs where heavy mineral concentrates are to be prepared from the overburden samples, most of the +10 mesh rock chips are discarded because they are multi-mineralic and are an unsuitable medium from which to prepare heavy mineral concentrates. Approximately 20 percent of the chips from the Macklem samples were returned to the sample bucket as a permanent record of clast lithologies.

All clastic (till, sand and gravel) horizons were sampled, and a 4 to 7 kilogram sample was collected from most sample intervals. The drill normally returned this volume of sample from < 3 feet of advance. Most samples were collected from longer intervals and a part of the sample in the bucket was, therefore, discarded. A few undersized samples were collected from very thin overburden horizons. Two hundred and fifty-eight overburden samples were obtained from the Macklem drill holes.

All boulder intersections were cut from till and gravel samples because certain boulders can adversely influence the geochemistry of the sensitive heavy mineral concentrates. For example, an unmineralized boulder that is rich in non-metallic heavy minerals may mask a significant metal anomaly. Also, an artificial anomaly may be created if sulphides or other metallic minerals are milled from a very weakly mineralized boulder.

Reverse circulation overburden drill holes are normally extended five feet into bedrock to ensure that they are not stopped in large boulders. However, several of the Macklem holes encountered very hard formations and were stopped after intersecting only 2 to 3 feet of bedrock. Four holes (TC-81-11, TC-81-13, TC-81-33, TC-81-34) were abandoned in overburden due to penetration problems.

Sample Processing

The clastic overburden samples were processed by Overburden Drilling Management Limited in accordance with the flowsheet illustrated in Figure 2.

First, the bulk sample was weighed as received (damp--average 15 percent moisture), and a 250-350 gram reference split was separated with a tube-type sampler. The remaining bulk sample was processed in the concentrating circuit. The coarse rock chips that are unsuitable for concentrating purposes were removed with a 1700-micron (10 mesh) stainless steel screen. Since most of these chips had already been removed in the field, 75 to 99 percent of each sample consisted of fine material suitable for feeding to the concentrating equipment.

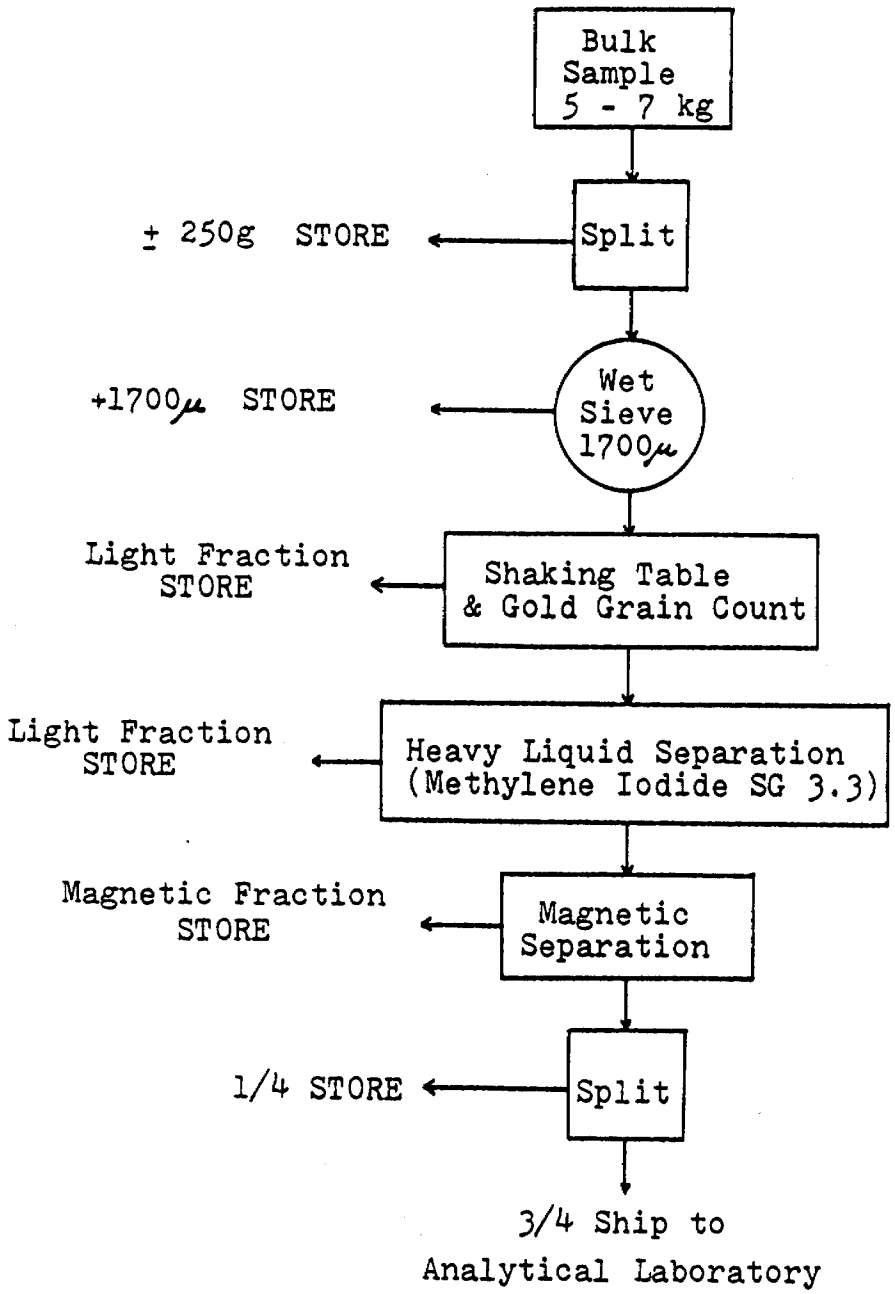


Fig. 2 Sample processing flow sheet

To facilitate processing of the large samples, a preconcentrate was first prepared with a wet shaking table system. The table was fed with a special device that successively delivers the coarse, medium and fine (if present) fractions of the sample. Sorting while feeding is beneficial to heavy minerals recovery (all gravity concentrators are most efficient when fed material in a limited range of grain size) and is also a valuable aid in the differentiation of sorted gravels from unsorted tills. In Appendix A, the notation "unsorted", which was recorded for most samples during table processing, is indicative of till while "sorted" indicates a gravel or sand.

While the samples were being tabled, the gold grains that separated from the other heavy minerals on the table deck were counted. By employing a magnifier with flourescent illumination, more that 50 percent of grains of a size coarser than 100 microns can be isolated in this manner. The grains were picked from the table, examined with a binocular, classified as delicate (untransported), abraded (till transported) or rounded (placer), and returned to the concentrate.

Most of the table concentrates graded 5 to 35 percent heavy minerals (specific gravity greater than 3.3) compared with 0.1 to 0.8 percent in the 4 to 7 kilograms of table feed. These concentrates were refined in methylene iodide (specific gravity 3.3) to yield a final concentrate weighing 10 to 35 grams. Methylene iodide rather than a lighter heavy liquid such as bromoform was used to reject common mid-density silicates such as hornblende and thereby increase the sensitivity of the concentrates to glacially dispersed metallic minerals.

A magnetic separation was performed on the concentrates to remove steel filings derived from the drill bit and rods. Such filings are potential contaminants because they may contain Ni or other metals. The separation was performed with a hand-held mechanical release type of magnet. The magnet was held at a level sufficient to remove all steel and magnetite while leaving slightly magnetic pyrrhotite, hematite and ilmenite in the concentrate. A micro-splitter was then used to divide the "non-magnetic" heavies on a 1/4:3/4 basis. The 3/4 split was submitted to Bondar-Clegg and Company Limited, Ottawa, where it was analyzed for Cu, Pb, Zn, Ni and Ag (all by atomic absorption) and also for arsenic (colourimetric). The 1/4 split was retained for binocular logging (Appendix B) and for possible future check analysis.

The bedrock samples were partially sieved to obtain a handful of chips suitable for binocular logging (Appendix C), and a whole sample split was separated and submitted to Bondar-Clegg to be analyzed for Cu, Pb, Zn, Ni, Ag and As. The bedrock and overburden analyses are enclosed as Appendix D and Appendix D'.

BEDROCK GEOLOGY

General Stratigraphy

Bedrock instersections indicate a predominantly intermediate succession of volcanic rocks trending northeast-southwest, flanked by more mafic volcanics. Minor intrusive rocks are present and one sample containing vein quartz plus highly limonitized rock chips was recovered. The following lithologic units were intersected.

1. Feldspathic volcanic rocks
2. Intermediate-mafic volcanic rocks
3. Lamprophyre

Feldspathic volcanic rocks

Feldspathic volcanics are the dominant unit found in the central portion of the drill area but they appear to thin to the northeast. These rocks are generally light to medium grey-green in colour, massive and unaltered. The grain size (<0.05 to 0.1 mm) is too fine to accurately determine the matrix composition. The feldspathic composition in inferred from the lack of quartz phenocrysts, although the groundmass is moderately hard.

Both flows and tuffaceous horizons were intersected. The volcanic flows normally appear to be finer grained than the volcanoclastics (<0.05 mm versus 0.1 mm). Variolites are commonly seen in the flow rocks and may define single flow (or possibly pillow) margins. Amygdules filled with chlorite, calcite or a soft yellow-green mineral were identified in only a few samples and then only as a minor constituent.

Pyroclastic rocks contain 2-5 percent white, angular, felsic rock fragments in a feldspathic matrix. The minute size (<0.2 mm) of the fragments makes positive identification impossible and it may be that they are quartz or feldspar crystals. These rocks were classified as pyroclastics as they are slightly coarser grained than the flows, display no variolitic or amygdaloidal textures and contain fragments.

In the holes TC-81-20 and TC-81-21 feldspar crystal tuffs were intersected. In these, the fine grained (<0.05 mm) matrix contains 20-40 percent euhedral to subhedral (0.5-0.7 mm) feldspar crystals. This rock is very distinctive in comparison to the other pyroclastics and flow rocks on the property. However, it is found only in the two adjacent holes and is therefore of little use in defining a precise trend for the stratigraphic units in the area.

The feldspathic volcanics are variable in carbonate content. Interstitial carbonate forms 0-5 percent of the samples and is generally highly reactive (calcite). Some samples contain up to 7 percent vein calcite. Where composite quartz-carbonate veins are present, the calcite content is generally limited to 10 percent or less of the total vein material.

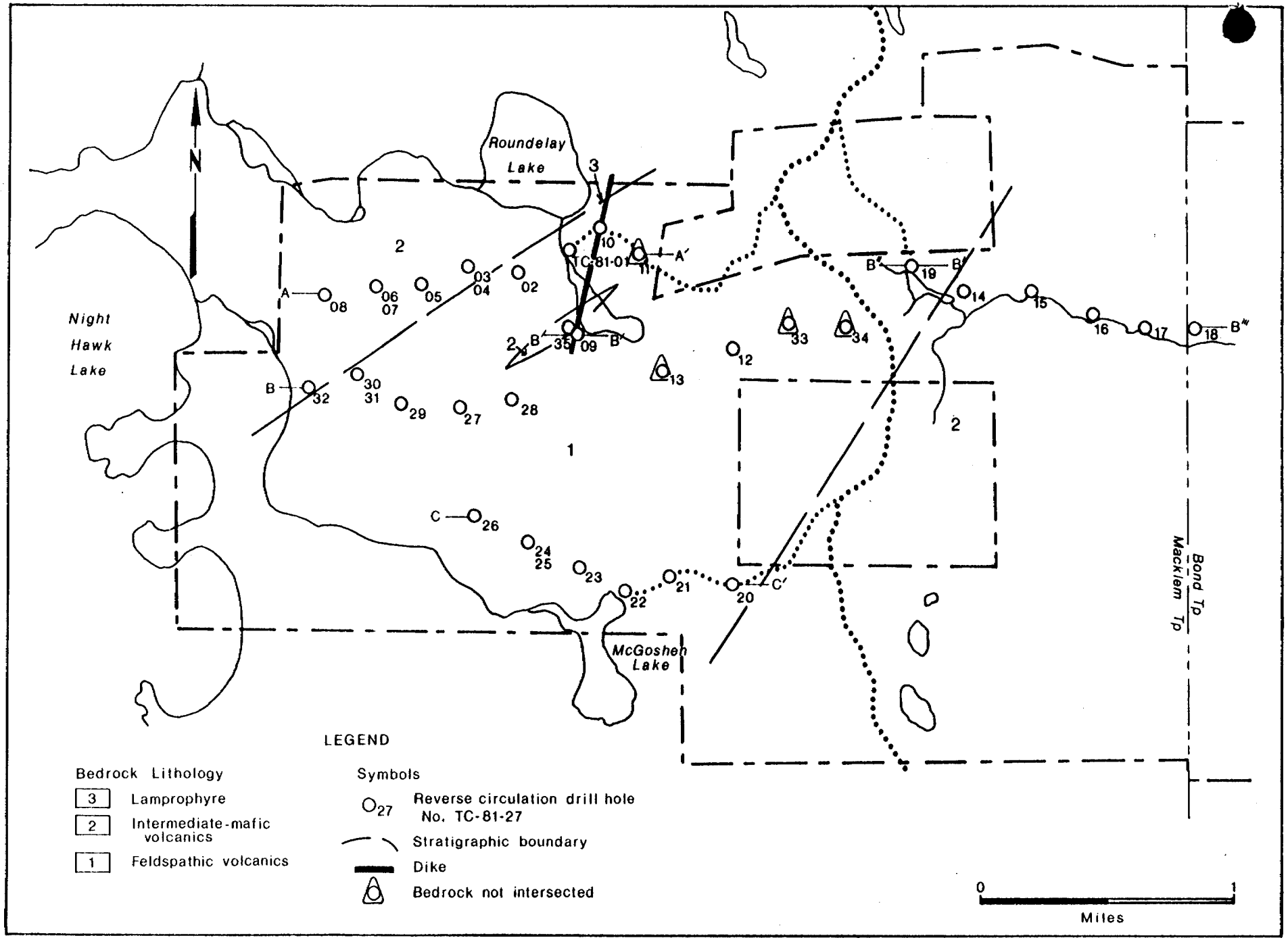


Fig. 3 Bedrock geology map

Sulplphides, ranging from trace amounts to 1 percent, are invariably found in the samples. The sulphides are found as disseminations, as concentrations in vein material, as irregular clots of up to 1.5 mm size, and also as concentrations in siliceous material at flow or pillow margins.

Intermediate-mafic volcanic rocks

Intermediate-mafic volcanics occur to the southeast and northwest of the central zone of feldspathic volcanic rocks. They are medium green to dark green to black in colour, massive and locally display variolitic or amygdaloidal textures. The amygdules are small (0.5 mm or less) and are infilled with calcite or a soft yellow-green mineral (zeolite?). Where amygdules occur, they are only a minor constitutent, comprising up to 10 percent of the rock.

The matrix is composed of feldspar and 20-40 percent chlorite- actinolite. Phenocrysts are not abundant but relict mafic minerals replaced by chlorite or actinolite were observed in some samples. These relicts are < 1.0 mm in size and may comprise 10 percent of the sample.

Interstitial carbonate (calcite), where present, forms 1-15 percent of the sample. Vein carbonate comprises 0-2 percent. The sample from Hole 15 contains 20 percent vein quartz. Sulphides are present in trace amounts, as disseminations, in half of the intermediate-mafic volcanic samples.

In Hole TC-81-32 a slightly different variety of intermediate-mafic volcanic rock was intersected. It is coarser grained (matrix grain size is 0.2-0.4 mm versus 0.1 mm) and contains chloritic phenocrysts of up to 1.0 mm. No actinolite was observed. The groundmass is feldspar with local chloritized mafic (pyroxene) minerals. The increase in grain size may be explained by proximity to the intermediate-mafic volcanic/feldspathic volcanic contact.

On the bedrock geology map (Figure 3), Hole TC-81-17 has been included as an intermediate-mafic volcanic but the sample consists of vein quartz (60 percent) in yellow-brown, limonitized, soft, schistose country rock. A minor number of chips display small quartz grains and possibly some rock fragments in a calcite matrix that forms 2 percent of the entire sample. One percent pyrite cubes are found in the vein quartz and these cubes have a black coating which may represent iron or manganese staining. Hole 17 probably intersected a very localized, pre-glacial regolith which was not completely removed by the Pleistocene glaciations.

Lamprophyre

Lamprophyre was intersected in two drill holes (TC-81-09 and TC-81-10) and may define a dike trending slightly east of north. However, lamprophyre dikes are usually small, local features and the two intersections may represent separate dikes.

The lamprophyre samples are mottled grey-green, massive, and porphyritic, with a matrix grain size of 0.1-0.5 mm and phenocrysts of 0.5-1.2 mm. Feldspar forms 60 percent of the samples. Generally it is greyish-white but the presence of pinkish varieties indicates an unknown percentage of potassium feldspar. Mafic phenocrysts comprise 25-30 percent of the samples. One sample contains only medium green, slender, prismatic diopside phenocrysts (with local chloritic alteration). The other sample, which is immediately adjacent to the contact with the feldspathic volcanics, contains 10 percent diopside phenocrysts of up to 0.5 mm size. An additional 15 percent of this sample is light green chlorite phenocrysts of up to 1.0 mm. Quartz may also be present to a minor extent in this sample. Neither rock reacts with hydrochloric acid, indicating an absence of carbonate material.

SURFICIAL GEOLOGY

Overburden Thickness

The bedrock formations in the Macklem drill area are mantled by 50 to 250 feet of glacial overburden with a local overlying veneer of post-glacial muskeg deposits. Since the surface topography in most of the area is flat, overburden thickness is directly sympathetic to bedrock topography. The only major change in the surface topography is related to a north-south trending esker system running through the center of the property.

Glacial History

Overburden Drilling Management has conducted numerous reverse circulation overburden drilling programs over the Abitibi belt, and by combining the three-dimensional drill data with surface information from the Glacial Map of Canada (Prest, 1968), has reconstructed the glacial history of the region in some detail. The classical Illinoisan and Kansan periods of the northern United States are not recognized, but repeated glaciations within the Wisconsin period are evident. Several of these glaciations were substantial, but it is difficult to correlate events with certainty over the great expanse of the Abitibi greenstone belt. During each recession, a layer of till was deposited. In most recessions, a body of water equivalent to Lake Ojibway of the final recession immediately flooded the new till surface in the area between the Arctic/Atlantic continental drainage divide and the retreating glacier to the north. A thick wedge of lacustrine sediments was then deposited over the till. During the next ice advance, most of the unconsolidated sediments and till were eroded and recycled to form new till and sediments horizons.

Glacial Stratigraphy

In Macklem Township three advances of the Wisconsin Glaciation were recognized and the following horizons noted:

1. Lower Till - As the glacier advanced across the area for the first time, it scoured the local bedrock, and as it retreated, a sandy till with a high component of local pebbles and cobbles was deposited.

2. Lower Deglacial Sediments - As the glacier retreated, a proglacial lake formed into which grey silts and clays were deposited. Sands and gravels with a high foreign clast component were deposited in the beds of feeder streams.

3. Middle Till - As the glacier advanced for the second time it removed most of the previously existing clayey sediments and scoured the exposed bedrock. Its retreat left a blanket of very clayey till. No glacial lake formed during this recession, and no clay was deposited.

4. Upper Till - As the glacier advanced for the final time it again removed most of the previously existing debris and scoured the exposed bedrock. As the glacier retreated it left a blanket of sandy till.

5. Upper Deglacial Sediments - As the glacier retreated a proglacial lake formed into which silts and clays were deposited. Sands and gravels were deposited in streams flowing through and away from the glacier.

The distribution of the stratigraphic units on the different drill profiles is illustrated in Figures 4 to 8. Basically, the older units occur as remnants of restricted extent in bedrock depressions where they were protected from erosion during the later glaciations. Upper Till forms a continuous blanket except along the axis of the central esker where it was eroded by the glacial river that deposited the esker. Although it is more extensive that the Lower and Middle Tills, the Upper Till is of limited use for exploration purposes because it was deposited by ice that glaciated only the higher parts of the bedrock surface.

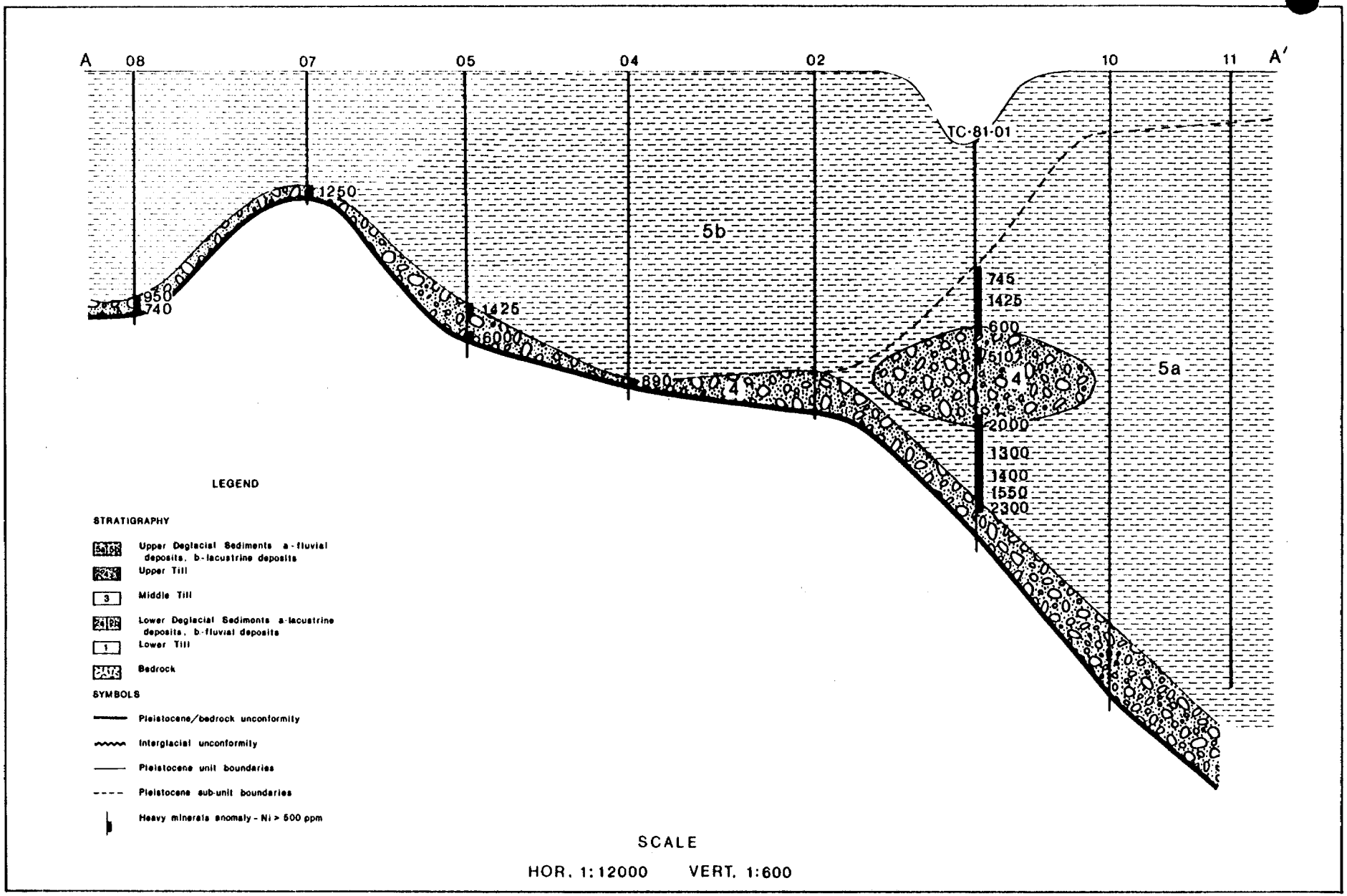


Fig. 4 Nickel anomalies in overburden stratigraphic section A-A'

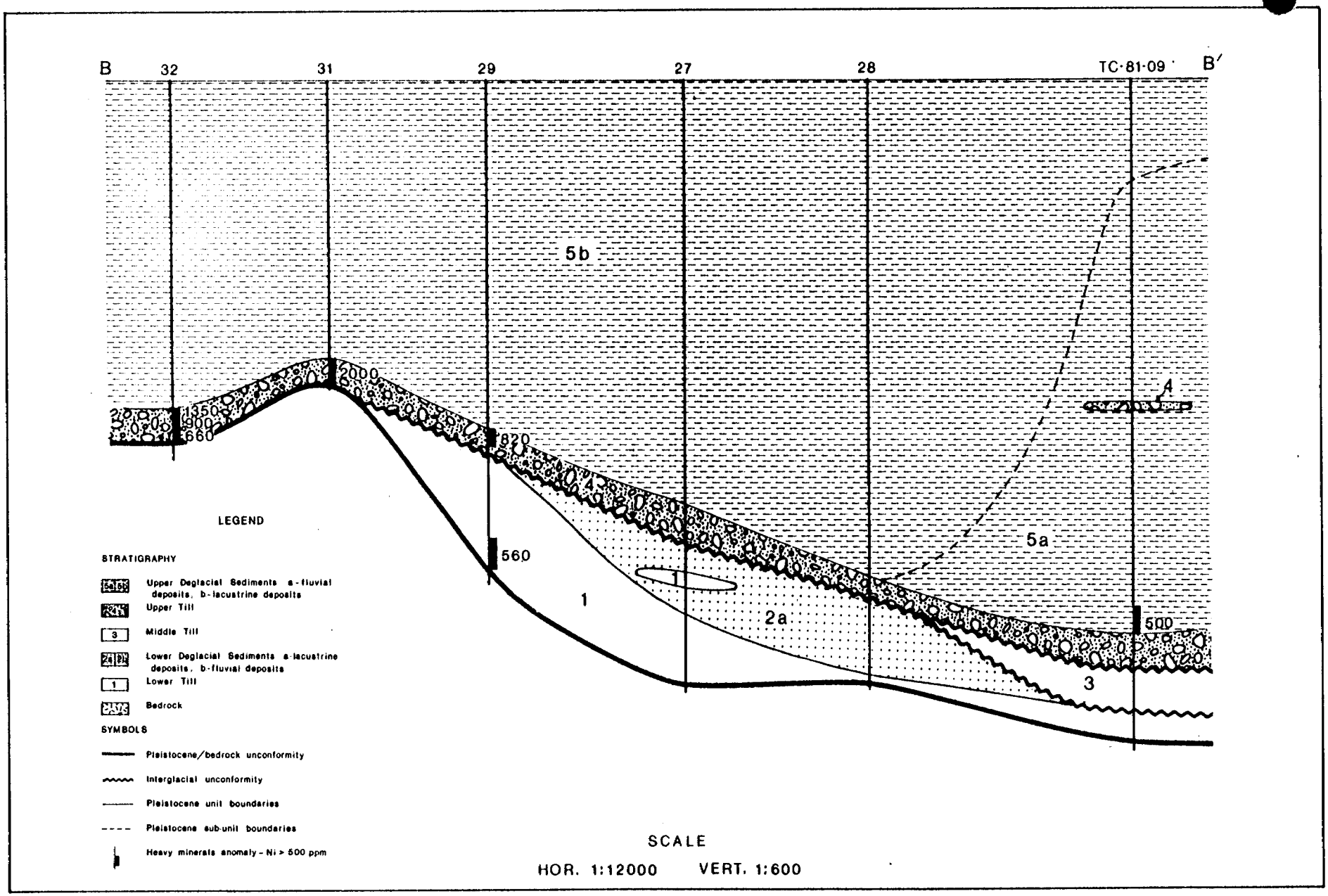


Fig. 5 Nickel anomalies in overburden stratigraphic section B-B'

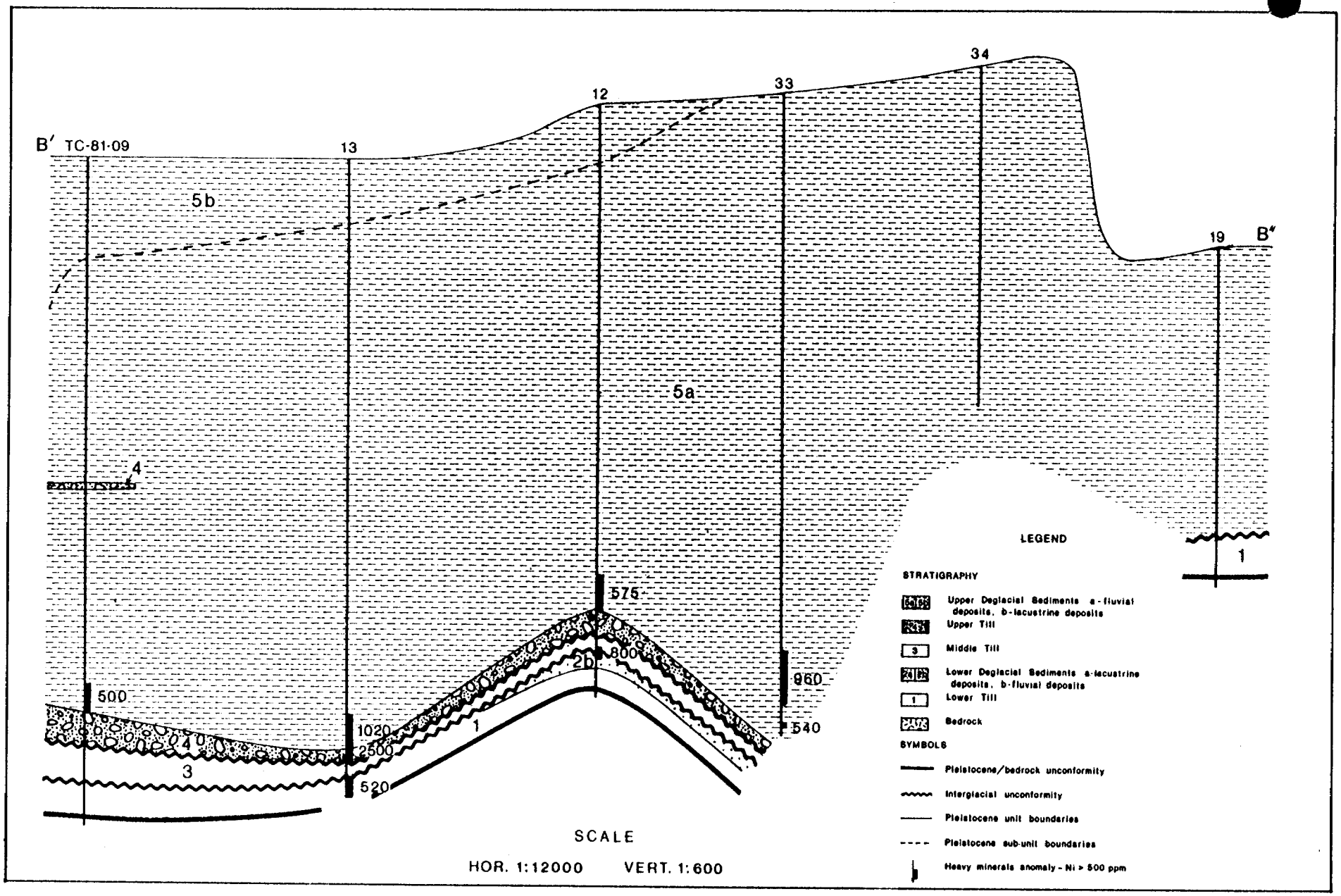
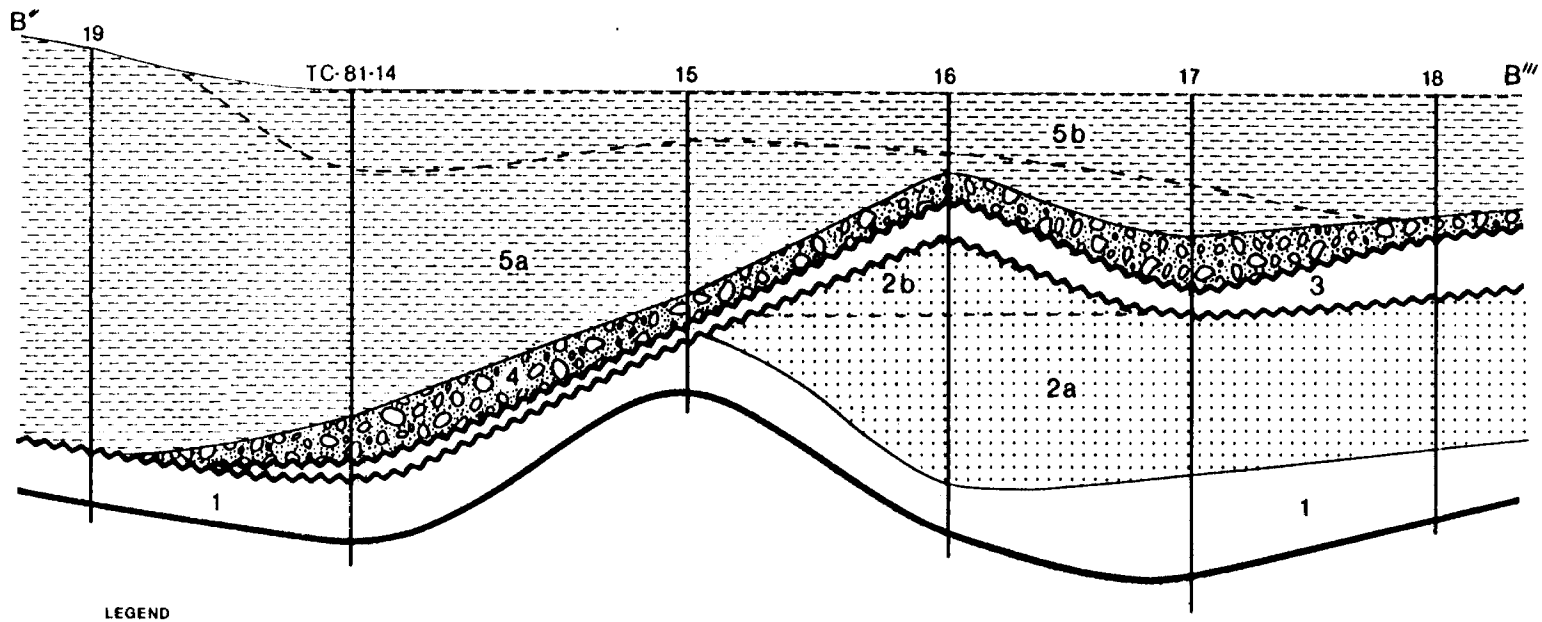


Fig. 6 Nickel anomalies in overburden stratigraphic section B'-B''



LEGEND

STRATIGRAPHY

- 5a|5b Upper Deglacial Sediments a-fluvial deposits, b-lacustrine deposits
- 5a|5b Upper Till
- 3 Middle Till
- 2a|2b Lower Deglacial Sediments a-lacustrine deposits, b-fluvial deposits
- 1 Lower Till
- Bedrock

SYMBOLS

- Pleistocene/bedrock unconformity
- Interglacial unconformity
- Pleistocene unit bounderies
- Pleistocene sub-unit boundaries
- Heavy minerals anomaly - Ni > 500 ppm

SCALE

HOR. 1:12000 VERT. 1:600

Fig. 7 Nickel anomalies in overburden stratigraphic section B''-B'''

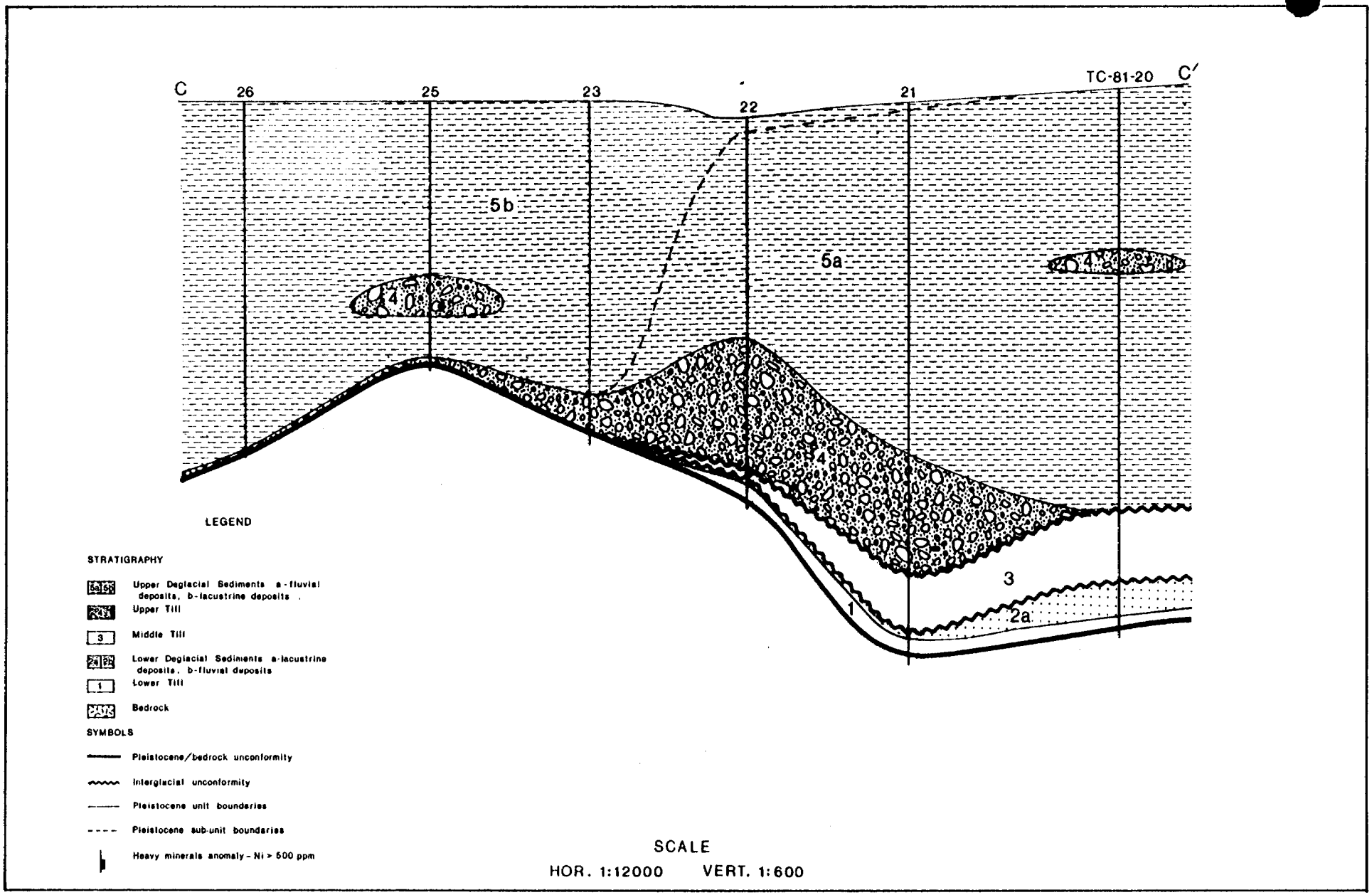


Fig. 8 Nickel anomalies in overburden stratigraphic section C-C'

GEOCHEMISTRY

Bedrock Geochemistry

The following background metal levels are present in the three bedrock units of the Macklem area.

Rock Unit	ppm Cu	Pb	Zn	Ni	Ag	As
Feldspathic volcanics	30-90	2-5	20-50	30-70	tr	2-10
Intermediate-mafic volcanics						
Northwest area	60-100	4	30-50	100-400	tr	tr-3
Northeast area	50-70	4	40-70	30-50	tr	tr-8
Lamprophyre (2 samples only)	10-40	4-5	10-30	30-60	tr	3-5

From the above data, it can be seen that high Cu-Ni concentrations are found in the intermediate-mafic volcanics in the northwest corner of the drill area. To the south and east, moving up the geological sequence, Cu-Ni concentrations drop substantially, even within the same rock type. This suggests that the rocks in the northwest corner of the drill area are komatiites.

The bedrock sample in Hole TC-81-12 is a feldspathic volcanic but unlike the other samples in this unit it has a high Ni content (335 ppm). Trace amounts of pentlandite were identified but the mineralization is probably of very limited extent and of no economic importance.

Overburden Geochemistry

Concentrates from till samples collected over the rocks of the Abitibi greenstone belt, including those in Macklem Township, consist primarily of garnet, pyroxene, epidote, hematite and pyrite. The garnet and part of the pyroxene are derived from granitic and sedimentary gneisses north of the Abitibi belt. In Macklem Township the pyroxene content of the concentratesis high, suggesting derivation from diabase dikes which lie just north of the drill area and strike perpendicular to the glaciation. Epidote, hematite, and pyrite sources are common in the local volcanic rocks of the Abitibi belt.

Base metals and silver tend to substitute to a limited extent for other metal ions in the structures of heavy silicate and sulphide minerals such as pyroxene and pyrite. Consequently, the base metal/silver background of a heavy mineral concentrate, and particularly of a high-density methylene iodide concentrate, is higher than that of a whole sample, ranging, up to several hundred ppm for base metals and several ppm for silver.

Established anomaly threshhold levels, indicating the presence of ore-type minerals such as chalcopyrite and sphalerite in potentially significant concentrations are 500-800 ppm for Cu, Pb, Zn and Ni and 5-20 ppm for Ag. Most anomalies that emanate from proven ore bodies contain many base metal values greater than 10,000 ppm or Ag values greater than 100 ppm. A significant anomaly will normally extend through two or more consecutive 5-foot till samples provided that the host horizon is of sufficient thickness. An anomaly at the top of a till horizon indicates considerable transport from the bedrock source and may be more significant than an anomaly of similar strength at the bottom of the same horizon. Anomalies should also be weighted for concentrate size; for example, an anomaly from an oversized concentrate will normally be more significant than a similar anomaly from an undersized concentrate.

Copper-nickel anomalies are common in the area west of the Gibson Lake Road. Nickel is assoicated with copper in a 5:1 ratio. In all of the highly anomalous samples, copper has been traced to the presence of chalcopyrite, and nickel to the presence of pentlandite. Most of the anomalies are in deglacial sediments and the intensity of these anomalies increases towards the north, suggesting derivation from the komatiitic series on the Asarco property.

The copper-nickel anomalies found in tills are all located in the northwest corner of the drill area. All but one are in sections of the Upper Till that directly overlie the northwestern belt of intermediate/mafic volcanics. These rocks have a high Cu-Ni background and are assumed to represent the southern extension of the Asarco komatiites. The one exception occurs in a deeper hole (TC-81-29) that lies only 1500 feet down-ice from the komatiites. Here, the base of both the Upper and Lower Till units is anomalous, suggesting that the direction of ice advance was similar in successive glaciations (S12 degrees E)

The Macklem concentrates -- particularly those that are enriched in Cu and Ni -- have a high arsenic background. The arsenic has been traced to arsenopyrite grains in the concentrates. In several instances, the arsenopyrite is aggregated with chalcopyrite. Clearly the As, like the Cu and Ni, is derived mainly from the komatiitic rocks.

A weak copper anomaly of 1150 ppm with no associated nickel was intersected at the bottom of Hole 21. The copper has been traced to the presence of chalcopyrite in the concentrate. Analysis of the bedrock in Hole 21 found copper concentrations to be higher than background at 110 ppm. Therefore the anomaly has a very local source and is of no economic importance.

Grains of visible gold were noted in several of the concentrates during table processing. The significance of these overburden gold occurrences has yet to be determined.

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CERTIFICATION

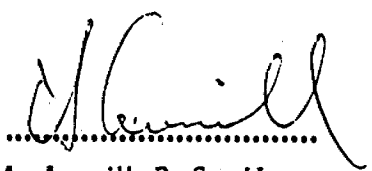
I, S.A. AVERILL, AS SENIOR AUTHOR OF THIS REPORT, DO HEREBY CERTIFY THAT:

1. I hold the degree of B. Sc. Hons. (1969) in Geology from the University of Manitoba.

2. I have direct knowledge of the information herein contained.

3. I am a consulting geologist and President of Overburden Drilling Management Limited with offices at 192 Powell Avenue, Ottawa, Ontario.

4. I have no interest in the property herein described.



S.A. Averill, B. Sc. Hons.

APPENDIX A

SAMPLE WEIGHTS

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-01-01	7.5	0.7	6.8	249.4	231.0	13.8	4.6	0		Unsorted green-grey with little clay	TILL
02	6.4	<0.1	6.4	105.3	78.6	19.0	7.7	0		"	TILL
03	6.7	0.6	6.1	133.9	108.4	19.2	6.3	0		"	TILL
04	6.2	0.1	6.1	117.9	91.1	21.7	5.1	0		Sorted fine grey-white	SILT/SAND
05	7.2	1.2	6.0	118.6	81.2	26.1	11.3	0		Unsorted grey-green with clay	TILL
06	8.0	2.4	5.6	168.8	127.8	29.4	11.6	0		"	TILL
07	8.3	0.4	7.9	64.1	33.3	25.0	5.8	0		Sorted light grey with little clay	SAND/SILT
08	7.5	2.4	5.1	99.1	69.7	22.9	6.5	0		Unsorted grey-green with clay	TILL
09	6.9	2.7	4.2	151.8	122.9	19.4	9.5	0		"	TILL
10	7.6	1.4	6.2	202.8	187.5	10.4	4.9	0		"	TILL
11	6.2	1.2	5.0	130.5	104.8	18.1	7.6	0		"	TILL
12	6.7	0.5	6.2	164.3	145.3	14.5	4.5	1 grain 350µ TRANSPARENT		Sorted grey with little clay	SAND/SILT
13	6.8	0.8	6.0	126.0	105.0	14.9	6.1	0		Unsorted grey-green with little clay	TILL
14	6.7	2.0	4.7	99.6	80.9	14.0	4.7	0		"	TILL
15	5.5	1.8	3.7	154.1	143.7	7.8	2.6	0		Unsorted grey-green	TILL/BEDROCK
02-01	5.3	0.3	5.0	55.8	43.3	9.0	3.5	0		Unsorted grey-white	TILL
03-01	4.6	NIL	4.6	66.5	54.8	8.6	3.1	0		Sorted grey-white	SAND/SILT
02	5.5	0.2	5.3	51.6	25.0	13.4	13.2	0		"	SAND/SILT
03	5.8	NIL	5.8	61.8	55.0	4.7	2.1	0		"	SILT/CLAY

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-04-01	5.9	1.4	4.5	133.0	126.4	4.5	2.1	0		Unsorted green-grey with clay	SILT/SAND
05-01	5.7	1.6	4.1	134.0	113.4	14.4	6.2	0		Unsorted green-grey	TILL
02	6.9	1.5	5.4	159.3	141.5	12.6	5.2	0		"	TILL
03	6.1	1.4	4.7	100.5	83.9	11.9	4.7	0		Unsorted green-grey with clay	BOULDER ? / TILL
04	3.2	0.7	2.5	144.8	138.2	5.0	1.6	0		"	BEDROCK ? / TILL
06-01	5.9	1.9	4.0	125.4	101.3	14.5	9.6	1 grain 200μ TRANSPARIED		"	TILL
07-01	5.3	1.4	3.9	160.5	148.1	8.7	3.7	0		Unsorted green-grey	TILL
08-01	6.2	1.2	5.0	135.2	113.5	16.0	5.7	1 grain 180μ TRANSPORTED		"	TILL
02	6.6	1.0	5.6	106.3	82.4	17.5	6.4	0		"	TILL
03	6.3	1.9	4.4	115.5	99.2	12.0	4.3	0		Unsorted dark-green with little grey clay	BEDROCK ? / TILL
09-01	6.3	<0.1	6.3	103.8	80.7	17.0	6.1	0		Sorted grey-green with clay	SAND/SILT
02	5.5	NIL	5.5	112.4	92.4	15.5	4.5	0		"	SAND/SILT
03	7.4	0.2	7.2	102.9	75.5	21.4	6.0	0		Unsorted grey-green	TILL
04	7.8	NIL	7.8	122.7	97.3	19.9	5.5	0		"	TILL
05	7.6	1.0	6.6	135.1	106.1	22.6	6.4	0		"	TILL
06	6.1	0.2	5.9	111.4	88.2	18.2	5.0	0		"	TILL
07	6.6	NIL	6.6	100.9	94.5	5.4	1.0	0		"	TILL
08#1	7.8	0.4	7.4	127.5	109.9	14.0	3.6	0		Unsorted grey-green with clay	TILL
08#2	3.1	0.8	2.3	148.3	133.8	11.0	3.5	0		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-09-09	8.0	0.6	7.4	177.6	144.5	24.4	8.7	0		Unsorted grey-green with clay	TILL
10	6.9	0.8	6.1	176.2	155.7	16.2	4.3	0		"	TILL
11	7.5	0.6	6.9	119.3	98.9	14.5	5.9	0		"	TILL
12	8.1	0.6	7.5	125.6	99.4	18.5	7.7	1 grain 300µ TRANSPORTED		"	TILL
13	8.0	0.6	7.4	78.9	44.2	25.8	8.9	1 grain 600x850µ TRANSPORTED		"	TILL
14	8.0	0.6	7.4	185.0	155.0	21.1	8.9	0		"	TILL
15	8.1	0.7	7.4	135.4	113.9	15.0	6.5	0		"	TILL
16 #1	6.9	0.4	6.5	105.3	89.7	11.8	3.8	1 grain 300x150µ TRANSPORTED		"	TILL
16 #2	1.5	0.3	1.2	207.0	203.3	2.5	1.2	0		"	BEDROCK / TILL
10-01	7.6	0.1	7.5	93.2	71.8	15.6	5.8	0		Sorted fine grey with little clay	SAND / SILT
02	6.8	<0.1	6.8	100.6	79.9	15.5	5.2	0		"	SAND / SILT
03	7.6	0.3	7.3	78.8	65.7	7.0	6.1	0		"	SAND / SILT
04	7.0	0.9	6.1	153.0	136.0	11.8	5.2	0		"	SAND / SILT
05	8.0	1.2	6.8	116.4	89.3	20.0	7.1	0		Unsorted grey with little clay	TILL
06	8.0	1.1	6.9	212.7	187.0	17.9	7.8	0		"	TILL
07	7.9	1.3	6.6	236.3	211.3	17.3	7.7	0		"	TILL
08	8.2	0.9	7.3	176.3	147.1	20.0	9.2	0		Unsorted dark-grey with little clay	TILL
09	8.5	2.6	5.9	201.1	176.5	12.0	12.6	0		"	TILL
10	8.1	0.8	7.3	130.6	113.5	11.2	5.9	0		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-10-11	7.3	0.7	6.6	175.3	153.8	15.7	5.8	0		Unsorted dark grey with little clay	TILL
11-01	7.5	<<0.1	7.5	89.2	65.9	18.4	4.9	0		Sorted - fine grey with silt	SAND + SILT
02	7.2	<0.1	7.2	74.6	65.0	7.8	1.8	0		"	SAND + SILT
03	4.2	<0.1	4.2	110.6	90.5	14.7	5.4	0		"	SAND
04	3.4	<0.1	3.4	92.3	77.1	11.8	3.4	0		"	SAND / SILT
12-01	6.5	<0.1	6.5	107.4	74.4	24.2	8.8	0		"	SAND / SILT
02	6.5	<0.1	6.5	107.8	88.1	15.4	4.3	0		"	SAND / SILT
03	6.6	0.3	6.3	110.6	95.6	12.2	2.8	0		"	SAND / SILT
04	7.5	0.5	7.0	188.7	157.1	23.1	8.5	0		Unsorted grey with silt	TILL
05	8.4	0.6	7.8	108.3	82.3	19.1	6.9	0		Unsorted grey-green with silt	TILL
06	7.3	1.4	5.9	93.0	68.8	17.7	6.5	1 Grain 400μ x 250μ Transported		Unsorted grey green	TILL
07	6.4	2.5	3.9	99.9	63.5	27.9	8.5	0		Sorted fine grey	SAND / SILT
08	7.0	1.0	6.0	118.5	102.0	9.2	7.3	1 Delicate 400μ x 150μ 1 Transported 450μ		Unsorted grey-green	TILL
09	7.5	1.8	5.7	143.8	118.1	18.8	6.9	0		"	TILL
13-01	6.5	0	6.5	101.1	85.7	12.7	2.7	0		Sorted - fine grey - green	SAND / SILT
02	7.7	1.1	6.6	168.1	146.4	17.0	4.7	0		Unsorted grey-green	TILL
03	7.8	0.8	7.0	218.9	194.7	17.5	6.7	0		"	TILL
04	7.2	1.1	6.1	148.9	127.2	16.2	5.5	0		Unsorted grey green with clay	TILL
14-01	7.0	<0.1	7.0	94.0	58.2	28.9	6.9	0		Sorted fine grey	SAND / SILT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet) Table Split	+10 Rock Chips	-10 Table Feed	Weight (grams dry) Table Conc	M.I. Lights	Non-mag	Mag	Grains V.G.	Description +10	Matrix	Classification
TC-81-14-02	6.0	0.1	5.9	58.6	37.4	16.4	4.8	0		Sorted - fine grey	SAND / SILT
03	7.5	1.0	6.5	202.7	179.2	17.9	5.6	0		Unsorted grey-green	TILL
04	7.0	1.6	5.4	89.6	65.8	17.2	6.6	0		"	TILL
05	6.5	0.7	5.8	147.4	130.1	13.3	4.0	0		Unsorted grey green with clay	TILL
06	7.6	2.7	4.9	79.7	52.7	18.0	9.0	1 Grain (300μ x 150μ) Transported		Unsorted grey-green	TILL
07	8.6	4.2	4.4	139.3	101.1	26.6	11.6	1 Grain (400μ x 150μ) Transported		"	TILL
08	6.2	2.2	4.0	147.3	129.1	17.3	0.9	3 Transported gr (1050 x 1050 x 50μ) (400 x 400)(250 x 200)		Unsorted Dark grey green	TILL
09	7.0	2.6	4.4	139.8	122.7	10.1	7.0	0		"	TILL
15-01	5.8	0.2	5.6	95.6	69.6	19.2	6.8	0		Sorted - fine grey with clay	SAND / SILT
02	6.5	1.2	5.3	126.5	91.1	26.3	9.1	0		Unsorted grey green with clay	TILL
03	6.5	0.9	5.6	165.2	134.5	21.1	9.6	0		"	TILL
04	6.5	1.0	5.5	206.8	184.7	16.1	6.0	0		"	TILL
05	6.0	1.2	4.8	195.0	173.2	13.7	8.1	0		Unsorted Dark grey green	TILL
06	7.5	1.2	6.3	155.0	128.4	18.0	8.6	0		"	TILL
07	5.5	0.1	5.4	81.1	60.0	14.5	4.6	0		Sorted - medium grey-green	SAND
08	6.0	1.4	4.6	45.2	27.1	13.0	5.1	0		Unsorted Dark grey green	TILL
16-01	5.5	0.1	5.4	76.8	60.5	12.9	3.4	0		Unsorted - grey with clay	TILL
02	7.3	0.8	6.5	119.3	95.0	17.9	6.4	0		"	TILL
03	5.5	0.2	5.3	89.1	76.3	9.8	3.0	0		Sorted - fine Light grey with clay	SAND / CLAY

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg, wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-16-04	6.0	0.3	5.7	156.9	151.8	4.2	0.9	0		Sorted - fine Light grey	SAND / SILT
05	6.2	0.2	6.0	201.2	191.8	8.1	1.3	0		Sorted - fine Light grey with clay	SAND / SILT
06	7.0	1.0	6.0	147.8	132.3	10.3	5.2	0		Unsorted Dark grey green with clay	TILL
07	7.0	1.0	6.0	96.6	68.2	19.3	9.1	1 Grain 350µm x 350µm Reliccte		"	TILL
12-10	6.2	0.5	5.7	143.8	129.3	10.1	4.4	0		Unsorted with clay Dark-med green	TILL
13-05	7.5	0.3	7.2	148.4	132.2	11.3	4.9	1 Grain 350 x 350 Reliccte		Unsorted grey-green	TILL
-06	7.0	0.6	6.4	175.4	155.3	14.0	6.1	0		Unsorted with clay Dark grey green	TILL
16-08	5.5	1.0	4.5	197.0	175.2	12.7	9.1	0		Unsorted grey-green with clay	TILL
17-01	6.0	0.75	5.25	111.7	92.5	13.8	5.4	0		Unsorted light grey with clay	TILL
02	6.2	0.8	5.4	83.9	66.0	13.1	4.8	0		Unsorted light grey with green clay	TILL
03	5.5	0.15	5.35	85.1	58.8	19.9	6.4	0		Unsorted light grey with clay	TILL
04	6.2	0.4	5.8	80.2	59.2	15.1	5.9	0		"	TILL
04$_2$	1.0	0.3	0.7	133.7	119.2	9.1	5.4	0		"	TILL
05	6.4	0.8	5.6	135.8	133.6	1.5	0.7	0		Unsorted grey green with clay	TILL
06	6.0	0.5	5.5	114.6	82.7	23.1	8.8	0		"	TILL
07	6.4	0.8	5.6	135.1	106.0	20.7	8.4	1 Grain 200 x 200µm Transported		"	TILL
08	7.0	1.2	5.8	110.4	83.4	18.3	8.7	1 Grain 350 x 350 x 50 Transported		"	TILL
09	6.5	0.8	5.7	105.2	86.6	12.3	6.3	0		"	TILL
10	5.9	0.8	5.1	128.1	104.7	16.7	6.7	0		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-18-01	5.5	0.5	5.0	73.1	52.4	15.8	4.9	0		Unsorted grey green with clay	TILL
02	5.5	1.0	4.5	93.8	77.1	12.5	4.2	0		"	TILL
03	6.1	0.4	5.7	88.9	60.0	20.0	8.9	0		"	TILL
04	6.1	0.4	5.7	130.2	105.2	20.7	4.3	0		"	TILL
05	4.5	0.3	4.2	101.7	81.3	15.0	5.4	0		"	TILL
06	6.5	0.3	6.2	153.2	139.6	9.8	3.8	0		"	TILL
07	6.9	1.3	5.6	221.0	193.5	17.3	10.2	0		"	TILL
08	6.9	1.1	5.8	128.7	113.1	10.5	5.1	0		"	TILL
09	2.3	0.5	1.8	174.9	169.9	3.7	1.3	0		Unsorted dark green with clay	TILL + BEDROCK
19-01	6.5	0	6.5	87.1	48.1	31.1	7.9	0		Sorted - fine grey green with clay	SAND / SILT
02	6.0	0	6.0	116.1	80.3	26.7	9.1	0		"	SAND / SILT
03	6.0	0	6.0	94.0	67.2	20.3	6.5	0		"	SAND / SILT
04	6.1	1.2	4.9	95.7	72.3	16.0	7.4	1 Delicate 660X150µ		Unsorted, dark green with grey clay	TILL
05	6.5	0.7	5.8	139.3	106.4	22.7	10.2	4 Transported (250X250µ, 100X150µ, 125X100µ, 100X50µ) 1 Delicate (660X150µ)		"	TILL
06	5.0	0.7	5.3	123.0	100.6	16.3	6.1	2 Transported (300X300µ) (200X150µ)		"	TILL
20-01	4.4	0.1	4.3	57.3	36.3	16.6	4.4	0		Sorted - Fine grey-beige with silt	SAND / SILT
02	5.5	0.15	5.35	71.4	49.0	16.9	5.5	0		"	SAND / SILT
03	6.5	0	6.5	103.2	80.6	16.6	6.0	0		Sorted - Fine grey beige	SAND / SILT
04	6.0	0	6.0	104.0	90.3	10.2	3.5	0		"	SAND / SILT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg, wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-20-05	6.5	0	6.5	121.4	89.0	21.6	5.8	0		Sorted - fine grey beige	SAND/SILT
06	5.9	0	5.9	113.7	88.7	20.5	4.5	0		"	SAND/SILT
07	6.0	0	6.0	75.1	56.1	13.7	5.3	0		"	SAND/SILT
08	4.5	0.15	4.35	133.1	107.3	19.0	6.8	0		"	SAND/SILT
09	6.0	1.0	5.0	157.3	135.4	16.4	5.5	0		Unsorted grey green with clay	TILL
10	5.8	0.45	5.35	161.8	141.5	15.1	5.2	0		"	TILL
11	6.2	0.6	5.6	161.0	157.0	2.7	1.3	0		"	TILL
12	6.0	0.4	5.6	92.3	64.7	20.6	7.0	0		"	TILL
13	5.0	0.3	4.7	98.1	66.5	22.9	8.7	0		"	TILL
14	6.5	0.1	6.4	149.7	119.5	20.4	9.8	0		Sorted fine grey with clay	SAND/SILT
15	7.0	1.1	5.9	177.7	147.3	18.5	11.9	0		Unsorted grey green	TILL
21-01	5.2	0	5.2	67.1	46.3	17.4	3.4	0		Sorted - fine grey	SAND/SILT
02	6.0	0	6.0	90.2	63.2	22.9	4.1	0		"	SAND/SILT
03	5.4	<0.1	5.4	119.6	101.3	15.4	2.9	0		"	SAND/SILT
04	6.6	1.1	5.5	143.6	104.6	27.9	11.1	1 Delicate 250x300µ		Unsorted grey green with clay	TILL
05	5.7	1.0	4.7	137.9	118.5	13.5	5.9	1 Transported 250x200µ		"	TILL
06	5.6	0.4	5.2	144.1	120.0	18.4	5.7	0		"	TILL
07	7.0	0.6	6.4	145.8	109.6	26.5	9.7	0		"	TILL
08	7.1	0.5	6.6	173.2	147.3	18.6	7.3	1 Delicate 200 [illegible] 1 Transported 250 [illegible]		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-21-09	6.7	0.4	6.3	129.8	107.7	16.6	5.5	0		Unsorted grey green with clay	TILL
10	6.8	0.6	6.2	167.7	145.1	16.7	5.9	0		"	TILL
11	6.5	0.3	6.2	175.2	158.1	12.3	4.8	0		"	TILL
12	6.9	0.3	6.6	162.4	148.2	9.9	4.3	0		"	TILL
13	6.2	0.7	5.5	80.9	63.5	13.2	4.2	0		"	TILL
14	7.4	0.8	6.6	123.2	104.3	13.9	5.0	0		"	TILL
15	6.0	0.5	5.5	115.9	103.0	9.3	3.6	0		"	TILL
16	5.4	0.5	4.9	107.4	100.0	5.6	1.8	0		"	TILL
22-01	5.4	0.2	5.2	99.7	73.9	20.5	5.3	0		Sorted - fine grey with silt	SAND / SILT
02	6.4	0.4	6.0	125.3	100.3	19.1	5.9	0		Unsorted grey green with clay	TILL
03	5.7	0.3	5.4	154.2	133.1	15.3	5.8	0		"	TILL
04	6.0	0.6	5.4	101.6	75.4	19.0	7.2	0		"	TILL
05	7.0	0.6	6.4	231.5	202.1	18.9	10.5	0		"	TILL
06	7.0	2.5	4.5	180.2	145.3	22.7	12.2	0		"	TILL
07	6.7	0.6	6.1	97.8	80.0	12.4	5.4	0		"	TILL
08	6.7	1.0	5.7	137.3	117.1	14.5	5.7	0		"	TILL
09	6.4	0.6	5.8	118.9	97.4	15.6	5.9	0		"	TILL
10	6.0	0.3	5.7	95.0	69.6	19.6	5.8	0		"	TILL
11	6.2	0.3	5.9	100.1	75.9	18.0	6.2	0		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-22-12	3.1	0.4	2.7	92.3	79.7	12.4	2.8	0		Unsorted grey green with clay	TILL
13	5.9	0.8	5.1	145.1	117.2	18.5	9.4	0		"	TILL
14	5.8	0.7	5.1	131.4	107.1	17.5	6.8	0		Unsorted light grey green	TILL
23-01	5.5	1.3	4.2	125.5	108.9	12.0	4.6	0		"	TILL
02	6.5	0.7	5.8	121.4	86.2	26.8	8.4	0		"	TILL
03	5.7	1.3	4.4	115.7	101.2	10.9	3.6	0		"	TILL
24-01	4.9	0.9	4.0	106.0	92.8	10.0	3.2	0		"	TILL
02	4.6	0.7	3.9	132.9	120.6	9.3	3.0	0		"	TILL
03	3.0	0.2	2.8	74.5	65.7	6.8	2.0	0		"	TILL
04	2.5	0.05	2.45	71.3	67.9	2.5	0.9	0		"	TILL
05	2.9	0.1	2.8	82.7	77.0	4.2	1.5	0		Unsorted with silt light grey green	TILL
06	4.9	0.2	4.7	84.3	74.9	5.2	4.2	0		Unsorted light grey green	TILL
07	1.2	0	1.2	45.9	45.4	0.3	0.2	0		Sorted - fine 95% clay	CLAY / SILT
25-01	4.7	0.7	4.0	104.5	94.6	7.5	2.4	0		Unsorted grey green with clay	TILL
02	5.2	0.7	4.5	74.0	60.2	10.7	3.1	0		Sorted - fine grey with clay	TILL
03	4.2	0.3	3.9	46.0	39.1	5.1	1.8	0		"	SAND / SILT
04	6.0	0.1	5.9	83.6	71.0	10.0	2.6	0		Unsorted grey green with clay	TILL
05	5.9	0.3	5.6	115.7	107.0	6.2	2.5	0		Unsorted with clay light grey green	TILL
26-01	5.8	0	5.8	61.7	54.3	5.4	2.0	0		Sorted - fine	CLAY / SAND / SILT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg, wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-26-02	6.3	0.4	5.9	49.9	39.0	8.1	2.8	0		Unsorted with silt light grey	TILL
27-01	6.3	0	6.3	60.6	53.0	5.8	1.8	0		Sorted - fine	SILT/CLAY
02	5.6	0	5.6	83.1	65.4	13.8	3.9	0		"	SILT/CLAY
03	5.5	0	5.5	46.0	39.8	4.7	1.5	0		"	SILT/CLAY
04	6.5	0.95	6.4	117.8	88.0	21.0	8.8	0		Unsorted grey green with clay	TILL
05	6.6	1.5	5.1	112.4	77.4	24.0	11.0	0		"	TILL
06	5.3	0.45	4.85	79.0	53.6	20.2	5.2	0		"	TILL
07	5.2	0.4	4.8	87.2	74.7	9.4	3.1	0		"	TILL
08	6.8	0.5	6.3	104.2	86.5	13.0	4.7	0		"	TILL
09	5.8	0.3	5.5	112.0	104.0	5.8	2.2	0		"	TILL
10	5.0	1.8	3.2	98.6	85.8	8.5	4.3	0		"	TILL
11	6.2	1.1	5.1	132.9	115.3	11.8	5.8	0		"	TILL
12	6.2	1.7	4.5	128.3	112.7	9.4	6.2	0		"	TILL
13	5.5	0.5	5.0	98.3	80.1	11.7	6.5	0		"	TILL
14	6.5	1.2	5.3	103.6	83.9	14.2	5.5	0		"	TILL
28-01	5.5	1.1	4.4	90.1	73.1	11.5	5.5	0		"	TILL
02	5.5	0.25	5.25	67.9	61.1	5.8	1.0	0		"	TILL
03	4.4	0.6	3.8	91.2	75.6	11.7	3.9	0		"	TILL
04	4.6	0.3	4.3	84.0	65.7	14.9	3.4	0		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-28-05	6.1	0.5	5.6	106.9	86.7	15.4	4.8	0		Unsorted grey green with silt	TILL
06	5.9	0.6	5.3	116.3	99.0	12.8	4.5	0		"	TILL
29-01	6.4	1.5	4.9	141.4	112.2	19.9	9.3	0		"	TILL
02	5.4	0.25	5.15	82.0	60.7	16.8	4.5	0		"	TILL
03	6.4	0.25	6.15	129.0	110.0	13.8	5.2	0		"	TILL
04	6.2	0.65	5.55	62.8	49.3	10.2	3.3	0		"	TILL
05	7.0	0.8	6.2	73.2	51.5	15.1	6.6	0		Unsorted light grey green	TILL
30-01	5.8	1.6	4.2	101.1	83.2	12.2	5.7	0		Unsorted dark grey green	TILL
02	6.9	1.6	5.3	132.8	111.7	13.4	7.7	0		"	TILL
03	4.3	0.1	4.2	54.6	46.5	5.9	2.2	0		Unsorted dark grey green with clay	TILL
31-01	5.4	0.3	5.1	84.6	65.1	13.4	6.1	0		"	TILL
32-01	6.4	1.55	4.85	103.2	80.2	15.5	7.5	0		"	TILL
02	5.9	1.65	2.25	128.6	108.6	13.4	6.6	0		"	TILL
03	5.6	1.6	4.0	124.2	103.4	15.1	5.7	0		"	TILL
33-01	6.5	<0.1	6.5	108.4	94.1	10.6	3.7	0		Unsorted grey beige with clay	TILL
02	5.9	0.2	5.7	84.4	69.2	12.0	3.2	0		"	TILL
03	3.1	1.6	1.5	222.7	217.8	3.3	1.6	0		"	TILL
04	6.2	<0.1	6.2	118.4	106.7	9.0	2.7	0		"	TILL
05	5.5	0.15	5.35	266.0	254.4	8.8	2.8	0		"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg, wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-33-06	6.1	0.2	5.9	144.5	130.4	10.8	3.3	0		Unsorted grey beige with clay	TILL
07	5.7	0.7	5.0	184.5	177.4	5.2	1.9	0		Unsorted grey with silt	TILL
08	4.1	0.4	3.7	177.2	175.1	1.8	0.3	0		"	TILL
09	5.3	0.1	5.2	138.0	125.1	9.5	3.4	0		"	TILL
10	5.6	0.4	5.2	209.4	202.7	5.4	1.3	0		"	TILL
11	5.5	0.1	5.4	146.9	136.9	7.6	2.4	0		"	TILL
34-01	5.7	2.5	3.2	109.6	103.3	4.1	2.2	0		Unsorted beige with silt	TILL
02	5.6	2.0	3.6	175.5	167.4	5.5	2.6	0		Sorted - coarse beige with silt	GRAVEL
03	5.7	2.7	3.0	119.9	113.6	3.9	2.4	0		"	GRAVEL
04	6.5	3.5	3.0	87.8	80.9	4.6	2.3	0		"	GRAVEL
05	6.2	2.3	3.9	179.2	171.4	5.0	2.8	0		"	GRAVEL
06	5.7	2.7	3.0	100.5	89.5	5.6	5.4	0		"	GRAVEL
07	5.8	2.8	3.0	97.9	84.0	9.1	4.8	0		"	GRAVEL
08	6.4	3.1	3.3	65.5	51.9	9.2	4.4	0		"	GRAVEL
09	6.0	2.5	3.5	130.0	109.7	13.1	7.2	0		Unsorted beige with silt	TILL
10	5.8	1.8	4.0	177.0	165.5	5.1	6.4	0		"	TILL
11	6.9	2.7	4.2	172.9	163.0	2.4	7.5	0		"	TILL
12	5.3	2.5	2.8	99.3	89.8	6.0	3.5	0		Sorted - coarse beige with silt	GRAVEL
13	5.4	2.9	2.5	92.2	81.1	6.0	5.1	0		"	GRAVEL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
TC-81-34-14	4.1	1.2	2.9	104.6	98.3	4.9	1.4	0		Unsorted beige with silt	TILL
15	4.5	<0.1	4.5	63.4	58.3	2.5	2.6	0		"	TILL
16	5.4	2.1	3.3	127.6	113.4	9.3	4.9	0		Sorted - coarse beige with silt	GRAVEL
17	4.3	2.5	1.8	116.8	108.1	6.4	2.3	0		"	GRAVEL
18	5.4	2.4	3.0	114.1	104.2	5.4	4.5	0		"	GRAVEL
19	5.0	3.1	1.9	73.9	70.8	2.2	0.9	0		"	GRAVEL
20	5.9	2.2	3.7	125.1	113.6	8.0	3.5	0		"	GRAVEL
35-01	5.3	0.1	5.2	76.8	66.5	5.9	4.4	0		Sorted - fine grey with silt	SAND
02	5.7	0.4	5.3	110.3	88.7	16.8	4.8	0		Unsorted grey with silt	TILL
03	4.7	<0.1	4.7	52.8	42.3	6.4	3.1	0		Sorted - fine grey with silt	SAND
04	4.7	2.5	2.2	84.1	78.5	4.4	1.2	0		Unsorted grey green with clay	TILL
05	6.4	1.7	4.7	156.0	128.8	19.8	7.4	0		Unsorted grey with silt	TILL
06	5.8	0.5	5.3	140.4	112.0	20.0	8.4	0		"	TILL
07	6.3	0.4	5.9	91.5	71.1	15.7	4.7	0		"	TILL
08	6.5	0.6	5.9	132.4	109.1	17.7	5.6	0		"	TILL

APPENDIX B

BINOCULAR DESCRIPTIONS

HEAVY MINERAL CONCENTRATES

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-01-01	30	5	3		10	40		Unsorted Trace pentlandite Trace sphene, siderite and goethite
02	30	3	2		10	40	tr	Unsorted Composite chalcopyrite - arsenopyrite chip Tr sphene Trace pentlandite
03	25	3	2		10	50	tr	Unsorted Composite chalcopyrite - arsenopyrite chip Trace pentlandite
04	25	1	2		5-10	50-60		Sorted - fine Tr sphene 25% black pyroxene
05	35	5	2		5-10	40	tr	Unsorted Trace pentlandite
06	35	3	2		5	50		Unsorted Trace sphene
07	40	1	1		5-10	35	tr	Sorted - fine Coarse composite hypersthene - pyrrhotite - pentlandite chip.
08	35	2	2		5-10	50		Poorly sorted - mainly fines
09	35	5	5		5	40		Unsorted - Coarse sulphides Trace chalcopyrite. Tr sphene 0.2% coarse pentlandite
10	35	5	5		5-10	40		Unsorted - Coarse sulphides Trace siderite, sphene Trace pentlandite
11	35	2	2		10	40		Poorly sorted - medium-coarse Trace pentlandite
12	50	2	2		5	30		Poorly sorted - medium-fine Trace pentlandite Trace chalcopyrite
13	25	2	5		5	50		Unsorted - coarse sulphides 0.2% pentlandite
14	35	2	2		5-10	40	tr	Unsorted
15	35	2	1		5	40-50	tr	Unsorted
02-01	30	2	2		5-10	50	tr	Unsorted 25% black pyroxene Trace siderite
03-01	40	1	3		5	50	1	Well sorted - very fine
02	35	2	2		5	40	1	Trace siderite Well sorted - very fine
03	40	2	2		5	50	1	Well sorted - very fine
04-01	30	1	2		5	50		Unsorted Trace pyrrhotite, arsenopyrite, pentlandite
05-01	35	3	5		3	40		Unsorted Composite quartz - pyrite chips 0.1% pentlandite

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-05-02	35	3-5	3		3	40		Unsorted Trace pentlandite
03	35	5	3		3	40		Unsorted 0.05% pentlandite
04	35	3	2		5	40-50	tr	Poorly sorted - fine-medium
06-01	35	3	2		5	40	tr	Unsorted Trace chalcopyrite, sphene, pentlandite
07-01	30	5	1-2		5	40-50		Unsorted Trace chalcopyrite, pentlandite
08-01	35	3	1		5	50	tr	Unsorted Trace pentlandite
02	30	2	1		5	50	tr	Unsorted Trace sphene, arsenopyrite, pentlandite Composite pyrite-hypersthene chip
03	30	5	1		5	50	tr	Unsorted Trace chalcopyrite, arsenopyrite
09-01	35	2	1		5	50	tr	Well sorted - fine
02	35	2	2		5	40	tr	Trace rutile Poorly sorted - medium-fine
03	35	2	1-2		5	40		Trace rutile Poorly sorted - medium-fine
04	35	2	1		5	40-50		Well sorted - fine
05	30	2	1-2		5	50		Unsorted
06	30	2	1-2		5	50		Poorly sorted medium-fine
07	35	1	1		5	40-50		Well sorted very fine
08 #1	30	2	1-2		5	50		Unsorted Trace pentlandite. Composite hypersthene, pentlandite, quartz chip
08 #2	30	2	1-2		5	50	tr	Unsorted Trace pentlandite
09	35	3-5	2		5	50		Unsorted
10	30	3	1		5-10	50		Unsorted
11	35	2	1		5	40-50		Unsorted
12	35	2	tr		5-10	50		Unsorted

Sample No.	%garnet	%hematite	%sulphides	% ilmenite	%epidote	%pyroxene	% zircon group	Remarks
TC-81-09-13	35	2	0.5		5-10	50		20% black pyroxene Unsorted
14	30	2	tr		5	50		20% black pyroxene Trace sphene Unsorted
15	30	2	1		5	50		Unsorted
16 #1	25	2	1		5	50	tr	Trace sphene Unsorted
16 #2	25	2	tr		5	50		Unsorted
10-01	40	5	1		3	40	tr	Poorly sorted - medium-fine
02	40	5	2		3	40	tr	Poorly sorted - medium fine
03	35	5	1		5	40	tr	Well sorted - fine
04	30	5	2		5	50		Unsorted
05	30	3	1		5	50		Unsorted
06	35	3	1		5	40	tr	Trace sphene Unsorted
07	40	3	1		5-10	40	tr	Unsorted
08	30	2	1		3	50		Unsorted
09	15	1	1		2	75		Unsorted
10	35	3	tr		5-10	40	tr	Trace sphene Unsorted
11	30	5	5-7		5-10	35		Trace sphene Unsorted
11-01	40	3	1		5	40-50		Trace rutile Well sorted - fine
02	35	3	1		5-10	40-50	tr	Poorly sorted - fine
03	50	5	1		5-10	25	tr	Trace sphene Unsorted
04	40	3	1		5-10	40	tr	Well sorted fine-medium
12-01	40-50	3	1		5	35	tr	Trace rutile Well sorted fine-medium

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-12-02	40-50	3	1-2		5-10	30	tr	Poorly sorted fine-medium
03	40	3	1-2		5	40		Trace pentlandite Poorly sorted - fine
04	40	3	2		5	40	tr	Unsorted
05	35	3	2		5-10	40-50		Trace pentlandite Unsorted
06	35	10	2		10	30		Trace sphene Unsorted
07	40	3	1		5-10	35	tr	Trace sphene Poorly sorted - fine
08	40-50	10	2		10	30	tr	Poorly sorted fine-medium
09	35	5-10	2		5-10	40	tr	Poorly sorted fine-medium
10	40	5	1-2		10	30	tr	Poorly sorted - fine
13-01	40	5	1		5-10	35	tr	Well sorted - fine
02	35	3-5	1-2		5-10	40		Trace pentlandite Poorly sorted - fine
03	30	5	2		5	40-50	tr	1% sphene Trace arsenopyrite Unsorted 0.1% pentlandite
04	35	5	1-2		5	40-50		Trace rutile Trace sphene Poorly sorted - fine
05	35-40	5	1-2		10	40	tr	Trace sphene Trace marcasite Trace pentlandite Unsorted
06	35	5-10	2		10	35	tr	Trace pentlandite Unsorted
14-01	35	2-3	1		5-10	40-50		Poorly sorted - fine
02	35	2	2		5-10	40	tr	Trace sphene Poorly sorted. fine-medium
03	35	5	3		10	40		Composite quartz-pyrite chips Unsorted
04	35	5	2		10	40	tr	Trace sphene Unsorted
05	30	3	1		5-10	40-50	tr	Trace sphene Unsorted
06	30	15	5		10	25	tr	Poorly sorted- medium

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-14-07	15	10	5		5	50-60		Unsorted
08	20	15	5		3	40-50	tr	5-10% rusty quarte Trace siderite Unsorted
09	25	30	5-10		5	25		Unsorted
15-01	40-50	5	1		5	35		Trace siderite 1% sphene Poorly sorted fine-medium
02	35	5	1-2		5	40	tr	Trace sphene Unsorted
03	35	5	1		10	35		Trace sphene Poorly sorted - medium
04	35	5	1		10	40	tr	Unsorted
05	30	5	1		15	35		5-10% rusty quarte Unsorted
06	40	3	0.5		15	30	tr	Trace sphene Unsorted
07	40-50	5	1		15	25	tr	Poorly sorted - medium
08	40-50	5	1-2		15	25		Poorly sorted - medium
16-01	50	5	tr		25	15	tr	Poorly sorted - fine-medium
02	40-50	5	tr		15	25	tr	Poorly sorted - fine-medium
03	40	5-10	tr		10	35	tr	Poorly sorted - fine-medium
04	40-50	5-10	1		20	20		Trace sphene, Trace marcasite Unsorted
05	60	3-5	tr		10	20		Trace sphene Well sorted-medium
06	50-60	5	1		15	20	tr	Trace marcasite. Trace sphene Unsorted
07	40-50	5	1		15	25	tr	Unsorted
08	50-60	5	1-2		10	20	tr	Trace sphene Unsorted
17-01	50	5	tr		5	35		Unsorted
02	40-50	3	1		10	30		Trace sphene Unsorted

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	% zircon group	Remarks
TC-81-17-03	35	5	1-2		10	40-50	tr	Unsorted - mainly fines with coarse very pale green pyroxene
04 #1	40-50	5-10	1		10	30	tr	Unsorted
04 #2	50	10	1-2		10	25	tr	Unsorted
05	40	5	1		10	30	tr	Unsorted
06	40	3-5	1		10	35	tr	Unsorted
07	40	5-10	1		10	40		Trace sphene Unsorted
08	35	5-10	1		10-15	35		Unsorted
09	40	5-10	1		10	35	tr	Unsorted
10	30	5-10	1		10	50		Unsorted 20% black pyroxene Composite augite/pyrite chips
18-01	50	5-10	tr		15	20	tr	Unsorted
02	40-50	5-10	tr		10	30	tr	Trace sphene Unsorted
03	35	5	tr		25	15	1	10% rusty quartz Poorly sorted fine-medium
04	35	5-10	tr		15	40		Trace sphene 25% black pyroxene Unsorted
05	15	tr	tr		5	70	tr	Unsorted Trace sphene 50% hypersthene
06	40	5-10	1-2		10	35	tr	Poorly sorted fine-medium 0.5% marcasite Trace sphene
07	40	20	1-2		10	25	tr	Unsorted Trace marcasite Trace sphene
08	35	10	1-2		15	25	tr	Unsorted Trace sphene
09	35	5-10	1-2		10	40	tr	Unsorted
19-01	35	5	1		20	35		Trace sphene Well sorted - fine-medium
02	50	10	1		10	25	tr	Poorly sorted fine-medium
03	40-50	10	1		10	30	tr	Trace sphene Well sorted. fine

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-19-04	40	10	3		15	20		Poorly sorted - fine-medium
05	50	10	3		10	20		Unsorted
06	40	10	3-5		5	35	tr	Trace marcasite Poorly sorted - fine
20-01	40	5-10			20	25	tr	Well sorted - fine
02	50	5			10	25		Trace sphene Poorly sorted - fine-medium
03	40-50	10			15	20		Trace sphene Poorly sorted - fine-medium
04	40	5-10	1		10	35		Poorly sorted - fine-medium
05	35	5	1		10	40		Trace sphene Well sorted - fine
06	35	5	tr		15	40		Well sorted - fine
07	50	5	1		10	25	tr	Trace sphene Well sorted - fine
08	50	5-10	1		10	25		Trace marcasite Poorly sorted fine-medium
09	35	5-10	5-10		15	25	tr	Trace rutile Unsorted
10	40	10	2		10	30		Trace marcasite Trace sphene Poorly sorted fine-medium
11	40-50	20	2		5-10	20		Trace sphene Unsorted
12	40	5	1		10	30		Poorly sorted fine-medium
13	35	3-5	1-2		15	35		Trace sphene Poorly sorted fine-medium
14	30	3-5	tr		15	40	tr	Well sorted - fine
15	30	5	tr		10	40	tr	Unsorted
21-01	35	3	tr		10-15	35		Well sorted - very fine
02	35	2	1		10	40		Well sorted - very fine
03	30	2	tr		5	50		Trace sphene Well sorted - very fine

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-21-04	35	2	1		10	40		Unsorted
05	35	5	1-2		20	25		Trace sphene Unsorted
06	40	3	1		20	30		Trace sphene Unsorted
07	35	5	1		20	30	tr	Trace rutile, Trace sphene Unsorted
08	35	15	1		10	35	tr	Trace sphene Poorly sorted - fine
09	35	10	1		10	30	tr	Unsorted
10	30	5-10	1		10	40	tr	Unsorted
11	35	10	1		15	35	tr	Trace sphene Unsorted
12	40	10	1		15	20	tr	Trace sphene Poorly sorted - fine
13	40	10	1		15	20	tr	Trace marcasite Trace sphene Unsorted
14	35	10-15	1-2		10	35		Poorly sorted - medium
15	35	5	1		10	40	tr	Trace sphene Unsorted
16	35	5-10	1		10	35		Trace sphene 0.1% chalcopyrite Unsorted
22-01	40	2	1		5	40	tr	Well sorted - very fine
02	35	3	1		5-10	40-50	tr	Unsorted - Trace sphene
03	40	3-5	1		10	35		Trace sphene Unsorted
04	35	5	1-2		10	40	tr	Trace sphene Unsorted
05	30	5	tr		15	35		Unsorted
06	40-50	10	1-2		10-15	25		Trace sphene Unsorted
07	35	10	1	tr	15	35		Unsorted
08	30	5-10	1-2	tr	15	40		Unsorted

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-22-09	30	5-10	1		20	35	tr	Unsorted
10	30	5	1-2		15	40		20% black pyroxene Poorly sorted - fine - medium
11	30	5	1-2		15	40	tr	20% black pyroxene Unsorted
12	25	5	1		15	50		30% black pyroxene Unsorted
13	20	3	1		10	60	tr	40-50% hypersthene Unsorted
14	25	5	1		10	50	tr	Trace marcasite Unsorted
23-01	35	5	1		15	40	tr	Unsorted
02	35	5-10	1		15	40	tr	20-30% black pyroxene Unsorted
03	35	5	2		10	40-50		Unsorted
24-01	25	5	1-2		10	60		20% black pyroxene Trace marcasite Unsorted
02	30	5	2		10	50	tr	Poorly sorted - fine
03	30	5	2		10	50	tr	Well sorted - fine
04	30	5	2		10	50		Poorly sorted - very fine
05	35	5	3		5	50		Poorly sorted - fine
06	35	5	2		10	40		Poorly sorted - fine
07	25	3	1		10	50		Poorly sorted - fine
25-01	30	3	2		10	50	tr	Unsorted
02	30	3	2		5	60		30% black pyroxene Poorly sorted - fine
03	35	2	3		10	50	tr	Poorly sorted - very fine
04	35	2	2		10	40-50	tr	Poorly sorted - fine
05	30	3	2		10	40-50		Trace sphene Unsorted

Sample No.	%garnet	%hematite	%sulphides	% ilmenite	%epidote	%pyroxene	% zircon group	Remarks
TC-81-26-01	35	3	3		5	50		Poorly sorted - very fine
02	35	3	3		10	40		Poorly sorted - very fine
27-01	35	3	3-5		5	40		Sorted - very fine
02	35	3	3		5	40		Trace marcasite Sorted - fine
03	35	3	3-5		5	40-50		Sorted - very fine
04	35	3-5	2		10	40		Trace sphene Unsorted
05	40	3-5	2		5-10	40		Unsorted
06	30-35	3	1-2		10	50		Trace sphene Poorly sorted - fine-medium
07	35	2	2		15	40	tr	Poorly sorted - medium-coarse
08	35	2	2		15	40		Poorly sorted - medium-coarse
09	35	5	1		10	40	tr	Unsorted
10	35	5	1-2		10	40		Unsorted
11	35	5	1-2		25	30		Trace sphene Unsorted
12	30	5	3-5		10	40	tr	Trace sphene Unsorted Composite pyrite-hypersthene chips
13	30	5	2		20	30		Unsorted
14	30	3	3		10	50	tr	Unsorted
28-01	35	3	2-3		5	40-50		Unsorted Trace sphene
02	30	3-5	3		5-10	50	tr	Poorly sorted - fine
03	35	3	1		15	40		Trace sphene Unsorted
04	35	2	2		15	40-50		Poorly sorted - fine
05	35	2	1-2		15	40-50	tr	Unsorted

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-28-06	35	3	1		20	40-50		Unsorted
29-01	35	3	1		10	40		Trace sphene Trace pentlandite Unsorted
02	30	3	2		10	40		Trace marcasite Poorly sorted - fine-medium
03	35	3	2		15	40		Trace sphene Trace marcasite Unsorted Trace pentlandite
04	35	3	1		15	40		Trace sphene Poorly sorted - fine-medium
05	30	3	1-2		15	40-50	tr	Trace arsenopyrite Trace pentlandite Unsorted
30-01	30	10	3		5	40	tr	Unsorted. Trace sphene 0.2% chalcopyrite, 0.1% arsenopyrite, 0.2% pentlandite. Pyrite chip with arsenopyrite vein. Composite chalcopyrite-pentlandite chip
02	30	5	2		3	40	tr	Unsorted 0.5% pentlandite, Trace chalcopyrite, Trace arsenopyrite Composite chalcopyrite-arsenopyrite chips
03	30	2	1		5-10	40-50		Poorly sorted - fine 0.2% pentlandite, Trace chalcopyrite, Trace arsenopyrite Composite chalcopyrite-arsenopyrite chip
31-01	30	5	2		5	40-50		Unsorted 0.2% pentlandite, 0.1% chalcopyrite, Trace arsenopyrite Composite arsenopyrite-chalcopyrite-pyrite chip Composite chalcopyrite-penthandite chip
32-01	35	5	2-3		5-10	35		Unsorted 0.1% pentlandite, Trace arsenopyrite, Trace chalcopyrite Composite chalcopyrite-arsenopyrite chip
02	35	5	3		15	35	tr	Unsorted Trace chalcopyrite, Trace arsenopyrite, Trace pentlandite Trace sphene. Composite quarte-chalcopyrite-pentlandite chip
03	35	5	5		15	35	tr	Poorly sorted - medium-coarse Trace pentlandite, pyrrhotite. Composite arsenopyrite-chalcopyrite Composite chalcopyrite-hypersthene chip
33-01	50	3			5	35		Poorly sorted - fine-medium
02	40-50	5			10	35	tr	Trace sphene Poorly sorted - fine-medium
03	35	3			5-10	25		20% rusty quartz Poorly sorted medium-coarse
04	35	3			10	40		Unsorted
05	50	2			5-10	30		Poorly sorted - medium coarse
06	50	3	1-2		5	30		Trace arsenopyrite Poorly sorted - medium
07	50	2	2		5	35		Unsorted
08	50	2	1-2		3	35	tr	Trace sphene Unsorted Trace pentlandite

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-33-09	40	3	2-3		5-10	35		Composite pyrite-hypersthene Unsorted
10	50	3	2		5	35		Trace sphene Composite chalcopyrite-pyroxene Unsorted Trace pentlandite
11	40-50	3	2		5-10	35	tr	Unsorted
34-01	30	2			5-10	30	tr	Trace sphene 20% rusty quartz Unsorted
02	40-50	1-2	tr		5-10	35		Unsorted
03	25	1	1		15	50		Trace sphene Unsorted
04	30	1-2	tr		10	40		1% sphene 10% rusty quartz Unsorted
05	25	2	tr		5-10	40		Trace siderite 10-20% rusty quartz Unsorted 1% sphene
06	25	1	tr		5	40		20% rusty quartz Unsorted
07	20	1	1		5	70		Unsorted
08	20	1	1		5-10	60		Unsorted
09	20	1	1		5	50		20% rusty quartz Trace sphene Unsorted
10	30	2	1		5	50		Unsorted
11	30	2	tr		5	40		15% rusty quartz 1-2% sphene Unsorted
12	25	1	1		2	40		Trace sphene 20% rusty quartz Unsorted
13	25	tr			5	40-50		Trace sphene 15-20% rusty quartz Unsorted
14	35	2			5-10	40		Trace sphene 5% rusty quartz Unsorted
15	35	2			10	40		20% black pyroxene Well sorted - fine
16	35	1	1		5	40-50	tr	Trace sphene Poorly sorted - medium coarse
17	35	1	1-2		5	50		Unsorted
18	35	1	5-10		2	40		Coarse composite pyrite-hypersthene chips Trace sphene Unsorted

Sample No.	%garnet	%hematite	%sulphides	%ilmenite	%epidote	%pyroxene	%zircon group	Remarks
TC-81-34-19	40	1	5		2	40		Unsorted
-20	40	3	10		2	35		Trace sphene Poorly sorted - coarse
35-01	40	5	1		10	35	tr	Poorly sorted - fine-medium
02	40-50	3-5	1-2		10	40		Poorly sorted - fine-medium
03	40	2	2		20	30	tr	Well sorted - fine
04	40-50	2	1		20	25	tr	Well sorted - fine
05	40-50	2	1-2		20	20		Unsorted
06	40	2	3		15	25	tr	Poorly sorted - fine-medium
07	40	2	1-2		20	25	tr	Poorly sorted - fine-medium
08	40	3	2-3		20	25	1	Unsorted

APPENDIX C

BINOCULAR DESCRIPTIONS

BEDROCK CHIP SAMPLES

TC-81-01-16 FELDSPATHIC VOLCANIC. Medium grey-green massive, porphyritic, amygdaloidal. Matrix grain size 0.05 mm. Hard, feldspathic. Mafic phenocrysts (altered to chlorite) to 0.2 mm make up 3-5% of sample (possibly amygdules?). Very minor calcite filled amygdules to 1.0 mm. Only part of sample reacts with HCl. Trace disseminated sulphides.

02-02 FELDSPATHIC VOLCANIC. Light to medium grey-green, massive locally variolitic (at flow margins?). Grain size 0.5 mm. Hard, feldspathic to quartzofeldspathic. 3% light green quartz phenocrysts to 0.2 mm. Rock unreactive with HCl, except for 2% calcite filled fractures. Trace disseminated pyrite.

03 No bedrock

04-02 INTERMEDIATE-MAFIC VOLCANIC. Dark green, massive, possibly < 1% calcite filled amygdules. Matrix grain size < 0.1 mm. Mafic phenocrysts (laths and radiating, fibrous) to 1.0 mm - chlorite-actinolite. Moderately soft. Chlorite-actinolite forms 40% of sample. Unreactive with HCl. Trace disseminated pyrite.

05-05 INTERMEDIATE-MAFIC VOLCANIC. Dark green to black, massive. Grain size 0.01 mm. Moderately soft. 40% chlorite-actinolite. 2% interstitial carbonate. 2% vein carbonate. Trace disseminated sulphides.

06 No bedrock.

07-02 INTERMEDIATE-MAFIC VOLCANIC. Medium to dark green, massive. Grain size of matrix 0.1 mm. (chlorite-actinolite "phenocrysts" to 1.0 mm - 10% of sample). Moderately soft. Total of 30-40% chlorite-actinolite — includes "phenocrysts" and "matrix sized" chlorite-actinolite. Similar to bedrock in holes TC-81-04 and TC-81-05. 10-15% interstitial, very reactive carbonate (appears to lend a lighter colour to some rock chips- dark coloured rock chips less reactive). Trace disseminated sulphides.

08-03 INTERMEDIATE-MAFIC VOLCANIC. Medium green-grey massive, porphyritic. Matrix grain size 0.05 mm. Moderately hard. 35% chlorite-actinolite. Chloritic "phenocrysts" to 0.6 mm form 7-10% of sample. Minor feldspar phenocrysts to 0.1 mm. 1% or less vein carbonate. Harder than previous intermediate-mafic volcanic samples.

09-17 LAMPROPHYRE. Light mottled green massive, porphyritic. Matrix grain size 0.2-0.5 mm. Slender, prismatic, medium green, unoriented mafic phenocrysts (diopside?) to 1.2 mm. Moderately hard. 60% feldspar - generally greyish white but some varieties have a pink tint - indicating potassium feldspar. 30% diopside- some chloritic alteration. 1% veinlets infilled with quartz.

TC-81-10-12 FELDSPATHIC VOLCANIC. Medium to dark grey-green, massive, amygdaloidal. Grain size < 0.05 mm. Hard, feldspathic. 3% dark green to black chlorite phenocrysts (may be amygdules) to 0.5 mm. 1% amygdules to 0.1 mm and infilled with a yellow-green mineral. Unreactive with HCl.

10-13 LAMPROPHYRE. Medium grey-green, massive, porphyritic. Matrix grain size 0.1-0.2 mm. Phenocrysts of chlorite (to 1.0 mm) and diopside (to 0.5 mm). Moderately hard. 60% feldspar- grey white generally but some has a pinkish tint (potassium feldspar). 15 % light green chlorite phenocrysts. 10% fresh, diopside phenocrysts. Possibly, to 10% quartz. Non-reactive with HCl.

11 No bedrock.

12-11 FELDSPATHIC VOLCANIC. Light grey-green, massive, fractured and veined, locally variolitic (flow margins?), very minor number of amygdules. Grain size < 0.05 mm. Hard (retains steel when scratched). Feldspathic to quartzofeldspathic. Gradation in colour from light greyish white to light green - variolitic material may tend to be a lighter colour, or rock may be "bleached" due to veining. 60% of sample is light greyish white. Minor dark, chloritic, veinlets to 0.1 mm in width. 10% quartz vein material (very minor carbonate) which appears locally to enclose angular fragments of the wall rock. 0.5% sulphides (pyrite and minor pyrrhotite) in veins and as disseminations to 0.7 mm size.

13 No bedrock

14-10 INTERMEDIATE-MAFIC VOLCANIC. Dark green, massive, amygdaloidal. Grain size < 0.05 mm. Moderately hard. 5-10% amygdules to 0.5 mm size and infilled with a soft yellow-green mineral. Very minor amygdules to 1.0 mm and containing dark chlorite. Some rock chips display a yellowish (oxidized) appearance and may possess a poor schistosity. 2% quartz as vein fillings. Very minor chloritic veinlets. Sample non-reactive with HCl.

15-09 INTERMEDIATE-MAFIC VOLCANIC. Dark green to black, massive, veined. Grain size 0.1 mm. Soft, dark coloured, feldspar-chlorite groundmass (minimum of 20% chlorite?). One percent small (0.1 mm or less), grey particles which may be rock fragments or altered feldspar. 15-20% white vein quartz - veins 1 cm, or greater, in width. Unreactive with HCl. Possibly tuffaceous.

16-09 INTERMEDIATE-MAFIC VOLCANIC. Medium green-grey, massive, variolitic. Matrix grain size 0.05 mm. Rounded variolites to 1.2 mm are seen locally. Moderately hard. Matrix is composed of feldspar, 15-20% fibrous, radiating actinolite needles to 0.3 mm, as well as minor amounts of chlorite. Variolites are lighter in colour and harder than the groundmass. 7-10% interstitial, highly reactive carbonate. < 1% carbonate vein material. 0.1% disseminated pyrite.

TC-18-17-11 VEIN QUARTZ-LIMONITIZED BEDROCK. Up to 60% white quartz vein material, 40% yellow brown, extensively limonitized, soft locally schistose(?) "rock" chips. 1-2% calcite - the calcite occurs as matrix material surrounding small quartz grains and possibly some rock fragments. 1% pyrite as cubes in quartz veins. Pyrite crystals have a black surface coating possibly representative of iron or manganese staining.

18-10 INTERMEDIATE-MAFIC VOLCANIC. Medium grey-green, massive, highly altered. Grain size 0.05-0.1 mm. Moderately soft. Rock composed of feldspar and 20-30% chlorite-actinolite 5% of chlorite occurs as 0.1 mm sized relicts of mafic phenocrysts. 1% interstitial carbonate; 1% vein carbonate. Minor veinlets infilled with quartz and/or epidote.

19-07 FELDSPATHIC VOLCANIC. Medium to light grey green, massive locally variolitic, minor fracturing and veining. Grain size < 0.05 mm. Moderately hard, feldspathic with minor chloritic material concentrated along microfractures. 5% vein material - predominantly quartz, minor carbonate. Host rock unreactive with HCl. Faint trace disseminated sulphides.

20-16 FELDSPATHIC VOLCANIC (Crystal Tuff). Light grey to green-white massive, tuffaceous. Matrix grain size < 0.05 mm. Hard, feldspathic. 30-40% euhedral to subhedral feldspar crystals to 0.5 mm. 2% interstitial carbonate. Unaltered.

21-17 FELDSPATHIC VOLCANIC (Crystal Tuff) Light grey green, massive, tuffaceous. Matrix grain size < 0.05 mm. Hard feldspathic matrix. 20% (or greater) feldspar crystals to 0.7 mm - crystal boundaries are indistinct and appear to merge into the groundmass in some cases. 2% white, small (0.1-0.2 mm) "particles" which may be rock fragments. Minor quartz "phenocrysts" to 1.5 mm. 2% interstitial, reactive carbonate. Faint trace disseminated sulphides (pyrite).

22-15 FELDSPATHIC VOLCANIC. Light grey green, massive. Grain size < 0.05 mm. Moderately hard, feldspathic. 5% interstitial reactive carbonate. Very minor micro-fracturing. Trace disseminated sulphides.

23-04 FELDSPATHIC VOLCANIC. Medium grey green, massive, tuffaceous. Grain size 0.1 mm. Moderately hard. Feldspar and some quartz crystals in a feldspathic matrix - percentages of minerals undetermined. To 2%, small (< 0.2 mm) white, angular fragments. 1% or less interstitial carbonate. 2-3% very reactive vein carbonate. 0.5-1.0% pyrite as irregularly shaped concentrations to 1.5 mm.

24 No bedrock

TC-18-25-06 FELDSPATHIC VOLCANIC. Medium grey green, massive, variolitic. Grain size of groundmass < 0.05 mm. Moderately hard, feldspathic. Variolitic material is generally darker than the groundmass and contains abundant quartz veins. Variolitic material may represent flow or pillow margins. < 1% of the sample may be chlorite filled amygdules to 1.0 mm. 7% vein material - predominantly quartz but minor carbonate. To 0.5% pyrite as fine disseminations in the rock itself, as concentrations (to 0.2 mm) associated with veining, and as local concentrations in variolitic rock chips.

26-03 FELDSPATHIC VOLCANIC. Light grey green, massive, locally variolitic. Matrix grain size 0.05 mm or less. Hard, feldspathic. Some variolites are seen at the edges of what appears to be quartzitic bands and there may also be a slight increase in the grain size of the host rock as these bands are approached. Boundaries between the host rock and these quartzitic zones are quite indistinct - could possibly represent flow banding. Trace vein carbonate. 0.1% sulphides associated with minute quartz-carbonate veins or margins of flow bands.

27-15 FELDSPATHIC VOLCANIC. Light grey green, massive. Matrix grain size 0.05-0.1 mm. Moderately hard, feldspathic. Slightly coarser grained than previous samples. Trace vein carbonate. Trace disseminated pyrite. May be tuffaceous but no direct evidence of this was observed.

28-07 FELDSPATHIC VOLCANIC. Light grey green, massive, tuffaceous. Matrix grain size of 0.1 mm. Hard, feldspathic. 5% white, small (0.1 mm), angular particles which may be rock fragments or possibly feldspar or quartz crystals. Trace vein carbonate. Trace disseminated pyrite.

29-06 FELDSPATHIC VOLCANIC. Light to medium grey green, massive, tuffaceous. Grain size of matrix appears to be approximately 0.1 mm although individual grains are not distinct. Moderately hard, feldspathic. 5% white, angular rock fragments (possibly quartz or feldspar crystals?) to 0.1 mm. 2% interstitial carbonate. Trace vein carbonate. Trace disseminated pyrite.

30 No bedrock

31-02 FELDSPATHIC VOLCANIC. Medium grey green, massive, variolitic (variolites to 0.7 mm). Grain size of matrix < 0.05 mm. Most of this sample appears variolitic and the grain size estimate is of chips in which no variolites are recognized. Moderately hard, feldspathic. Some lighter coloured chips are present in which feldspar or quartz needles to 0.5 mm may be recognized, 1-2% interstitial carbonate 1-2% carbonate in composite quartz-carbonate veins. To 0.1% pyrite as disseminations and minor concentrations in quartz-carbonate veins.

TC-81-32-04 INTERMEDIATE-MAFIC VOLCANIC. Mottled green white, massive. Moderately hard. Grain size 0.2-0.4 mm, with 5-10% chloritic phenocrysts to 1.0 mm. Rock is composed of anhedral feldspar and mafic (pyroxene), locally chloritic minerals (proportions 60:40 to 70:30). Rock is unreactive with HCl. Faint trace of pyrite. Sample is coarser grained than other intermediate-mafic volcanics but appears volcanic as opposed to intrusive.

33 No bedrock

34 No bedrock

35-09 INTERMEDIATE MAFIC VOLCANIC. Dark green to black, massive, highly altered. Matrix grain size 0.05-0.1 mm. Soft. Composed of feldspar and mafic minerals completely altered to chlorite. (60-70% feldspar, 30% chlorite). 1-2% reactive, interstitial carbonate.

APPENDIX D

HEAVY MINERALS ANALYSES

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

FROM: GOLDEIDT EXPLORATIONS INC. SUBMITTED BY: S. AVERILL

DATE: 01-DEC-81 PROJECT:

ELEMENT	LOWER DETECTION LIMIT	EXTRACTION	METHOD	SIZE FRACTION	SAMPLE TYPE	SAMPLE PREPARATIONS
Cu	1 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200	HEAVY MINERAL CONC.	PULVERIZE -200
Pb	2 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
Zn	1 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
Ni	2 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
Ag	.1 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
As	2 PPM	NITRIC PERCHLOR DIG	Colourimetric	-200		

REPORT COPIES TO: J. EIDT, MID. DOH. LTD.
OVERBURDEN DRILLING MGMT

INVOICE TO: J. EIDT, MID. DOH. LTD.

REMARKS: ALL SAMPLE NUMBERS ARE SUFFIXED BY "3/4H".
I.S. MEANS INSUFFICIENT SAMPLE.
ND MEANS NOT DETECTED.

Rec'd. Dec 03/81

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	Ag PPM	As PPM	NOTES
TC-81-01-01		260	40	65	745	0.4	127	
TC-81-01-02		360	50	85	1425	0.2	114	
TC-81-01-03		170	31	77	600	0.3	114	
TC-81-01-04		42	18	44	63	0.2	35	
TC-81-01-05		130	52	71	510	0.4	156	
TC-81-01-06		168	41	65	360	0.4	122	
TC-81-01-07		67	17	44	60	ND	23	
TC-81-01-08		110	48	54	235	0.3	100	
TC-81-01-09		650	75	84	2000	0.6	252	
TC-81-01-10		435	56	93	1300	0.7	432	
TC-81-01-11		475	46	75	1400	0.5	92	
TC-81-01-12		395	32	81	1550	0.6	100	
TC-81-01-13		510	48	97	2300	0.5	188	
TC-81-01-14		145	25	44	290	0.4	64	
TC-81-01-15		85	22	30	140	0.3	47	
TC-81-02-01		150	30	80	450	0.2	84	
TC-81-03-01		135	33	74	200	0.3	35	
TC-81-03-02		125	32	71	265	0.3	45	
TC-81-03-03		135	28	80	265	0.4	41	
TC-81-04-01		282	29	75	890	0.5	212	
TC-81-05-01		315	33	60	1425	0.5	240	
TC-81-05-02		170	21	45	460	0.3	180	
TC-81-05-03		290	17	43	600	0.4	104	
TC-81-05-04		465	30	44	300	0.6	66	
TC-81-06-01		415	27	97	910	0.3	126	
TC-81-07-01		530	24	64	1250	0.5	88	
TC-81-08-01		270	27	58	950	0.4	108	
TC-81-08-02		295	23	80	740	0.3	86	
TC-81-08-03		615	75	950	720	0.2	86	
TC-81-09-01		97	35	80	225	0.2	29	

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764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	Ag PPM	As PPM	NOTES
TC-81-09-02		110	26	77	225	ND	41	
TC-81-09-03		100	25	65	230	0.3	33	
TC-81-09-04		92	24	67	260	0.3	33	
TC-81-09-05		94	42	80	265	0.2	51	
TC-81-09-06		80	21	63	230	0.3	40	
TC-81-09-07		94	14	80	125	0.3	14	
TC-81-09-08	#1	200	21	65	500	0.2	49	
TC-81-09-08	#2	195	23	55	500	0.3	104	
TC-81-09-09		87	13	38	185	ND	78	
TC-81-09-10		60	12	33	125	ND	34	
TC-81-09-11		44	17	34	27	ND	18	
TC-81-09-12		36	11	31	26	ND	11	
TC-81-09-13		39	17	33	26	1.8	10	
TC-81-09-14		67	16	37	78	ND	29	
TC-81-09-15		65	21	34	49	ND	21	
TC-81-09-16	#1	49	15	32	23	0.3	64	
TC-81-09-16	#2	130	16	35	120	ND	29	
TC-81-10-01		138	32	77	315	0.3	44	
TC-81-10-02		95	29	62	160	ND	40	
TC-81-10-03		75	23	52	165	ND	35	
TC-81-10-04		150	30	65	360	ND	124	
TC-81-10-05		95	24	38	190	0.2	88	
TC-81-10-06		80	50	37	120	ND	48	
TC-81-10-07		87	32	42	75	ND	92	
TC-81-10-08		110	24	41	110	0.6	126	
TC-81-10-09		215	30	67	150	0.4	102	
TC-81-10-10		42	14	18	50	ND	24	
TC-81-10-11		398	10	21	84	0.5	29	
TC-81-11-01		108	19	72	170	0.5	30	
TC-81-11-02		118	18	83	185	ND	29	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	Ag PPM	As PPM	NOTES
TC-81-11-03		137	16	55	170	ND	50	
TC-81-11-04		117	19	57	305	ND	45	
TC-81-12-01		123	20	65	160	ND	33	
TC-81-12-02		126	18	65	190	ND	45	
TC-81-12-03		192	24	75	575	ND	48	
TC-81-12-04		330	53	77	240	0.3	108	
TC-81-12-05		235	55	82	800	0.3	128	
TC-81-12-06		160	50	78	280	0.8	64	
TC-81-12-07		92	22	53	92	0.3	39	
TC-81-12-08		130	34	51	170	0.4	82	
TC-81-12-09		120	26	30	70	0.4	62	
TC-81-12-10		140	116	52	69	0.4	34	
TC-81-13-01		115	16	62	155	0.3	13	
TC-81-13-02		268	26	63	1020	0.3	50	
TC-81-13-03		415	36	88	2500	0.4	172	
TC-81-13-04		130	19	45	270	ND	53	
TC-81-13-05		185	30	110	520	0.8	52	
TC-81-13-06		207	27	64	520	ND	84	
TC-81-14-01		77	19	62	86	ND	18	
TC-81-14-02		98	23	79	130	ND	31	
TC-81-14-03		91	26	126	95	ND	29	
TC-81-14-04		68	39	46	55	ND	42	
TC-81-14-05		27	13	37	27	ND	2	
TC-81-14-06		50	19	28	52	ND	41	
TC-81-14-07		125	16	40	80	ND	ND	
TC-81-14-08		130	17	26	95	0.4	57	
TC-81-14-09		58	27	22	95	ND	90	
TC-81-15-01		105	15	44	85	0.4	25	
TC-81-15-02		350	19	44	46	ND	39	
TC-81-15-03		76	13	47	51	0.3	36	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	Ag PPM	As PPM	NOTES
TC-81-15-04		70	17	57	66	ND	38	
TC-81-15-05		64	13	45	50	ND	32	
TC-81-15-06		79	21	36	63	ND	40	
TC-81-15-07		93	21	57	83	ND	18	
TC-81-15-08		176	28	49	53	0.3	43	
TC-81-16-01		32	13	29	23	ND	9	
TC-81-16-02		28	17	34	25	ND	12	
TC-81-16-03		36	20	62	26	ND	15	
TC-81-16-04		43	20	50	36	ND	23	
TC-81-16-05		50	15	57	34	ND	10	
TC-81-16-06		90	22	47	51	ND	29	
TC-81-16-07		77	13	32	38	ND	40	
TC-81-16-08		120	19	26	55	0.4	41	
TC-81-17-01		63	23	40	64	0.3	17	
TC-81-17-02		57	18	38	42	ND	25	
TC-81-17-03		82	19	60	108	ND	23	
TC-81-17-04	#1	75	19	51	83	ND	20	
TC-81-17-04	#2	58	21	40	54	ND	27	
TC-81-17-05		120	22	18	22	ND	19	
TC-81-17-06		28	14	28	23	ND	17	
TC-81-17-07		89	13	24	38	0.4	28	
TC-81-17-08		50	15	41	34	0.3	47	
TC-81-17-09		89	15	30	32	ND	32	
TC-81-17-10		46	12	26	21	ND	17	
TC-81-18-01		51	59	32	38	ND	25	
TC-81-18-02		52	16	24	30	ND	18	
TC-81-18-03		42	14	28	21	ND	11	
TC-81-18-04		28	14	27	15	ND	5	
TC-81-18-05		50	7	34	14	ND	8	
TC-81-18-06		39	15	35	40	ND	19	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	As PPM	As PPM	NOTES
TC-81-18-07		45	13	21	31	ND	30	
TC-81-18-08		58	18	37	31	ND	49	
TC-81-18-09		137	12	27	33	ND	35	
TC-81-19-01		52	16	36	40	ND	14	
TC-81-19-02		38	14	32	31	ND	14	
TC-81-19-03		47	18	37	43	0.4	11	
TC-81-19-04		138	32	80	66	0.4	57	
TC-81-19-05		131	56	76	80	0.5	92	
TC-81-19-06		127	58	69	64	0.4	53	
TC-81-20-01		9	14	15	13	ND	3	
TC-81-20-02		7	20	14	10	ND	ND	
TC-81-20-03		10	30	18	14	ND	3	
TC-81-20-04		88	86	73	100	ND	29	
TC-81-20-05		91	26	65	135	ND	22	
TC-81-20-06		91	22	66	130	ND	24	
TC-81-20-07		125	26	66	170	ND	40	
TC-81-20-08		140	21	68	200	0.3	38	
TC-81-20-09		130	19	54	130	0.4	42	
TC-81-20-10		80	22	45	200	ND	86	
TC-81-20-11		172	28	78	125	ND	32	
TC-81-20-12		81	23	40	110	0.4	24	
TC-81-20-13		78	19	34	95	ND	24	
TC-81-20-14		8	19	16	13	ND	3	
TC-81-20-15		23	15	15	25	ND	7	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	As PPM	As PPM	NOTES
TC-81-21-01		91	22	66	130	ND	40	
TC-81-21-02		82	22	67	132	ND	22	
TC-81-21-03		112	22	78	134	ND	24	
TC-81-21-04		70	106	35	52	ND	45	
TC-81-21-05		81	48	40	65	ND	30	
TC-81-21-06		103	92	48	62	ND	32	
TC-81-21-07		89	36	47	66	ND	32	
TC-81-21-08		39	36	29	24	ND	21	
TC-81-21-09		32	30	26	20	ND	56	
TC-81-21-10		260	26	35	22	ND	17	
TC-81-21-11		50	350	34	24	ND	14	
TC-81-21-12		47	67	31	26	ND	14	
TC-81-21-13		37	32	24	30	ND	17	
TC-81-21-14		36	28	37	24	ND	41	
TC-81-21-15		37	43	36	30	ND	19	
TC-81-21-16		1150	28	33	40	ND	42	
TC-81-22-01		82	28	54	104	ND	30	
TC-81-22-02		62	24	34	82	ND	18	
TC-81-22-03		78	38	48	50	ND	14	
TC-81-22-04		47	19	29	42	ND	14	
TC-81-22-05		32	17	24	20	ND	17	
TC-81-22-06		48	34	34	26	ND	21	
TC-81-22-07		44	48	31	40	ND	16	
TC-81-22-08		64	32	38	18	ND	13	
TC-81-22-09		48	22	22	22	ND	12	
TC-81-22-10		51	20	36	50	ND	14	
TC-81-22-11		68	32	41	70	ND	18	
TC-81-22-12		34	18	30	19	ND	11	
TC-81-22-13		68	18	42	55	ND	22	
TC-81-22-14		136	22	63	62	ND	105	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	As PPM	As PPM	NOTES
TC-81-23-01		99	26	34	104	ND	51	
TC-81-23-02		106	30	40	60	ND	23	
TC-81-23-03		154	48	57	58	ND	42	
TC-81-24-01		114	41	63	250	ND	46	
TC-81-24-02		117	53	55	240	ND	63	
TC-81-24-03		115	31	74	240	ND	31	
TC-81-24-04		140	50	320	270	ND	50	
TC-81-24-05		124	38	87	220	ND	49	
TC-81-24-06		96	28	70	142	ND	35	
TC-81-24-07		IS	IS	IS	IS	IS	IS	
TC-81-25-01		160	32	90	310	ND	84	
TC-81-25-02		105	40	80	245	ND	36	
TC-81-25-03		146	42	90	240	ND	50	
TC-81-25-04		94	28	62	180	ND	33	
TC-81-25-05		150	41	80	240	ND	49	
TC-81-26-01		124	47	86	225	ND	38	
TC-81-26-02		134	48	68	250	ND	16	
TC-81-27-01		122	38	86	230	ND	31	
TC-81-27-02		101	30	70	164	ND	35	
TC-81-27-03		116	48	84	182	ND	40	
TC-81-27-04		116	20	36	330	ND	105	
TC-81-27-05		108	20	50	260	ND	95	
TC-81-27-06		60	18	36	126	ND	34	
TC-81-27-07		78	15	38	100	ND	32	
TC-81-27-08		67	26	47	120	ND	31	
TC-81-27-09		58	18	34	54	ND	65	
TC-81-27-10		186	23	38	130	ND	31	
TC-81-27-11		96	22	32	110	ND	60	
TC-81-27-12		148	44	54	130	ND	44	
TC-81-27-13		100	30	35	110	ND	47	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	Ag PPM	As PPM	NOTES
TC-81-27-14		90	33	39	112	ND	30	
TC-81-28-01		130	24	36	310	ND	110	
TC-81-28-02		112	37	80	156	ND	28	
TC-81-28-03		68	375	30	60	ND	30	
TC-81-28-04		90	36	60	144	ND	21	
TC-81-28-05		77	48	52	84	ND	30	
TC-81-28-06		76	20	64	60	ND	41	
TC-81-29-01		225	34	62	820	ND	108	
TC-81-29-02		105	24	58	240	ND	32	
TC-81-29-03		174	28	48	490	ND	70	
TC-81-29-04		110	20	55	184	ND	56	
TC-81-29-05		198	26	43	560	ND	82	

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Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	Ag PPM	As PPM	NOTES
TC-81-30-1		900	114	106	3900	0.5	400	
TC-81-30-2		640	72	85	3000	0.9	430	
TC-81-30-3		340	42	76	1850	0.7	340	
TC-81-31		470	66	56	2000	0.7	230	
TC-81-32-1		280	32	48	1350	0.8	220	
TC-81-32-2		270	38	52	900	0.8	255	
TC-81-32-3		340	36	36	660	0.8	210	
TC-81-33-1		16	20	9	18	ND	5	
TC-81-33-2		7	11	12	36	0.5	5	
TC-81-33-3		21	16	20	50	ND	IS	
TC-81-33-4		9	26	14	112	ND	3	
TC-81-33-5		11	14	16	28	ND	3	
TC-81-33-6		124	26	60	106	0.5	25	
TC-81-33-7		148	59	62	194	0.5	35	
TC-81-33-8		290	33	76	960	ND	IS	
TC-81-33-9		138	22	51	208	0.6	97	
TC-81-33-10		200	30	51	540	0.6	48	
TC-81-33-11		37	20	24	70	ND	54	
TC-81-34-1		84	22	20	58	ND	IS	
TC-81-34-2		104	18	23	96	ND	7	
TC-81-34-3		182	17	99	119	ND	22	
TC-81-34-4		49	14	31	70	ND	9	
TC-81-34-5		80	20	25	102	ND	7	
TC-81-34-6		80	22	26	80	ND	22	
TC-81-34-7		86	29	27	140	ND	18	
TC-81-34-8		94	19	36	134	ND	8	
TC-81-34-9		47	18	19	70	ND	17	
TC-81-34-10		56	22	25	58	ND	8	
TC-81-34-11		330	15	30	54	ND	7	
TC-81-34-12		77	16	28	76	ND	10	

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	As PPM	As PPM	NOTES
TC-81-34-13		19	18	14	37	ND	8	
TC-81-34-14		7	20	12	6	ND	3	
TC-81-34-15		8	20	11	10	ND	3	
TC-81-34-16		56	14	18	46	ND	26	
TC-81-34-17		96	24	38	136	ND	11	
TC-81-34-18		245	30	130	160	0.6	270	
TC-81-34-19		IS	IS	IS	IS	IS	IS	
TC-81-34-20		285	50	76	420	0.4	IS	
TC-81-35-1		100	28	70	220	ND	38	
TC-81-35-2		98	32	62	230	ND	60	
TC-81-35-3		74	22	64	164	0.3	27	
TC-81-35-4		136	24	82	188	ND	57	
TC-81-35-5		88	20	38	60	ND	195	
TC-81-35-6		80	20	44	60	ND	45	
TC-81-35-7		62	16	60	86	ND	19	
TC-81-35-8		72	30	55	94	ND	41	

APPENDIX D'

BEDROCK ANALYSES

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

FROM: GOLDEIDT EXPLORATIONS INC. SUBMITTED BY: S. AVERILL

DATE: 18-NOV-81 PROJECT:

ELEMENT	LOWER DETECTION LIMIT	EXTRACTION	METHOD	SIZE FRACTION	SAMPLE TYPE	SAMPLE PREPARATIONS
Cu	1 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200	BED ROCK	PULVERIZE -200
Pb	2 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
Zn	1 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
Ni	2 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
Ag	.1 PPM	HNO3-HCL HOT EXTR	Atomic Absorption	-200		
As	2 PPM	NITRIC PERCHLOR DIG	Colourimetric	-200		

REPORT COPIES TO: J. EIDT, MID. DOH. LTD.
OVERBURDEN DRILLING MGMT

INVOICE TO: J. EIDT, MID. DOH. LTD.

RECEIVED 24-11-81

REMARKS: NOTE: ND MEANS NOT DETECTED

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	As PPM	As PPM	NOTES
TC-81-01-16		56	4	25	50	ND	3	
TC-81-02-02		45	4	23	73	ND	ND	
TC-81-04-02		85	4	31	300	ND	2	
TC-81-05-05		63	4	36	450	ND	ND	
TC-81-07-02		96	5	47	115	ND	ND	
TC-81-09-17		12	4	12	27	ND	3	
TC-81-10-12		55	4	30	48	ND	2	
TC-81-10-13		40	5	30	58	ND	4	
TC-81-12-11		80	3	33	335	ND	8	
TC-81-14-10		55	4	68	50	ND	8	
TC-81-15-09		30	4	41	42	ND	ND	
TC-81-16-09		72	4	48	48	ND	8	
TC-81-17-11		125	4	110	35	ND	3	
TC-81-18-10		57	4	44	25	ND	5	
TC-81-19-07		83	4	45	43	ND	7	
TC-81-20-16		10	4	26	54	ND	4	
TC-81-21-17		110	3	54	53	ND	6	
TC-81-22-15		40	2	25	30	ND	16	
TC-81-23-04		73	4	38	64	ND	2	
TC-81-25-06		55	5	33	53	ND	6	
TC-81-26-03		52	3	34	64	ND	ND	
TC-81-27-15		31	4	16	26	ND	3	
TC-81-28-07		26	4	20	16	ND	3	
TC-81-29-06		40	3	25	33	ND	7	

BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: (613) 237-3110 TELEX: 053-4455

Geochemical Lab Report

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ni PPM	As PPM	As PPM
TC-81-31-02		102	4	50	47	ND	10
TC-81-32-04		72	4	20	46	ND	3
TC-81-35-09		75	4	74	46	ND	ND

APPENDIX E

REPORT OF WORK

Ministry of Natural Resources
Ontario

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

The Mining Act

#23 4.7511 Macklem + Bond Twp.

P-486655

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Reverse Circulation Overburden Drilling
Township or Area: Macklem, Bond

Claim Holder(s): Goldeidt Exploration Incorporated — W82 0623
Prospector's Licence No.: X T 1120

Survey Company: Overburden Drilling Management Limited
Survey Dates (linecutting to office): 21 07 81 (Day Mo. Yr.) | 28 01 82 (Day Mo. Yr.)
Total Miles of line Cut: 00

Name and Address of Author (of Geo-Technical report): S..A. Averill, 192 Powell Avenue, Ottawa, Ontario K1S2A5

Special Provisions Credits Requested

Instructions
For first survey: Enter 40 days. (This includes line cutting)
For each additional survey: using the same grid: Enter 20 days (for each)

	Days per Claim
Geophysical	
- Electromagnetic	
- Magnetometer	
- Radiometric	
- Other	
Geological	
Geochemical	

Man Days

Instructions: Complete reverse side and enter total(s) here

	Days per Claim
Geophysical	
- Electromagnetic	
- Magnetometer	
- Radiometric	
- Other	
Geological	
Geochemical	

Airborne Credits

Note: Special provisions credits do not apply to Airborne Surveys.

	Days per Claim
Electromagnetic	
Magnetometer	
Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed: R. C. Overburden Drilling (Section 77-13)

Performed on Claim(s): P486668, 672, 673 & 674
~~P529046, 047, 050, 051, 052, 055~~ 057, 059, 062, 065, 068, P530632, 649, 656, 657, 661, 663, 666, 668, 669 & 676

Calculation of Expenditure Days Credits

X Total Expenditures: $ 110,259.55 + 15 = Total Days Credits: 7350.64

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

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
	See attached list				

RECORDED
FEB 1 1982
Receipt No.....

MINING RECORDS OFFICE - TORONTO
RECEIVED
JAN 29 1982
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

PORCUPINE MINING DIVISION
RECEIVED
FEB 1 1982
AM 7 8 9 10 11 12 1 2 3 4 5 6

RECEIVED
FEB 8 1982
MINING LANDS SECTION

Total number of mining claims covered by this report of work: 118

For Office Use Only

Total Days Cr. Recorded: 7080
Date Recorded: Feb 1st 1982
Date Approved as Recorded: 83:04:29
Mining Recorder
Resident Geologist / Branch Director / Regional Mining Recorder

Report Completed

Date of Report: Jan./82
Recorded Holder or Agent (Signature): X [signature]

Certification Verifying Report of Work

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

Name and Postal Address of Person Certifying: S.A. Averill, Overburden Drilling Management Limited, 192 Powell Avenue, Ottawa, K1S2A5

Date Certified: Jan. 28/82
Certified by (Signature): [signature]

1362 (81/2)

Mining Claims Traversed

Claim No.	Expenditures (Days Credit)	Claim No.	Expenditures (Days Credit)
P486658	~~62.3~~ 60	P530630	~~62.3~~ 60
659	"	631	"
660	"	632	"
661	"	633	"
662	"	634	"
663	"	635	"
664	"	636	"
665	"	637	"
666	"	638	"
667	"	639	"
668	"	640	"
669	"	641	"
670	"	642	"
671	"	P530648	"
672	"	649	"
673	"	650	"
674	"	651	"
675	"	652	"
676	"	653	"
677	"	654	"
P530615	"	655	"
616	"	656	"
617	"	657	"
618	"	658	"
619	"	659	"
620	"	660	"
621	"	661	"
622	"	662	"
623	"	663	"
624	"	664	"
625	"	665	"
626	"	666	"
627	"	667	"
628	"	668	"
629	"	669	"

Claim No.	Expenditures (Days Credit)
P530670	~~62.9~~ 60
671	"
672	"
673	"
674	"
675	"
676	"
677	"
678	"
679	"
680	"
681	"
682	"
683	"
684	"
P530686	"
687	"
688	"
P571594	"
595	"
596	"
597	"
598	"
599	"

Claim No.	Expenditures (Days Credit)
P571600	~~62.9~~ 60
601	"
602	"
603	"
604	"
605	"
606	"
607	"
608	"
609	"
610	"
611	"
612	"
613	"
614	"
615	"
616	"
617	"
618	"
619	"
620	"
621	"
622	"
623	"

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.4511

Mining Lands Comments

- need receipts or cancelled cheques.

Note: total expenditure = $110,209.05, which $50 less than the amount reported on Report of Work form. Due to the age of the expenditure - I have allowed the discrepancy.
R.P.

☐ To: Geophysics

Comments

☐ Approved ☐ Wish to see again with corrections	Date	Signature

☑ To: Geology - Expenditures Mr Kustra.

Comments

☑ Approved ☐ Wish to see again with corrections	Date June 29/82	Signature Kustra

☐ To: Geochemistry

Comments

F. I. D.

☐ Approved ☐ Wish to see again with corrections	Date	Signature

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

1593 (81/10)

APPENDIX F

REVERSE CIRCULATION
DRILL HOLE LOGS

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 30 1981

SHIFT HOURS
7:30 TO 3:45

TOTAL HOURS

CONTRACT HOURS

HOLE NO TC-81-01 LOCATION N. outlet Tincan L 62+50W, 23+00N
GEOLOGIST Averill DRILLER E. Hoag BIT NO. Grunor 6195E BIT FOOTAGE 0-150
MOVE TO HOLE 7:30-11:15 (from end truck road)
DRILL 11:15-3:45
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-44 CLAY. Chocolate brown 0-2, beige 2-6. Varved gray w. subordinate beige layers 6-15, beige silt 15-22, few pebbles at 22 gray clay 22-25 25-44 Very fine grey-beige sand w. subordinate gray clay interbeds, occasional pebbly bed, most pebbles volc/sed.
20				
40				
			01	44-56 GRAVEL. Pebbly, granular but does have significant fines and fraction. Pebbles 70% volc/sed, 5-1 ls
				56-67 SAND. Fine-med, grey-beige with few pebbly gravel beds
60			02	67-105 TILL. 67-72 pebbly w. grey-beige fine sand matrix. Pebbles 70-80% v/s, <5% limestone, trace fuschite.
			03	72-75 mostly matrix as above, with few scattered pebbles
			04	75-89 very pebbly till with matrix of fine-med sand, no silt. Pebbles 70% v/s including conspicuous greywacke, <5% limestone, persistent trace fuschite and mag/hem iron formation.
80			05	
			06	
			07	89-95 Intermittent granular gravel and medium sand zones in tilly pebble lithologies as above.
			08	95-100.5 Pebbly till as 75-89 except no fuschite.
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-01 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			09	100.5 - 105 Coarser pebbles in till, matrix & lithologies as above
			10	105 - 130.5 GRAVEL. Fine pebbly with granular matrix except mainly medium sand beds 122-125. 60% v/s, <5% ls.
120			11	
			12	130.5 - 144 TILL. Very cobbly with matrix grey-beige fine sand and silt. Cobbles all int/maf volc but pebbles 20% granitic, trace limestone. Int-maf. volc. bldr. 131.5-133.
			13	
			14	
140			15	
			16	144-150 BEDROCK.
			bedrock	Int-maf. volc. Massive with 2-3% dark amygdules. No sulphides.
150				
160				
80				
100				

H. Averill

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE SEPT 30 19 81 / OCT 1 81
SHIFT HOURS
3:45 TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-02 LOCATION 73+00W 19+00N
GEOLOGIST CHERNIS DRILLER G HOAG BIT NO. 62958 BIT FOOTAGE 150 - 277
MOVE TO HOLE 3:45 - 4:00
DRILL 4:00 - 6:30
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER 6:30 - 7:00 TRAVEL 7:30 - 8:00 TRAVEL 8:00 - 9:00 MOVE WATER TANK & SHORTEN FEEDER
MOVE TO NEXT HOLE 9:00 - 9:15

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0 - 65 CLAY
				0-9 Light beige, smooth occasional pebble
				9-40 Grey clay with thin beige varves - both smooth
				Coarse sand bed at 25'
20				32-40' minor silt
				40-65 Blue-grey, smooth
				below 44' numerous silt beds. Amount of silt increases with depth
40				Occasional pebble.
				65-118 SAND
				65-79 - fine with silt - blue grey
60				occasional pebbly bed and occasional blue-grey clay bed
				79-114 - Fine - grey
80				occasional pebble + occasional clay bed
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO Tc-81-02 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				114-118 - Medium grained - grey
				118-125.3 TILL
				118-121 - Pebbly Grey silt and fine sand matrix 70% volcanics and sediments Tr. limestone
120			01	
			02 Bedrock	121-124 Grey silt and fine sand
				124-125.3 Cobbles little if any matrix cobbles of intermediate volcanics, and quartzite noted.
140				
				125.3-127.3 BEDROCK Intermediate - mafic volcanic massive with amygdules pale-green in colour No. sulphides.
				125-125.5 NOT SAMPLED
80				
80				
100				

J Chernis

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 01 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-03 LOCATION 84+00 W 21+00 N
GEOLOGIST CHERNIS DRILLER G HOWE BIT NO. 62963 BIT FOOTAGE 0-122
MOVE TO HOLE 9:00 - 9:15
DRILL 9:15 - 11:15
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS Could Go No Farther at 122. - Rod Sub and Bit Left in Hole
OTHER ____
MOVE TO NEXT HOLE 11:15 - 11:20

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1 No Return
				1-72 CLAY
				1-2 Brown gritty clay
				2-10 Beige, smooth
				10-20 Grey, smooth
				20-72 Smooth blue grey clay with beige varves
				At 43' minor silt interbeds are visible
				These become more abundant with depth until by 72' when there is more silt than clay.
				72-109 SILT - Grey
				72-83 silt with occasional clay bed. Occasional pebble below 80'
				83-109 silt with occasional clay beds
				Fine sand becomes visible at 83 and increases in abundance with depth
				Occasional pebble

20
40
60
80
100

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 1 19 81 — HOLE NO TC-81-03 — LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

SHIFT HOURS _____ TO _____

TOTAL HOURS _____

CONTRACT HOURS _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				109 - 113 Till - Cobbly 90% Volcanics & sediments Fine grey sand matrix
			01	
			02	113 - 114.5 Fine sand and silt - grey
				114.5 - 115 Cobble - dark green volcanic
120			03	115 - 122 Fine sand and silt - grey Occasional pebble Cobbly at base.
				EOH 122
				Problems drilling so rods were pulled One rod, sub and bit were left down the hole. Bottom rod broke off the rod above at the threads. joining them. Rod second from the bottom also discarded as inner rod was bent
40				Rods probably broke off when hitting Bedrock at 114.5. The next 7' of rod went down beside the first rod - redrilling 103-110' stopping when it hit a cobble in the till.
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

84+00W 21+00N

DATE Oct 01 19 81

SHIFT HOURS
____ TO ____

TOTAL HOURS
____

CONTRACT HOURS
____

HOLE NO Tc-81-04 LOCATION 10 Feet West of Hole 03
GEOLOGIST Chernis DRILLER G Hoag BIT NO. 62962 BIT FOOTAGE 0 - 120.5
MOVE TO HOLE 11:15 - 11:20
DRILL 11:20 - 1.30
MECHANICAL DOWN TIME 1:30 - 1:45 Fix Broken Hydralic Line
DRILLING PROBLEMS
OTHER 1:45 - 2:00 Fuel up Nodwell
MOVE TO NEXT HOLE 2:00 - 2:15

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-85 Clay
				0-10 Beige, occasional pebble and grit near surface - otherwise smooth
				10-53 Smooth grey clay with beige varves Turning blue grey by about 25
				53-85 As above but increase in silt beds Occasional pebble Silt beds become more numerous with depth
				85-105 Silt - Grey occasional clay bed occasional pebble

20
40
60
80
100

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO TC-81-04 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				105-114 SILT and fine SAND Grey with occasional pebble
			01	114-116 TILL - Cobbly 80% Volcanics & sediments Trace Limestone Grey fine sand matrix
120			02	
				116-120.5 BEDROCK Dark green, massive intermediate-mafic volcanic 1% amygdules
40				EOH 120.5
				J Chimiss
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 01 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-05 LOCATION 93+50W 17+00N
GEOLOGIST CHERNIS DRILLER G HOAG BIT NO. 62962 BIT FOOTAGE 130.5 - 225
MOVE TO HOLE 2:00 - 2:15
DRILL 2:15 - 4:30
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE 4:30 - 4:45

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
				0-52 CLAY
				0-11 Beige smooth clay Brown and gritty with the occasional pebble at surface
				11-33 Grey and beige smooth, varved clay Occasional pebble
20				33-45 As above with minor silt beds
				45-52 Blue grey and beige smooth varved clay Silt (grey) beds becoming more numerous with depth
40				
				52-83 Interbedded SILT, Fine sand and CLAY - grey Occasional pebble Fewer clay beds and more Sand beds with depth
60				
80				83-86 SAND - Grey Fine and medium
			01	86-92 TILL - Pebbly 60-70% Volcanics Tr Lime
			02	Grey fine sand matrix
			03	92-99.5 TILL Cobbly 70% Volcanics Tr Lime
100			04	Grey fine sand matrix

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-05 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			05	99.5 - 100.5 Rubbly Till 90% cuttings the same as the underlying bedrock Very minor fine sand matrix.
				100.5 - 105 BEDROCK Dark green, massive intermediate - mafic volcanic White amygdules 1% carbonate veinings
				EOH 105
				J Clemis

120
40
60
80
100

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 01 19 81

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO TC-81-06 LOCATION 102 + 50W 16 + 00N

GEOLOGIST CHERNIS DRILLER G. HOAG BIT NO. 62962 BIT FOOTAGE 225 - 272

MOVE TO HOLE 4:30 - 4:45

DRILL 4:45 - 5:30

MECHANICAL DOWN TIME ____

DRILLING PROBLEMS ____

OTHER 5:30 - 6:00 Clean Tanks 6:00 - 7:00 Travel

MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0 - 32 Clay
				0-2 Brown - gritty
				2-12 Beige - smooth
				Occasional pebbles at 10'
				12-32 Varved, smooth grey and beige clay
20				Minor silt by 28' increasing to a major component by 32
				32-43 Interbedded silt, clay (grey) and minor pebble beds
40				Fine sand beds begin at 40'
				43-45.5 Sand - grey
			01	- fine and medium
				45.5 - 47 Till - Cobbly
				70% Volcanics and sediments
				Tr Lime
60				Grey-beige fine sand matrix
				Pulled Rods at 47' As Bit was not Cutting
				Left Bottom Rod, Sub and Bit in Hole - Again it had Broken off Between the Bottom Two Rods. Second Rod was Also Discarded
80				EOH 47
				J Chernis
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE OCT 02 19 81

SHIFT HOURS
7:45 TO 9:00

TOTAL HOURS
~~8.75~~

CONTRACT HOURS

HOLE NO TC-81-07 LOCATION Repeat of 06, 102+50W, 16+00N
GEOLOGIST Averill DRILLER Burnlesh BIT NO. 62959 BIT FOOTAGE 0-48.5
MOVE TO HOLE 0
DRILL 9:00-10:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER Travel 7:45-9:00
MOVE TO NEXT HOLE

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-43.5 CLAY/SILT
				0-11 Tough brown ox. clay, no grit
				11-25 Soft gray clay with subordinate beige varves. No grit.
20				25-43.5 Silt. Gray, with some very fine sand.
				43.5-45 TILL.
				Cobbly with gray fine sand and silt matrix. 80% int/maf volcanics, <5% limestone.
40			01	
			02	
				45-48.5 BEDROCK
				Int-maf. volc. Dark green, massive, with 30% visible chlorite/actinolite. No sulphides.
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 02 19 81

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO TC-81-08 LOCATION 114+00W 15+0N

GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62959 BIT FOOTAGE 48.5 - H2

MOVE TO HOLE 10:15 - 10:30

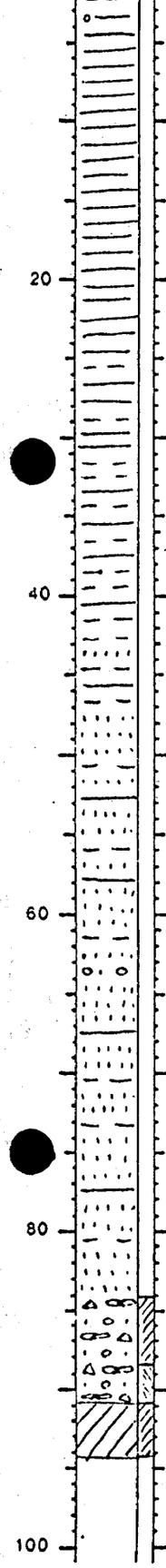
DRILL 10:30 - 12:45

MECHANICAL DOWN TIME ____

DRILLING PROBLEMS ____

OTHER 12:45 - 1:00 FUCK UP NODWELL (TRAVEL 3:45)

MOVE TO NEXT HOLE 1:00-1:30 → 1:30-3:45 TIMBERJACK STUCK IN SWAMP PULLED OUT - STUDIED POSSIBILITIES - DECIDED AGAIST TIMBERJACK U



DESCRIPTIVE LOG

0-24 CLAY

0-9 Beige - smooth
gritty only at surface
occasional pebble at 4'

9-24 grey tough clay (turning bluish with depth) with beige softer varves
At 24' first sign of silt (grey)

24-47 INTERBEDDED BLUE-GREY CLAY, AND GREY SILT
SILT beds become more numerous with depth
Thin beds of fine sand begin at 44'

47-84 SAND - Grey, fine
Occasional bed of grey silt or clay
Medium sand bed at 58'
Pebble bed at 64'
Medium-coarse sand bed at 83'

84-91 TILL - COBBLY
Grey-beige fine sand matrix
70% volcanics and sediments
Trace Limestone

91-94. BEDROCK
Dark green intermediate to mafic volcanic - massive
minor carbonate veining

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 03 1981

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO TC-81-09 LOCATION SW side of Tincan Lake

GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62959 BIT FOOTAGE 142.5-391

MOVE TO HOLE 8:15-9:15

DRILL 9:30-12:15 1:15-6:00

MECHANICAL DOWN TIME ____

DRILLING PROBLEMS ____

OTHER TRAVEL 7:30-8:15 DRILL CLEAN-UP 9:15-9:30 WAIT FOR DRILL RODS 12:15-1 CLEAN TANKS 6:00-6:30 TRAVEL 6:30-7:00

MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-38 CLAY
				0-14 Beige, smooth occasional pebble
				14-20 Grey, smooth
				20-29 Blue-grey, smooth
20				29-38 Blue-grey, smooth clay with grey silt beds. Silt beds become more numerous with depth.
				38-93 SAND - Fine, grey occasional pebbles
40				54' - Grey smooth clay bed
				63' - Grey smooth clay bed
				67-68 minor coarse sand interbeds
				78' Grey smooth clay bed
				93' Medium, sand (grey) bed
60				
80				
				93-121½ SAND - Grey
				Fine-medium sands interbedded with medium sand
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-09 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS While waiting hour for rods to arrive return was

OTHER constantly being brought up from the 195' level

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
120			01	121½ - 123½ TILL - Pebby Fine, grey sand matrix 70% volcanics and sediments Trace limestone
			02	123½ - 154 SAND - Grey Fine - medium occasional pebbles 133' grey, smooth clay bed 138' grey, medium sand 141-142' Gravel - coarse sand pebbly 143-145' grey, fine sand 153 grey, smooth clay bed
140			03	
				154 - 207 Interbedded SAND (Fine, medium and coarse beds) and GRAVEL (pebbly) 154 - 155 Fine, pebbly GRAVEL 159 - 165 fine - medium grey sand 161 grey, smooth clay bed
160			04	165 - 173 medium, grey sand occasional pebble occasional clay bed
				178 - 181 GRAVEL interbedded with fine - medium sand looks like TILL - Pebbly 70% v/s 1% limestone
			05	
180			06	189 - 195 Fine, grey sand with occasional pebble
			07	
			08	
200				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-09 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			08 cont	207-218 Till - Cobbly 60% volcanics and sediments Trace limestone grey-beige fine sand matrix
			09	
			10	218-246 Till gritty grey clay lumps become noticeable at 218' and are very numerous by 220'
220			11	
			12	218-225 - Cobbly grey clay matrix 70% v/s Tr. limestone
			13	225-233 Pebbly grey clay matrix 70% v/s Tr limestone
			14	233-237 Cobbly grey fine sand matrix (no clay) 70% v/s Tr limestone
240			15	
			16	237-238 Cobbly grey clay matrix 70% v/s Tr limestone
			17	238-240 Cobbly grey clay matrix 80% Granite
				240-246 Cobbly grey clay matrix 70% v/s Tr limestone
260				246-246.5 Boulder - Dark green intermediate - mafic volcanic
				246.5-248.5 Bedrock - Medium-green volcanic Fine grained - quartz, feldspar, pyroxene. Quartz-K-spar veining
280				J Cherris
300				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 4 19 81

SHIFT HOURS
____ TO ____

TOTAL HOURS
____

CONTRACT HOURS
____

HOLE NO TC-81-10 LOCATION TL 53+00W 26+00N
GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62960 BIT FOOTAGE 0-234
MOVE TO HOLE 8:45-9:15
DRILL 9:30 - 5:30
MECHANICAL DOWN TIME THAW WATER PUMP 9:15-9:30
DRILLING PROBLEMS
OTHER TRAVEL 8:15-8:45 CLEAN TANKS & DRAIN 5:30-6:00
TRAVEL 6:00-7:00
MOVE TO NEXT HOLE

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-21 CLAY
				0-14 smooth, beige clay thin sand beds occasional pebble
				14-21 smooth, grey with beige varves occasional pebble
20				21-140 SAND
				21-56 beige fine sand
				28' - grey smooth clay bed
				38' grey smooth clay bed
				56-58 very fine beige sand
40				58-63 very fine grey sand
				63-132 fine grey sand
				70-75 minor beds of medium and coarse sand
				77' grey smooth clay bed
				81' pebble bed
60				85'-95' occasional pebble
				105' thin medium-coarse sand beds
				132-140 fine-medium grey sand.
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-10 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
120				
140				140-202 Interbedded sand and gravel 140 - granule bed 140-151 interbedded grey beige sand and granules (minor pebbles) 151-155 fine-medium grey-beige sand. Occasional pebbles 155-169 interbedded fine-medium grey-beige sand with fine gravel (80% granules with coarse sand matrix) 169-173 Gravel - pebbly with coarse sand matrix 173-177 Sand - coarse grey-beige
160				
180			01 02 03	177-183 Sand - fine grey-beige 183-186 Sand - fine-medium grey beige 186-191 Sand - coarse grey-beige (almost a fine gravel at 191) 191-195 Sand - fine-medium grey beige
200			04	195-197 GRAVEL - Pebbly coarse sand matrix 70% volcanics + seds Tr. Limestone

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS _____ TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO TC-81-10 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET | GRAPHIC LOG | INTERVAL | SAMPLE NO. | DESCRIPTIVE LOG

197-199 SAND - coarse beige

199-202 GRAVEL - Pebbly coarse sand matrix 70% v/s Trace Lime

202-219 TILL

202-203 Cobbly grey beige fine sand matrix 80% v/s Tr. Limestone

203-208 Pebbly grey beige fine sand matrix 70-80% v/s 1% Lime

208-217 Pebbly grey beige fine sand matrix 80% v/s Tr Lime

217-219 Cobbly grey beige fine sand matrix 80-90% v/s Tr Lime

219-220½ BOULDER medium grained, green and white igneous textured (feldspar, quartz and pyroxene?)

220½-226½ TILL Cobbly (Difficult to drill) grey beige fine sand matrix except for 222½-224 when no matrix was returning just pebbles and cobbles 70-80% v/s Tr Limestone

226½-228 BOULDER fine grained, massive, dark green intermediate - mafic volcanic same as top 4' of bedrock

228-229 TILL 80% bedrock cuttings abundant fine grey beige sand

229-234 BEDROCK

229-233 fine grained, massive dark green, intermediate - mafic volcanic. Becomes slighter green with depth but same rock

233-234 fine grained grey green volcanic 1-2 mm chlorite grains make up large percent of rock

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 05 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-11 LOCATION 46+00W 22+00N
GEOLOGIST CHERNIS DRILLER RUNLESKI BIT NO. 62961 BIT FOOTAGE 0-225
MOVE TO HOLE 8:15 - 8:30
DRILL 8:30 - 5:00
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS AT 11:30, 215 FEET DOWN RODS KEPT SANDING IN AT
OTHER 8:00 - 8:30 FUEL-UP & MAINTENANCE 7:15-8:00 TRAVEL 3:00 ABANDONED HOLE
MOVE TO NEXT HOLE ____
1 ROD DISCARDED - BENT INNER ROD

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-19 CLAY
				0-15 Beige, smooth minor fine sand
				14-19 Grey smooth clay
				17- Grey beige silt
20				19-225 SAND
				19-24 Grey beige - very fine
				23 Grey clay bed
				24-42 Grey beige - fine
				30 Grey smooth clay bed
				41½ Grey smooth clay bed
40				42-48 Very fine sand and silt grey
				48-52 Grey-beige -fine
				52-60 Grey -fine
				56 Smooth grey clay bed
60				60-81 Grey beige - fine
				77 Smooth grey clay bed
				80 Smooth beige clay bed
				81-83 Grey beige - fine with minor amounts of coarse sand
80				83-112 Grey - fine minor lenses of - coarse sand - grey beige sand and the occasional pebble
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-11 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				Sand con't
				112-117 Grey, medium-fine
				117-140 Grey, medium occasional pebble bed
				125' thin pebble bed
20				
				140-153 Grey, fine occasional coarse bed
				151' Thin grey clay bed
40				
				153-164 Grey, fine-medium occasional pebble
				155½' Thin grey clay bed
60				
				164-187 Grey, fine occasional pebble
			01	
80				
				187-213 Interbedded grey fine and medium sand occasional pebble
			02	192 Thin granule bed
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-11 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			03	213 - 218 Coarse sand
				215 - 217 Rods plugged - no return
220				218 - 225 Grey, fine-medium sand
			04	
				EOH 225
				J Chernis
240				
260				
280				
300				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 06 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-12 LOCATION 28+00 W 6+00 N
GEOLOGIST CHERNIS DRILLER RUHLESKI BIT NO. 62961 BIT FOOTAGE 225 - 444
MOVE TO HOLE 8:00 - 8:15
DRILL 8:15 - 4:00
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
				0-22 CLAY
				0-12 beige smooth clay
				12-14 grey smooth clay
				14-16 beige smooth clay
				16-18 grey smooth clay
				18-22 beige smooth clay
20				19' thin pebble bed
				22-186½ SAND
				22-38½ grey beige, fine occasional pebble
				38½- pebble 2"-3"
40				38½-48 grey beige, medium
				48 grey beige, smooth clay bed
				49-58 Silt and very fine grey sand. Occasional pebble
				58-76 Fine, grey sand
60				
				76-78 Fine, beige sand
				78-82 Fine-medium beige sand
80				82-84 Medium-coarse, beige sand
				84-92 Interbedded fine and medium beige sand
				92-106 Fine-medium, grey beige sand
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-12 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				106-112 Fine, beige sand
				112-115 Medium grey-beige sand
				115-130 Interbedded fine and medium grey-beige sand
120				
				130-153 Medium grey-beige sand - interbedded with minor fine and coarse sand occasional pebble
140			01	
				153-156 Fine grey sand
				156-176 Medium-coarse grey sand. occasional pebbles
160			02	
				176-183 Fine, grey sand
				183-186½ Fine, grey sand with minor granule beds
180			03	
				186½-215⅓ TILL
			04	186⅓-199 Cobbly Fine, grey-beige sand matrix 80% volcanics and sediments Trace limestone
			05	
			06	196-198 no matrix - coarse sand, granules
200				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO TC-81-12 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			07	199 - 202 Pebbly till Fine grey-beige sand matrix 80% v/s Tr. Lime
			08	
			09	202 - 208½ Mainly medium-fine grey beige sand - minor pebbles and fine sand
			10	
			11	
220				208½ - 211 95% of sample Boulder - fine-grained massive dk green intermediate - mafic volcanic
				211 - 213 Cobbly Till fine grey-beige sand matrix 80% v/s Tr Lime
240				213 - 214 Boulder - fine grained massive dark green intermediate - mafic volcanic. Quarte veins
				214 - 215½ Bouldery Till 90% cuttings of one type. Fine grey beige sand matrix
260				215½ - 219 Bedrock Fine-grained - light grey green, massive intermediate mafic volcanic dark grey banding (QUARTZ?)
280				
300				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 6 / Oct 7 19 81/81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-13 LOCATION SITE "L" 100 Ft South of Base Line At 43+00W
GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62964 BIT FOOTAGE 0-235
MOVE TO HOLE 4:00 - 4:15
DRILL 4:15 - 4:30 8:00 - 2:15
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER TRAVEL 4:30 - 5:00, 7:30 - 8:00 CLEAN TANKS 4:30-5:
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-24 CLAY
				0-1 Dark brown, gritty clay
				1-2 Beige, gritty clay
				2-3 Beige, medium-fine sand
				3-9 Beige, smooth clay
				9-14 Grey smooth clay with occasional pebble
20				14-24 Blue-grey clay with occasional pebble
				24-90 SAND
				24-34 Grey silt and fine sand
				33 Grey clay bed
				34-40 Medium fine grey sand
				40-47 Coarse grey beige sand
40				47-52 Coarse grey beige sand with granules and minor pebbles
				52-67 Fine-medium grey sand
60				67-80 Coarse grey-beige sand
80				80-85 Fine granule gravel
				85-90 Coarse grey-beige sand
				90-119 GRAVEL
				90-105 Pebbly gravel coarse sand matrix 60-70% volcanics 1% Limestone
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-13 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				105-119 Coarse pebbly gravel minor coarse sand mainly granule matrix 70% volcanics + sediments 1% limestone
				119-120 Interbedded sand and gravel
120				120-128 SAND
				120-126 grey beige, fine occasionnal pebble in first two feet
				126-128 medium, grey beige
				128-133 Interbedded pebbly gravel and sand (all size ranges)
140				133-135 Coarse grey beige sand
				135-138 Interbedded pebbly gravel and sand (all size ranges)
				138-145 Medium grey-beige sand
				145-172 Medium-coarse grey beige sand with minor granules and pebbles
				161 Thin pebbly gravel bed
160				172-175 Gravel beds (pebbly)
				175-180 Medium-fine grey beige sand
				180-181 Coarse pebbly gravel granule matrix 50% v/s 1% Limestone
180				181-207 Medium-coarse grey-beige sand. Occasional granule and pebble
200			01	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-13 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				207-217 Pebbly gravel granule matrix 80% volcanics and sediments Trace limestone
			02	210-212 medium grey-beige sand
				217-220 Granular sand
220			03	218-19 with fine sand and occasional pebble
			04	220-225 POOR RETURN
			05	220-222½ - HARD DRILLING BIT ONLY SAND RETURNING AND A FEW CUTTINGS AS IF A BOULDER - INTERMEDIATE - MAFIC VOLCANIC MASSIVE - LIGHT GREEN
			06	222½-225 TILL - Cobbly Fine sand matrix 80% V/S. Tr Limestone
240				When redrilled gritty clay appears at 223½'
				224(?)-228 CLAYEY TILL 90% gritty clay balls 10% pebbles of which 85% V/S
260				228-235 TILL Cobbly - mainly 1 type 90% V/S 1% limestone Fine, grey beige sand matrix
				235-236½ Only fine (grey beige) sand and minor cuttings returning Drill cannot maintain pressure to return sample to surface.
280				EOH 236½
300				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 7 / Oct 8 19 81
SHIFT HOURS
TO
TOTAL HOURS
CONTRACT HOURS

HOLE NO TC-81-14 LOCATION Site P (East of Gibson Rd)
GEOLOGIST CHERNIS DRILLER RUHLESKI BIT NO. 62965 BIT FOOTAGE 0-126
MOVE TO HOLE 2:15 - 3:30
DRILL 3:30-4:00 8:00 - 11:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER TRAVEL 4:00 - 4:30, 7:30 - 8:00
MOVE TO NEXT HOLE

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-8½ Brown organics
				8½-9 Pebbly bed
				9-15 Interbedded grey fine sand and grey clay
				15-22 Grey smooth clay minor grey fine sand
20				
				22-42 Grey fine sand and silt 26. Smooth grey clay bed 32 Smooth grey chy bed
				42-45 Grey - fine - medium sand
				45-59½ Medium grey sand occasional thin grey clay bed between 45-49
40				
				59½-77 Interbedded grey clay, silt fine sand and medium sand
				77-87 Grey fine - medium sand and silt
60				
				87-96 Till, Pebbly grey clay and silt matrix 70-80% volcanics and sediments 2-3% limestone 1 or 2 cobbles between 91½-93
			01	
80				
				96-99 Till, Cobbly grey clay and silt matrix 80% V/S 1% Limestone
			02	
			03	99-103½ Till - Clayey 90% gritty clay lumps minor grey fine sand 8% V/S 1% Limestone
			04	
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-14 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			05	103½ - 113 TILL Pebbly grey silt and fine sand matrix no gritty clay lumps 80% v/s 1% Limestone
			06	
			07	
			08	113 - 120½ TILL - Cobbly grey silt and fine sand matrix 80-90% v/s 3-5% Limestone
20			09	
			10	
				120½ - 126 BEDROCK Dark green, massive intermediate - mafic volcanic Rusty iron stain
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 08 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-15 LOCATION Site Q
GEOLOGIST CHERNIS DRILLER LUMIFSKI BIT NO. 62915 BIT FOOTAGE 126 - 211
MOVE TO HOLE 11:00 - 11:30
DRILL 11:30 - 1:45
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
				0-3 SWAMP
				3-5 Coarse, medium sand, Minor pebbles
				5-12 Interbedded grey clay and grey fine sand
				12-25 Medium grey sand 17 thin grey clay bed 19-20 thin grey clay beds occasional pebble
20				
				25-54 Interbedded grey clay, silt, fine sand and medium sand. 47- Pebble bed
40				
			01	54-62 TILL - Pebbly grey clay, silt and fine sand matrix 70-80% Volcanics and sediments 3-5% Limestone
			02	62-63½ TILL - Cobbly grey clay, silt and fine sand matrix 80% v/s 3% Limestone
60			03	
			04	63½-66 TILL - Clayey with Cobbles 80% gritty clay beds of the remainder 80% V/S, Tr. Lime
			05	
			06	66-79 TILL - Cobbly grey clay, silt and fine sand matrix 80% v/s 1% Limestone
			07	
			08	
80				77-79 - Bouldery Till - 95% v/s occasional gritty clay lumps
			09	
				77-85 BEDROCK Dark green, massive intermediate-mafic volcanic. Quartz veins
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 8 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-16 LOCATION SITE R
GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62960 BIT FOOTAGE 234-356
MOVE TO HOLE 1:45 - 2:00
DRILL 2:00 - 5:30
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER TRAVEL 5:30 - 6:30
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
		0-4		Swamp
		4-5		Grey medium sand
		5-8		Interbedded grey medium sand and grey smooth clay
		8-17		Grey smooth clay
		17-20		Grey fine sand and silt
20		20-25	01	Pebbly Till grey fine sand and silt matrix 70-80% v/s Trace limestone
		25-29	02	Pebbly Till as above with 30% gritty clay lumps
		29-38	03	Clayey Till 80% gritty clay lumps 10% volcanics and sediments
40		38-40		Smooth Blue grey clay
		40-52	04	Gravel - Pebbly coarse sand matrix 50% v/s 40% limestone
		52-54½		Blue-grey tough smooth clay
		54½-57	05	Interbedded clay, fine sand and occasional pebble
60		57-101		Blue grey tough smooth clay
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO T-81-16 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				101-104 Blue grey smooth clay with occasional pebble
			06	
				104-118½ TILL - Cobbly
			07	Fine grey-beige sand matrix
			08	70-85% volcanics and sediments Tr. limestone
20			09	
				118½-123½ BEDROCK
				Dark green, fine grained intermediate-mafic volcanic
				Thin white carbonate veins
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 9 19 81
SHIFT HOURS
____ TO ____
TOTAL HOURS
____
CONTRACT HOURS
____

HOLE NO TC-81-17 LOCATION Site S
GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62966 BIT FOOTAGE 0-136
MOVE TO HOLE 8:00 - 8:30
DRILL 8:30 - 12:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER TRAVEL 7:00 - 8:00
MOVE TO NEXT HOLE 12:15 - 12:30

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1 SWAMP and Coarse SAND
				1-7 CLAY - Grey smooth with minor silt and fine sand
				7-12 SAND - Fine, grey with minor smooth clay beds
20				12-24½ CLAY - Grey, smooth
				23-24½ minor fine grey sand
				24½-38 SAND - Fine, grey occasional clay bed and pebble
				38-59 TILL
40				38-50 Pebbly 70-80% volcanics and sediments 1% Limestone grey clay, silt and fine sand matrix
			01	
			02	45-46 3% of +10 is gritty clay lumps
			03	50-52 Cobbly - matrix as above 70% v/s 1% Limestone
			04	52-52½ Intermediate - mafic volcanic boulder
60				52½-53 Granite boulder
				53-59 Clayey 80% gritty clay lumps 7% v/s Tr. Limestone Pebbles grey silt and fine sand
				55-57 Cobbly - 60% granite gritty clay lumps become minor grey beige fine sand matrix
				59-100 CLAY
80				59-67 Blue-grey, smooth minor fine sand (grey)
				67-100 Varved - blue-grey, smooth clay with minor beige varves
				87- thin fine grey sand bed
				92 thin fine grey sand bed
				95 thin fine grey sand bed
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO T1-81-17 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			05	100-127 TILL
			06	100-105½ Pebbly 70% volcanics + sediments 3-5% limestone Grey beige clay, silt and fine sand
			07	105½-123 Cobbly 70-80% v/s 1% Limestone Grey beige clay, silt and fine sand
			08	113½-114 Boulder- intermediate-mafic volcanic
120			09	114½-119 Pebbly. Grey beige silt and fine sand matrix 70-80% v/s 1% Lime
			10	123-127 Pebbly 70% v/s Tr Lime Grey beige fine sand and granules Occasional grey smooth clay Occasional gritty clay lumps
			11	
140				127-136 BEDROCK - Regolith Most of it is ground to yellow clay Remainder rusty-gossan-like material. Fresher pieces are light green and fine-grained Quartz veins Black pyrite cubes
160				
180				
200				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 9 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-18 LOCATION Site T
GEOLOGIST CHERNIS DRILLER RUMLESKI BIT NO. 62966 BIT FOOTAGE 136-251
MOVE TO HOLE 12:15-12:30
DRILL 12:30 - 5:00
MECHANICAL DOWN TIME 4:15-4:45 Hydraulic Pipe Wrench Snapped off
DRILLING PROBLEMS ____
OTHER Travel 5:45 - 6:15
MOVE TO NEXT HOLE 5:00 - 5:45 only part way

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-3 SAND - Grey - medium
				3-21 CLAY - grey smooth
				17' grey, medium sand bed
				19' grey, medium sand bed
				21-28 SAND - fine, grey
				minor grey clay beds
20				28-32 CLAY - blue grey
				with minor grey sand
				32-53½ TILL - Pebbly
				Fine grey beige sand, silt and clay matrix
				70% Volcanics and sediments
			01	1% Limestone
				36-37 30% gritty clay lumps
40			02	37-45 80% gritty clay lumps
				45-53½ 20-80% gritty clay lumps (variable)
			03	53½-93 CLAY
				53½-55 Smooth blue grey clay
			04	occasional pebble
				55-59½ Till 90% gritty clay lumps
			05	Volcanic pebbles and fine sand
60				58 - Blue grey clay bed
				59½-60½ GABBRO BOULDER
				60½-71 Blue grey smooth clay bed
				68-68½ pebbly bed with minor fine sand
				71-93 Varved - blue grey smooth
80				clay with minor beige varves
				75-75.5 Fine grey sand bed
				93-111⅓ TILL
				93-93½ Cobbly } grey beige clay
				93½-100 Pebbly } silt and fine sand matrix
			06	60-70% volcanics + sediments
				1% limestone
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-18 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			07	100-106 Cobbly Till grey beige clay silt and fine sand matrix 60-70% volcanics and sediments 1% limestone
			08	
			09	
			10	106-111½ Clayey Till 80% gritty clay lumps 8% volcanics + sediments 1% limestone
20				
				111½-115 BEDROCK Dark green, massive, fine-grained intermediate-mafic volcanic.
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 10 19 81
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-19 LOCATION Site 0
GEOLOGIST Chapnis DRILLER Russell BIT NO. 62967 BIT FOOTAGE 0-125
MOVE TO HOLE 5:00-5:45, 8:00-8:15
DRILL 8:15-10:45
MECHANICAL DOWN TIME Tighten Water Swivel - 8:15-8:30
DRILLING PROBLEMS _____
OTHER Travel 7:30-8:00
MOVE TO NEXT HOLE 10:45-11:15

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-12 No return - loose water swivel
				12-107 Sand
				12-23 orange-beige medium
				23-28 grey, medium-coarse
				28-34 grey, medium
				34-36 orange-beige medium
20				36-39 beige, medium
				39-63 grey beige fine sand minor clay beds occasional pebble and coarse sand
40				
60				63-67 beige, medium sand
				67-107 grey-beige fine-medium sand
80			01	
			02	
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO TC-81-19 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			03	107-114 Till - Cobbly 80-90% volcanics + sediments Tr limestone grey-beige clay, silt and fine sand matrix.
			04	
			05	
			06	114-120 Till - Cobbly 90% v/s Tr limestone grey-beige silt and fine sand
20			07	117-120 poor return
				120-125 BEDROCK - Dark green, massive, fine grained intermediate - mafic volcanic Quartz veins
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 10 / Oct 11 1981
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-20 LOCATION Site K
GEOLOGIST CHERNIS DRILLER RUBLESKIE BIT NO. 62967 BIT FOOTAGE 125-325
MOVE TO HOLE 10:45-11:15, 2:30-3:15
DRILL 8:30-10:00
MECHANICAL DOWN TIME 11:15-2:30 Wait For Gyros + Weld Hydraulic Pipe Wrench + Shac
DRILLING PROBLEMS ____
OTHER Clean. Tanks 3:15-3:45 Travel 3:45-4:30, 7:30-8:30
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-5 No Return
				5-59½ Sand
				5-7 Medium, oxidized yellow sand
				7 Thin beige clay bed
				7-31 Fine, beige sand
				31-38 Fine-medium, beige sand
20				38-57 Fine beige sand, occasional pebble
				57-59½ Medium, beige sand
40				
				59½-68 Till - Pebbly
				30% gritty, beige clay lumps
				very sandy matrix - beige, fine-medium
60			01	Pebbles - 60-70% volcanics and sediments - Trace limestone
			02	68-154 Sand
				68-82 Fine-medium, beige sand
				82-98 Medium, grey sand
				98-99 Fine, grey sand
80			03	99-102 Medium, grey sand
			04	
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__
SHIFT HOURS _____ TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO TC-81-20 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			05	102-143 Fine-medium grey sand occasional pebble
120			06	
			07	
140				143-154 Medium grey sand. occasional pebble
				154-179 TILL
			08	154-159 Pebbly (70% v/s 1% Limestone) 60% of f10 grey gritty clay lumps minor grey beige fine sand
			09	156-157 Granite cobbles
160				159-160 BOULDER - Pale green intermediate-mafic volcanic
			10	160-179 Cobbly (70-80% v/s Tr. Limestone) 70% of f10 grey gritty clay lumps
			11	minor grey beige fine sand
			12	164½-169 abundant grey beige fine sand as matrix only 10% gritty clay lumps
			13	177-178 BOULDER - Dark green intermediate-mafic volcanic
180				
			14	179-192 Fine, grey sand occasional pebble occasional smooth grey clay bed
				192-196½ TILL - Cobbly (80% v/s, Tr limestone) grey fine sand matrix
			15	196½-200 BEDROCK
200			16	Grey-green, fine grained, massive, intermediate-mafic volcanic

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 1 1981 — HOLE NO TC-81-21 — LOCATION Site J

GEOLOGIST CHERNIS — DRILLER KIMLESIDE — BIT NO. 42268 — BIT FOOTAGE 0-205

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

MOVE TO HOLE 1:00 - 1:15

DRILL 1:15 - 6:45

MECHANICAL DOWN TIME 3:00 - 3:30 Change Water Swivel at 145'

DRILLING PROBLEMS ____

OTHER TRAVEL 6:45 - 7:30

MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
		0-1		CLAY with fine beige sand
		1-3		CLAY - Beige
		3-39		SILT and fine SAND - beige with minor thin clay beds occasional pebble
		39-46		Fine sand and silt - grey
20		46-58		Grey, fine sand
		55-58		minor smooth grey clay beds
		58-65		SAND, medium, grey occasional grey clay bed occasional pebble
40		65-76		SILT and fine SAND - grey
		76-129½		SAND - fine-medium, grey occasional pebble occasional grey clay bed
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-21 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			01	129½ - 148 TILL - Cobbly beige fine sand matrix 60-70% volcanics & sediments 1% limestone
120			02	138-140 Granite boulder 141-141½ Granite boulder 143-145 POOR RETURN - replace Water Swivel
			03	
			04	
			05	148-173 TILL - Cobbly 70% v/s Tr. Limestone 10% grey gritty clay lumps grey clay, silt and fine sand matrix
140			06	172½ minor smooth grey clay
			07	173-194½ TILL - Clayey - 80% grey gritty clay lumps Pebbles 10-80% v/s, Tr. Limestone
			08	174-174½ Granite boulder 175½-177½ Granite boulder
			09	
160			10	190 Minor grey, smooth clay
			11	194½ - 195½ CLAY - grey, smooth tough
			12	195½ - 201½ TILL - CLAYEY 90% grey gritty clay lumps Minor fine, grey sand Pebbles - 80% v/s. Tr. Limestone
180			13	
			14	201½ - 205 BEDROCK - Fine grained, massive grey-green intermediate - mafic volcanic Quartz veins
			15	
			16	
200			17	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 12 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-22 LOCATION Site "I"
GEOLOGIST CHERNIS DRILLER RUMLESKIE BIT NO. 62962 BIT FOOTAGE 0-143
MOVE TO HOLE 7:45-8:00
DRILL 8:30-12:15
MECHANICAL DOWN TIME 8:00-8:30 Fix water pump
DRILLING PROBLEMS ____
OTHER TRAVEL 7:00-7:45
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-5 CLAY - Beige, smooth minor fine, baige sand
				5-81 SAND
				5-24 POOR RETURN
				5-14 Beige, fine sand
				14-81 Grey, fine sand
20				24 thin grey clay bed
				30-60 occasional pebble
				35-60 minor coarse sand occasional smooth grey clay bed.
				46-60 occasional smooth beige clay beds
				60-65 trace coarse sand
40				65-76 occasional smooth grey clay bed occasional smooth beige clay bed occasional pebble and minor coarse sand
				81-132½ TILL
60				81-97 TILL - Cobbly 60-70% volcanics and sedimen 1% lime. grey beige fine sand matrix
				90-97 Trace grey gritty clay lumps
				97-98 Granite cobbles
80		01		
		02		98-108½ TILL - Cobbly 50% granite 1-2% limestone grey beige fine sand matrix
		03		
		04		
100		05		

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO TC-81-22 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			06	108½ - 116 Pebbly Till 60-70% v/s Trace limestone grey clay, silt and fine sand matrix - 10% gritty grey clay lumps
			07	
			08	116 - 120½ Cobbly Till 50-60% v/s Tr. limestone grey beige fine sand matrix
			09	
20			10	120½ - 121 Boulder - Intermediate - mafic volcanic - dark green
			11	121 - 129 Cobbly Till 60% v/s Tr. limestone grey clay, silt and fine sand matrix
			12	
			13	
			14	129 - 132½ Clayey Till 70% grey gritty clay lumps minor grey fine sand Pebbles - 70-80% v/s 1% Limestone
40			15	
				132½ - 133 Clay - smooth grey
				133 - 137½ Clayey Till 80% grey gritty clay lumps minor smooth grey clay Cobbles - 80% v/s 1% limestone
60				137½ - 139½ Cobbly Till 95% v/s boulder or bedrock cuttings. Minor fine, grey sand matrix
				139½ - 143 Bedrock grey-green, fine grained massive intermediate-mafic volcanic. Quartz veins
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 12 1981

SHIFT HOURS _____ TO _____

TOTAL HOURS _____

CONTRACT HOURS _____

HOLE NO TC-81-23 LOCATION Site "H"

GEOLOGIST CHERNIS DRILLER RUPLESKIE BIT NO. 62969 BIT FOOTAGE 143 - 268

MOVE TO HOLE 12:15 - 12:30

DRILL 12:30 - 3:30

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS Blocked bit at 117'

OTHER CLEAN TANKS 3:30 - 4:00 TRAVEL - 4:00 - 5:00

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-59 CLAY
				0-2 Beige smooth clay with minor beige fine sand
				2-7 Beige smooth clay
				7-29 Grey smooth clay
				18' Thin grey, fine sand bed
20				29-59 Varved - blue grey tough clay softer beige clay
				30-35 occasional pebble
				59-106½ SILT
				Grey with minor grey fine sand, occasional pebble
40				59-65 Minor grey clay beds
				84½ Volcanic cobble
				88 Fine, grey sand bed
				92 Grey, clay bed
				103 Thin pebble bed
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC 81-23 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
				106½ - 121 TILL
				106½ - 112 Pebbly 70% volcanics and sediments 1% limestone grey clay, silt and fine sand matrix
			01	
			02	112 - 119½ Cobbly 70-80% v/s Tr limestone grey beige fine sand matrix
20			03	
			04	115-117 POOR RETURN
				119½ - 121. Cobbly 90% volcanic bedrock or boulder cuttings Grey fine sand matrix
40				
				121 - 125 BEDROCK grey-green, fine grained massive intermediate - mafic volcanic
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 13 19 81
SHIFT HOURS
TO
TOTAL HOURS
CONTRACT HOURS

HOLE NO TC-81-24 LOCATION Site "G"
GEOLOGIST CHERNIS DRILLER RUMLESKIE BIT NO. 62968 BIT FOOTAGE 205-298
MOVE TO HOLE and START UP 8:00-8:30
DRILL 8:30 - 9:45
MECHANICAL DOWN TIME
DRILLING PROBLEMS Pull Rods at 9:30 - Left Bit-Sub and 1 Rod in Hole - came unscrewed at top of bottom rod.
OTHER TRAVEL 7:00 - 8:00
MOVE TO NEXT HOLE 10' FEBRUARY

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
				0-46 CLAY
				0-8 Beige, smooth clay
				8-18 Grey, smooth clay
				18-24 Varved, grey and beige clay
				24-46 Varved, tough blue grey and softer beige clay
				36-45 - occasional pebble
20				
40				46-62 SILT
				grey
				minor grey clay beds
				occasional pebble
				59-62 with minor grey fine sand
				62-79 TILL
				62-68 Pebbly 70% volcanics + sediments
				Trace limestone
				Grey clay, silt and fine sand matrix
60				
			01	68-79 Cobbly 70% v/s. Tr. limestone
				Grey clay silt and fine sand matrix
			02	
				79-93 SAND
				Fine, grey
			03	occasional volcanic cobble
				minor smooth grey clay beds
80				
			04	93-95 COBBLY TILL
				70% V/S Tr. Limestone
				Grey silt and fine sand matrix
			05	
				95-103 - RODS BROKE OFF AT 95'
				SO WAS ACTUALLY RESAMPLING
				THE FINE SAND AND SILT
				FROM 85-93
			06	Sample 06 - really represents 85-90 93-95
100			07	Sample 07 really represents 90-93

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 13 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-25 LOCATION Site "G" 10' west of TC-81-24
GEOLOGIST Chernis DRILLER Kumleskie BIT NO. 62938 BIT FOOTAGE 0-97
MOVE TO HOLE ____
DRILL 9:45 - 12:15
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-45 CLAY 0-1 Brown smooth clay 1-8 Beige smooth clay. 8-13 Grey, smooth clay 13-22 Varved, grey and beige clay 22-45 Varved, tough blue-grey clay and softer beige clay 44 Pebble bed. 38-45 Minor grey silt
20				
				45-62 SILT grey minor grey clay beds occasional pebble and fine sand
40				
				62-78 TILL 62-72 Pebbly 70-80% volcanics + sediments. Tr. limestone grey silt and fine sand matrix 63-65 Mainly sand and silt 72-78 Cobbly 70-80% v/s. Tr. Limestone grey silt and fine sand matrix 76-78 minor smooth clay beds
60				
			01	78-93 SILT grey silt & fine sand. occasional pebble minor smooth grey clay beds
			02	
				93-94 TILL. Cobbly 95% Bedrock - volcanic Tr. limestone Grey fine sand and clay matrix
80			03	
			04	94-97 BEDROCK Grey-green, fine-grained intermediate - mafic volcanic Quartz veins 1% sulphides Appears to be flow structures. 97' epidote
			05	
			06	
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 13 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-26 LOCATION Site "F"
GEOLOGIST CHERNIS DRILLER RUMLESKIE BIT NO. 62938 BIT FOOTAGE 97-226½
MOVE TO HOLE 12:15 - 12:30
DRILL 12:30 - 3:30
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 3:30 - 4:00 Clean Tanks 4:15 - 5:15 Travel
MOVE TO NEXT HOLE 4:00 - 4:15

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
		0-2		Swamp
		2-57		Clay
				2-8 Beige, smooth clay
				8-24 Grey, smooth clay
				24-26 Varved, grey and beige clay
				26-57 Varved, tough blue grey clay and softer beige
				54' Grey silt bed
20		57-60		Silt - grey
		60-66		Clay - blue grey clay with minor silt beds
		66-87		Silt - grey with minor blue grey clay occasional pebble and fine sand
40		87-125		Silt and fine Sand - grey with occasional pebble
				93-95 Grey silt and smooth grey clay beds only
				107-115 Minor coarse sand
				115-123 Occasional grey clay bed
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-26 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				125 - 127½ TILL - Cobbly 80% volcanics and sediments Trace limestone Grey fine sand and silt matrix.
				127½ - 129½ BEDROCK grey - green, fine grained intermediate - mafic volcanic Quartz veins tr. Sulphides - some in veins
20			01	
			02	
			03	
				EOH 129½ - BIT NOT CUTTING
				J. Chernis
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 14 19 81
SHIFT HOURS
____ TO ____
TOTAL HOURS
____
CONTRACT HOURS
____

HOLE NO TC-81-27 LOCATION Site "A"
GEOLOGIST Chernis DRILLER Ruhleskie BIT NO. 629339 BIT FOOTAGE 0-226
MOVE TO HOLE 8:00-8:30
DRILL 8:45-2:45
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER Change Starter Rod 8:30-8:45 Travel 7:00-8:00
MOVE TO NEXT HOLE 2:45-3:00

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1 Swamp
				1-67 Clay
				1-4 Beige smooth clay
				4-22 Grey smooth clay
20				22-27 Varved, grey and beige clay
				27-67 Varved, blue grey and beige clay.
				28' thin grey silt bed
				30' thin grey silt bed
40				50-67 minor thin grey silt beds
60				67-97 Silt - Grey
				70 Thin blue grey clay bed
				72 Thin blue grey clay bed
				75 Thin blue grey clay bed
				77 Thin blue grey clay bed
80				83 Thin blue grey clay bed
				91 Thin blue grey clay bed
				92-97 Grey silt with minor fine sand. Occasional pebble
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-27 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				97-157½ Grey fine sand and silt occasional pebble
				98 Pebble bed
				102-103 Thin grey smooth clay beds
				110 Grey smooth clay bed
				119 Pebble bed
				127-140 Prevalent coarse sand and occasional pebbles
120			01	144½-150 Minor grey smooth clay beds
			02	
140				157½ - 173 TILL
				157½ - 164 Pebbly Till 80% volcanics + sediments Trace limestone grey fine sand and silt matrix
			03	
				164 - 173 Cobbly Till 80% v/s Tr. limestone grey fine sand and silt matrix
160			04	
			05	173 - 176 SAND
				173-175 Fine grey sand with minor smooth grey clay and pebbles
			06	175-176 Medium beige sand
			07	176 - 181 CLAY grey smooth clay minor medium sand and granules
180				
			08	181-181½ BOULDER - dark green volcanic
				181½ - 187 TILL - Cobbly 60-70% v/s Tr limestone Fine grey sand matrix
			09	
				187-198 CLAY blue grey smooth clay with grey fine sand and silt beds occasional pebble
200			10	192 Granite cobble

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO TC-81-27 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			10	198-213 TILL - Cobbly 80% volcanics and sediments Trace limestone Fine grey sand matrix
			11	
			12	213-215 BOULDER - Blue-green schistose meta volcanic
			13	
220			14	215-223 TILL - Cobbly 80-90% volcanics and sediments Trace limestone grey fine sand matrix
			15	
				223-226 BEDROCK - Grey-green, fine grained, massive intermediate - mafic volcanic
240				
260				
280				
300				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 14/15 19 81
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-28 LOCATION Site "E"
GEOLOGIST Chernis DRILLER Ruhleskie BIT NO. 58784 BIT FOOTAGE 0 - 225
MOVE TO HOLE 2:45 - 3:00
DRILL 3:00 - 3:30 8:30 - 12:30
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER Clean Tanks 3:30 - 4:00, Travel 4:00 - 5:00, 7:00 - 8:30
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-7 Organics
				7-85 Clay
				7-22 Grey, smooth
				22-34 Varved, grey & beige
				34-85 Varved, blue grey and beige
				40' Fine grey sand bed
				44' Minor silt, occasional pebble
				83-85 Minor grey silt
20				
				85-92 Silt
				grey
				minor grey clay beds
40				
				92-183½ Silt and fine Sand
				grey
				occasional pebble
				95-105 minor thin grey clay bed
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19__
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-28 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				110'- Grey clay bed
				115-125 Minor grey clay beds
				139 Thin medium sand bed
120				
140				
160				
				183½-184 Grey smooth clay bed
				184 - 190½ TILL Pebbly 60-70% volcanics + sediments Trace limestone grey beige fine sand matrix
180			01	190½ - 196 SAND
				190½-193 Beige, fine-medium
			02	193-196 Grey, fine sand occasional pebble
			03	196-201 Interbedded granular gravel, beige fine-medium sand and smooth grey clay
200				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-28 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			04	201-206 Interbedded grey clay and grey fine sand occasional pebble
			05	206-215 Smooth blue grey clay 208-215 with very minor beige fine-medium sand occasional pebble
220			06	215-220 Interbedded sand and gravel minor grey clay beds
			07	220-222 TILL - Pebbly 70% gritty grey clay lumps Pebbles (60% v/s 1% limestone) grey beige fine sand matrix
240				222-225 BEDROCK grey-green, fine grained massive intermediate-mafic volcanic Quartz veins
260				
280				
300				

J Chernis

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 15 19 81
SHIFT HOURS 12:30 TO 5:45
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-29 LOCATION S.6 B
GEOLOGIST K. MacNeil DRILLER Rusnoski BIT NO. ____ BIT FOOTAGE 0-185
MOVE TO HOLE 12:30 - 1:00
DRILL 1:00 - 4:15
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 4:15 - 4:30 clean mud tank; 4:30 - 5:00 to truck; 5:00 - 5:45 - to Timmins
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-2 Organics
				2-80 Clay: initially, 5 feet of brown, oxidized clay; below this, grey clay is predominant with minor beige layers (varves) minor thin bands of silt and some pebble layers
20				
				80-129 Silt: grey in color; gradational change with silt increasing in proportion over the initial 10 feet until >90% of the return is silt sized material; minor zones of pebbles and clay
				93 - 1 foot thick clay seam
				125 - 4 inch mafic intrusive cobble
40				
				129-139 Till: grey fine sand and silt matrix; pebbly chust return:
				60% intermediate/mafic volcanics (possibly some sediments)
				25% granitic material
				5% limestone - beige
60				
				139 - 182 Silt: grey in color; minor pebbles - but more abundant than in silt from 80-129; very minor clay;
				? - possibly a till - ?
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS _____ TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO TC-81-29 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				182-185 Bedrock
				182-183 - fractured; abundant 'foreign' rock chips but by 183' these are no longer seen
				183-185 - bedrock: intermediate/felsic volcanic; light grey-green; fine grained (possibly more felsic in character - possibly a sediment??)
				185 EOH
120				
			01	
140			02	
			03	
160			04	
			05	
180			06	
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 16 19 91
SHIFT HOURS 7:00 TO 10:30
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-91-30 LOCATION Site C
GEOLOGIST K. MacNeil DRILLER Rumlecki BIT NO. 62608 BIT FOOTAGE 185-301
MOVE TO HOLE 8:15-8:45
DRILL 8:45-10:30
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 7:00-7:45 To drill; get water; 7:45-8:15 - to drill
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
				0-67 Clay:
				0-5 - beige, soft
				5-67 predominantly grey; very minor beige layers 6 15 feet; below this the clay appears to be varved - differing shades of grey; minor amounts of silt become more evident below 35 feet
20				67 - 103 Silt: grey; very fine grained; only minor pebbles; scattered thin clay layers (clay-silt contact not distinct as footages may lead one to believe - differing proportions of each until silt becomes predominant at ~67 Feet)
40				103 - 111 Till: grey fine sand matrix; till is pebbly; clast return - 60% mafic/ intermediate volcanics - green to black in color; 10-15 % intrusive material - green to gabbroic; 5% limestone
60				111 - 116 Silt: at 116 coupling on rod gives out
				lose 1 rod, sub, bit downhole
80				116 - EOH
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 16 1981

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-30 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			01	
			02	
			03	
20				
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 16 19 91

SHIFT HOURS
10:30 TO 1:00

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-91-31 LOCATION Site C - redrill #30 ~10' away
GEOLOGIST MacNeil DRILLER Rumbelski BIT NO. 62609 BIT FOOTAGE 0-115
MOVE TO HOLE _____
DRILL 10:30 - 1:06
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
105				*New Sub * New Bit * New Lead Rod*
110			01	112 - 115 Bedrock - light green, fine grained, intermediate (to mafic) volcanic; minor crystalline pyrite disseminated thru rock and in tiny quartz stringers; very minor, tiny (<0.5mm) stringers, red in color - stained quartz? in Lemaitre?
			02	
120				115 EOH
40				This hole was redrilled as #31 after #30 was abandoned when coupling on a rod gave out and rod, sub & bit were lost in TC-91-30
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 16 1981
SHIFT HOURS 1:00 TO 6:00
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-32 LOCATION Site D
GEOLOGIST MacNeil DRILLER Rumbeski BIT NO. 62689 BIT FOOTAGE 115 - 253
MOVE TO HOLE 1:00 - 1:15
DRILL 1:15 - 3:45
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 3:45 - 4:00 clean tanks; 4:00 - 5:15 move drill rig; 5:15 - 6:00 To Timmins
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0 - ~60 Clay: initial 6' is beige to brown in color; below this the clay is grey in color - may be varved with differing shades of grey for each varve; between 25-35 - a few small chips of magnetite iron formation at ~ 55', silt appears for the first time
20				~60 - 120 Silt: silt predominant; grey in color; very fine grained; interbedded clay - also grey in color; very minor pebble bands
40				120 - 134 Till: grey, fine to medium sand matrix; pebbly (or small cobbles) very abundant clast return: 50% intermediate to mafic volcanics; 25% intrusive (granite to gabbroic) 5% limestone; possibly some sediments included in the volcanics
60				134 - 138 Bedrock: light green, fine to medium grained, slightly altered mafic or intermediate intrusive (gabbro or diorite) - a few fractures infilled with till above are seen -
80				138 EOH
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-32 LOCATION S.t.D

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
20			01	
			02	
			03	
			04	
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 17 1981
SHIFT HOURS 7:00 TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-23 LOCATION Site M - 17+00W; 11+00N
GEOLOGIST MacNeil DRILLER Rumbelski BIT NO. 62721 BIT FOOTAGE 0-237
MOVE TO HOLE 8:15-8:45
DRILL 9:15 - 4:00
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 7:00-7:45 - to drill; 7:45-8:15 - mechanical problems (water in fuel?); 8:45-9:15 Mix Mud
MOVE TO NEXT HOLE 4:00-4:30; 4:30-5:30 walk to trucks - Drive to Timmins

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0 - 55 Sand/Silt: oxidized brown for initial 5 feet; below this the sand grades thru beige to a generally light grey color; sand is fine grained; very minor clay; very minor pebbles;
20				55 - 127 Sand: generally medium grained, but fine grained sand is not uncommon; coarse sand is also seen; minor pebbles; sand generally a light grey color
40				127 - 133 Possible Till (??) appears to be mostly pebbles and cobbles - very difficult to drill; clasts are mostly mafic to intermediate volcanics, intrusive material, minor limestone & sediments; seemingly, little matrix other than the material that is ground by the bit
60				133 - 232 Sand: fine to medium grained sand; appears similar to sand intersected from 55 - 127'; light grey in color; common coarse sand and pebbles (pebble layers?)
				198-200 - possible gravel bed
80				212 - 225 - medium to coarse grained sand with common small, sub-rounded pebbles
				232 - 235 - Till (questionable ??) very, very slow drilling; matrix of medium to coarse sand; cobbly; clasts return: 40-50% granitic material (abundant qz, & feldspar) 25% intermediate to mafic volcanics; minor limestone & clastic sediments
100			01	(continued)

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO TC-81-33 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			01	233.5 - 234.5 boulder: light green intermediate volcanic; minor disseminated pyrit and also pyrit along qz-stringers
				234.5 - 235 - coarse sandy material & small cobbles - cobbles of siliceous rock with conspicuous green mineral (Fuschit?)
120			02	235 - 237 Sand: fine grained; grey
			03	237 EOH
				No sample
				237 Hole abandoned before reaching bedrock; fear of jamming rods - difficult drilling; bit finished
140			04	
			05	
180				
			06	
180				
			07	
200				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO TC-81-33 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
			07(cont)	
			08	
220			09	
			10	
			11	
240				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 18 1991
SHIFT HOURS 7:30 TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-91-34 LOCATION Site N - 5+50W -10+00N
GEOLOGIST MacNeil DRILLER Rumbaki BIT NO. 62322 BIT FOOTAGE 0-125
MOVE TO HOLE ____
DRILL 9:15 - 4:00
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 7:30-8:30 to drill from Timmins; 8:30-9:15 - setup, mix mud, haul water
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				* New Bit *
				0 - 3 No Return
			01	3 - 17 Till: grey, fine to medium grained sand matrix; pebbly; clast return: 40% mafic/intermediate volcanics 30% intrusive (granitic) material 10% sediments (argillite; coarser sediments) minor limestone
20			02	
			03	
			04	17 - 23 Gravel: coarse grained, granule matrix; pebbly 50-60% mafic/intermediate volcanics 20% granitic material minor sediments
			05	
40			06	
			07	23 - 84 Till: fine to medium grained, grey sand matrix; clasts are pebbles sized to small cobbles clast return: approximately equal proportions of intermediate/mafic volcanics (possibly includes some sedimentary rock chips) and granitic material (pink granite to gabbroic chips); <10% combined limestone, argillite & clastic sediments
			08	
			09	
60			10	
			11	
			12	43 - minor serpentinized mafic intrusive material - possible slight increase in mafic intrusive material below 50 feet
			13	
80			14	
			15	* below 55', intermittent use of drilling mud *
			16	
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 18 19 81

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO IC-81-34 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			16 (cont)	84-89 Silt: Firm to very firm grained; light grey beige colour
			17	89 - 125 Till: medium grained sand matrix; pebbly till; clast return:- 50% intermediate/mafic volcanics (& sediments?); 30% intrusive material (granitic to gabbroic) 5% limestone
			18	
			19	
20			26	* in this section (89-125) the return is very poor - much of the fine matrix material appears to "clast" into the till formation?) and only occassionally does it form a major part of the return; clast return is sub-rounded to angular pebbles - of such a size that it indicates the bit is beginning to fail; drilling is difficult - fear of rods getting stuck in hole so the hole is abandoned
40				
60				
80				
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 19 1991
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-91-35 LOCATION 200' N of 09
GEOLOGIST MacNeil DRILLER Rumbaski BIT NO. 62723 BIT FOOTAGE 0-235
MOVE TO HOLE 8:00-8:30;
DRILL 9:30-2:00
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER 7:00-8:00 Travel to drill; 8:30-9:00 Setup-throw mechanic's etc; 9:00-9:30 mix mud
~~MOVE TO NEXT HOLE~~ 2:00-2:30 Move; 2:30-3:30 Stand by; 3:30-4:00 move equipment to road; 4:00-5:00 Travel (to Timmins)

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				* New Bit *
				0 - 45 Clay: 0-16 beige clay; minor silt & pebbles; 16-45 grey clay; very soft (below 40'; increasing amounts of silt)
20				45 - 95 Silt: grey in color; very fine grained; very minor dark grey clay & pebbles; at approximately 85', increasing amounts of fine sand and minor granules
40				95 - 151 Fine Sand: grey in color; predominantly fine grained, but also minor medium to coarse grained sand; minor pebbles
				* - at 105' - begin intermittent use of drilling mud *
60				151 - 153 Till(??) - fine to medium grained sand matrix; light grey color to matrix; cobbly (1-6" granite cobble)
				153 - 172 Sand: Fine grained; grey in color
80				172 - 175 Gravel: coarse grained sand & granule matrix; pebbly
				175 - 203 Sand: Fine grained; grey in color; minor silt; minor mafic volcanic & intrusive pebbles
100				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 19 1981
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO TC-81-35 LOCATION ____
GEOLOGIST ____ DRILLER ____ BIT NO. ____ BIT FOOTAGE ____
MOVE TO HOLE ____
DRILL ____
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE ____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				203 - 207 Till: fine to medium grey, sandy matrix; very minor, gritty grey clay; cobbly; clast return - 95% (or >) mafic volcanics and intrusives
20				207 - 215 - Till: fine to medium sandy matrix; pebbly 60% mafic / intermediate volcanics & intrusives 20% granitic material 5% (or <) limestone
40				215 - 225 Till: fine to medium sand grit in grey clayey matrix; pebbly; clast return: 55-60% mafic / intermediate volcanics (and sediments) 25-30% [illegible] (predominantly granitic but also some gabbroic material)
60			01	
			02	225 - 235 Bedrock: dark green to black mafic volcanic; fine grained; initially, some grey-green gritty clay - probably highly ground pieces of bedrock
80			03	235 EOH
100			No Sample	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE _____ 19 __

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO TC-81-35 LOCATION _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

MOVE TO HOLE _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			No Sample	
			04	
			05	
			06	
			07	
20			08	
			09	
40				
60				
80				
100				

July 5, 1982 2.4511

Overburden DRilling Management Limited
192 Powell Avenue
Ottawa, Ontario
K1S 2A5

Attn: Mr. S.A. Averill

Dear Sir:

Re: Data for overburden drilling on mining claims P 486658 et al in the Township of Mackelcan and Bond

In order to complete your submission for the above-mentioned survey we require (in duplicate) cancelled cheques or receipts to verify your expenditures of $110,259.55.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

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

A. Barr/amc

cc: Mining Recorder
Timmins, Ontario

cc: Goldeidt Exploration Incorporated
c/o John Eidt
Midland Doherty Ltd.
19th Floor - Commercial Union Tower
Toronto, Ontario
M5K 1B5

1982 02 19 2.4511

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

Dear Sir:

We have received reports and maps for a Reverse Circulation Overburden Drilling Survey submitted under Section 77(19) of the Mining Act R.S.O. 1980 on mining claims P486658 et al in the Townships of Mackelcan and Bond.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

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

J. Skura/amc

cc: Goldeidt Explorations Incorporated
Ottawa, Ontario
Attn: S.A. Averill

Midland Doherty Limited
Commercial Union Tower
P.O. Box 25
Toronto - Dominion Centre
Toronto, Canada M5K 1B5
Telephone (416) 361-6000

2.4511

July 8, 1982.

E. F. Anderson,
Director,
Land Management Branch,
Whitney Block,
Room 6450,
Queen's Park,
Toronto, Ontario,
M7A 1W3.

Dear Sir:

RE: Goldeidt Exploration Inc. - Overburden Drilling
Your File 2.4511

Enclosed are the cancelled cheques (in duplicate) for the expenditures totalling $110,259.55.

Yours very truly,

John Eidt.

JE/dw
Encl.

OVERBURDEN DRILLING MANAGEMENT LIMITED

192 POWELL AVENUE, OTTAWA, ONTARIO K1S 2A5 — (613) 822-0202

January 28, 1982

Invoice summary, Goldeidt Explorations Limited, reverse circulation drill exploration program, Macklem Township, Ontario, covering operations by Overburden Drilling Management Limited for the work period July 21, 1981 to January 28, 1982:

Invoice Date	Drill Planning, Supervision, Logging & Sampling	Sample Shipping & Processing	Microscope Studies, Data Interpretation, Map & Report Prep.
Sept. 03	1357.88		
Oct. 08	3471.09		
Oct. 22	12234.02		
Nov. 03	69.00	7425.35	288.00
Nov. 23	1095.06		
Jan. 28			8326.54
	18227.05	7425.35	8614.54

Program total: $34,316.94

GOLDEIDT EXPLORATIONS LIMITED
REVERSE CIRCULATION DRILL EXPLORATION PROGRAM
MACKLEM TOWNSHIP, ONTARIO

TOTAL EXPENDITURE SUMMARY:

Heath and Sherwood Drilling	70,779.60
Bondar-Clegg and Company analytical laboratory	4,057.55
Goldeidt Explorations Incorporated in-house technical support	1,105.46
Overburden Drilling Management Limited	34,316.94
	$110,259.55

OVERBURDEN DRILLING MANAGEMENT LIMITED

192 POWELL AVENUE, OTTAWA, ONTARIO K1S 2A5 – (613) 822-0202

2.4511

December 21, 1981

Mr. Bill Good
Regional Mining Recorder
The Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

Re: Assessment Report
Goldeidt Property
Macklem Township

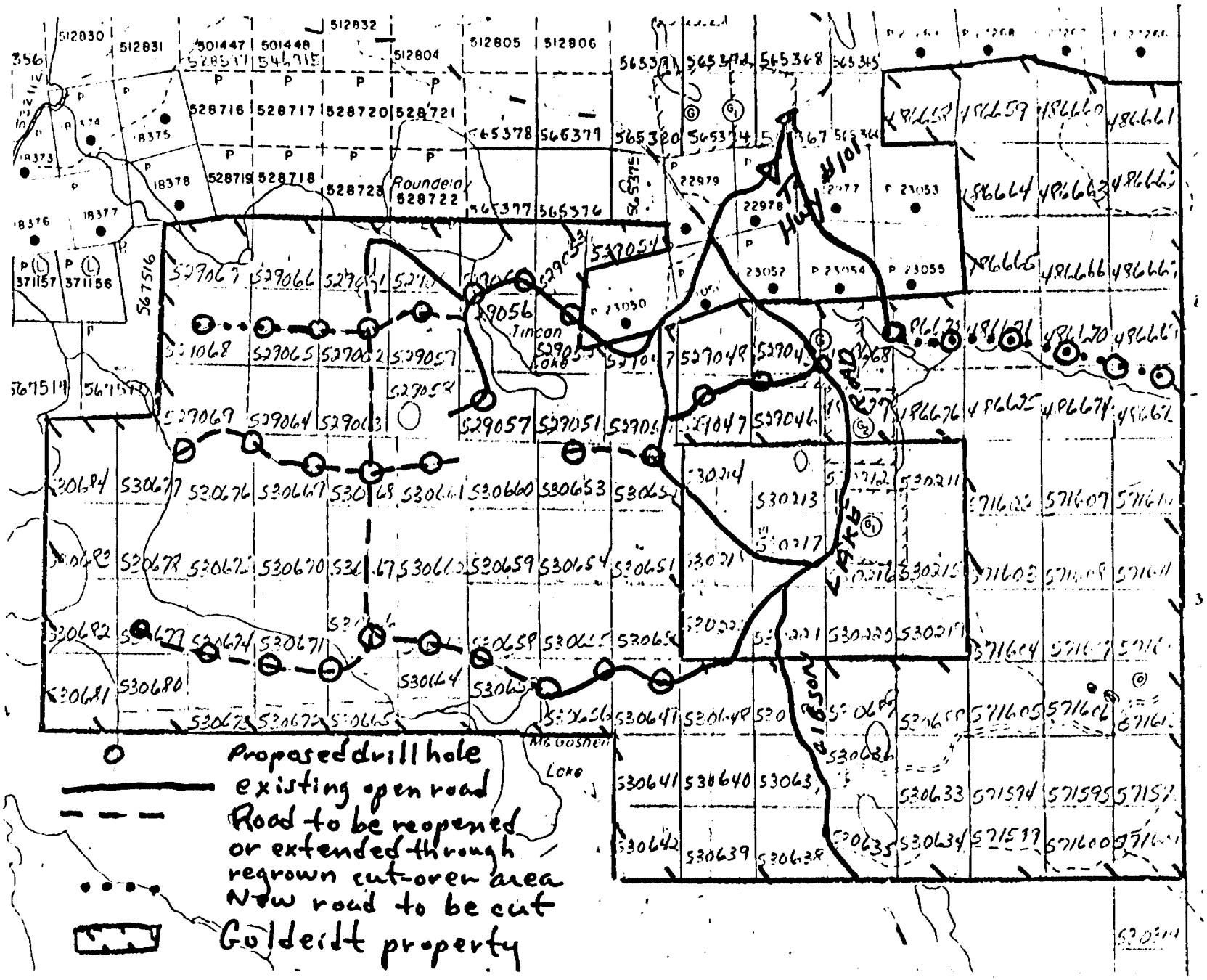
This is to advise that the above report on a 35-hole reverse circulation overburden drilling program carried out in Macklem Township (see attached map), in October, will be filed on approximately January 21, 1981.

Should you require any additional information, do not hesitate to contact the undersinged.

Yours truly,

Nancy Averill
General Manager

cc. John Eidt, Goldeidt Exploration Incorporated
The Ontario Mining Recorder, Queen's Park ✓


Proposed drill hole
existing open road
Road to be reopened or extended through regrown cut-over area
New road to be cut
Goldeidt property
Roundelay
528722
Tincan
Lake
McGoshen
Lake

No. 21

THE TORONTO-DOMINION BANK

TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

December 21 1981

PAY TO THE ORDER OF Bordas - Clegg & Company Ltd. $ 619.50

Six hundred and nineteen 50/100 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

J. Goldeidt R. Gilthorpe

B" :10202"004: 0690"0575513" "0000061950"

No. 20

THE TORONTO-DOMINION BANK

TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

December 14 1981

PAY TO THE ORDER OF Bordas - Clegg & Company Ltd. $ 882.00

Eight Hundred and Eighty-two XX/100 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

J. Goldeidt R. Gilthorpe

B" :10202"004: 0690"0575513" "0000088200"

No. 17

THE TORONTO-DOMINION BANK

TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

Dec. 9 1981

PAY TO THE ORDER OF Bordas - Clegg & Company Ltd. $ 1547.55

One thousand five hundred and forty-seven 55/100 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

J. Goldeidt R. Gilthorpe

B" :10202"004: 0690"0575513" "0000154755"

No. 15

THE TORONTO-DOMINION BANK

TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

November 18 1981

PAY TO THE ORDER OF Bordas - Clegg & Company Ltd. $ 1008.00

One thousand and eight 00/100 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R. Gilthorpe J. Goldeidt

B" :10202"004: 0690"0575513" "0000100800"

No. 14

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

November 10 1981

PAY TO THE ORDER OF Heath & Sherwood Drilling $ 15,558.94

Fifteen thousand five hundred and fifty eight 94 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Sibthorpe

⑈ 10202 004 ⑆ 0690 057551 3 ⑈ 0001555894

No. 11

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

Nov. 2 1981

PAY TO THE ORDER OF Heath & Sherwood Drilling $ 48,941 33

Forty-eight thousand nine hundred and forty-one 33 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Sibthorpe

⑈ 10202 004 ⑆ 0690 057551 3 ⑈ 0004894133

No. 7

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

Oct. 16 1981

PAY TO THE ORDER OF Heath & Sherwood Drilling $ 6,279 33

Six thousand two hundred and seventy-nine 33 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Sibthorpe

⑈ 10202 004 ⑆ 0690 057551 3 ⑈ 0000627933

THE TORONTO-DOMINION BANK

TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

Dec 3 1981

PAY TO THE ORDER OF Industrial Copy Centres $ 78 38

SEVENTY - EIGHT 38/100 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Sibthorpe

⑈10202⑈004⑆ 0690⑈057551 3⑈ ⑈0000007838⑈

No. 19

THE TORONTO-DOMINION BANK

TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

December 14 1981

PAY TO THE ORDER OF Robert Sibthorpe $ 1027 08

One Thousand and Twenty-seven 08/100 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Sibthorpe

⑈10202⑈004⑆ 0690⑈057551 3⑈ ⑈0000102708⑈

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

March 1 1982

PAY TO THE ORDER OF Overburden Drilling Management Ltd. $ 1,326.54

One thousand three hundred and twenty-six ** DOLLARS

GOLDEIDT EXPLORATIONS INC.

R Gibthorpe

⑈ 10202 004⑈ 0690 057 5505⑈ ⑈0000132654⑈

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

No. 18

CURRENT ACCOUNT

Dec. 9 1981

PAY TO THE ORDER OF Overburden Drilling Mgt. Ltd. $ 8,095.06

Eight thousand and ninety-five ** DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Gibthorpe

⑈ 10202 004⑈ 0690 057 5513⑈ ⑈0000809506⑈

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

No. 13

CURRENT ACCOUNT

November 5 1981

PAY TO THE ORDER OF Overburden Drilling Management Ltd. $ 7,782.35

Seven thousand seven hundred and eighty-two ** DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Gibthorpe

⑈ 10202 004⑈ 0690 057 5513⑈ ⑈0000778235⑈

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

No. 10

November 2 1981

PAY TO THE ORDER OF Overburden Drilling Management Ltd. $ 12,234.02

Twelve thousand two hundred and thirty-four ** DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Gibthorpe

⑈ 10202 004⑈ 0690 057 5513⑈ ⑈0001223402⑈

No. 8

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

Oct. 16 1981

PAY TO THE ORDER OF Overburden Drilling Management Ltd. $ 3,471.09

Three thousand four hundred and seventy-one 09 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Lobthorpe

⑈ 10202 ⑆ 0041 ⑆ 0690 ⑆ 0575513 ⑈ "000034709"

No. _____

THE TORONTO-DOMINION BANK
TORONTO-DOMINION CENTRE BR.
55 KING ST. W. & BAY STREET
TORONTO, ONT. M5K 1A2

CURRENT ACCOUNT

Oct. 23 1981

PAY TO THE ORDER OF Overburden Drilling Management $ 1357.88

One thousand three hundred and fifty-seven 88 DOLLARS

GOLDEIDT EXPLORATIONS INC.
TRUST ACCOUNT

R Lobthorpe

⑈ 10202 ⑆ 0041 ⑆ 0690 ⑆ 0575513 ⑈ "000013588"