PURCHEM LIMITED, WARREN TOWNSHIP PROJECT

ANORTHOSITE MAPPING AND SAMPLING

CLAIMS P 1197441 and P 1197442

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SUMMARY

Anorthosite is an alternative feedstock for the production of aluminium chemicals. A possible source area in Warren township, Timmins Mining District, is investigated by geological mapping a grid covering 70% of two sixteen claim blocks (P 1197441 and P 1197442).

Four areas with mining potential are identified. The two most favourable areas are investigated by trenching and percussion drilling. Rock samples and drill cuttings were chemically analyzed.

Area A,

Located 6+00E, 8+00N northeast to 8+10E, 10+00N (290 m long, 65 m wide), this zone is on the southeast flank of a northeast trending bedrock ridge. Area A anorthosite contains minor amounts of: mafic minerals, clinozoisite alteration and localized carbonate alteration. Internal dilution results from two dyke sets. One very cohesive set trends 055°. The second dyke set is more recessive, having a lamprophyre like appearance, trends 085° to 095° The anorthosite and dykes are offset by northeast (earlier) and northwest (later) trending faults.

As determined from the analysis of drill cuttings, the average anorthosite compositions is:

SiO_2	48.11	wt %	with a	0.70	wt %	standard deviation
Al_2O_3	30.97	"	" "	0.55	"	"
CaO	15.52	"	" "	0.37	"	"
Na_2O	2.45	"	" "	0.09	"	"
Fe_2O_3	1.32	"	" "	0.14	"	"
MgO	0.42	"	" "	0.07	"	"

Fe_2O_3 and MgO contents are higher and more variable with depth, reflecting sample bias away from mafic components near the surface. Anorthosite within 1 m of a dyke has slightly lower Al_2O_3 and higher Fe_2O_3, MgO and LOI, possibly attributable to metasomatism from the dyke.

A 15 tonne bulk sample was blasted, crushed and screened to yield 9.123 tonnes of +1mm -4mm which was bagged and loaded in a container for shipping by Purchem Ltd.

Area B,

This area comprises structural blocks separated by a major north-south fault zone. Each exposure was mapped, trenched and sampled by percussion drilling.

The northeast area centred at 9+05E, 0+60N, the site of previous bulk sampling by the Ontario Ministry of Northern Development and Mines (MNDM). Good quality anorthosite occurs over a relatively

short strike length, disrupted by a northwest fault. Mapping and drill results suggest the exposure is a synform with excellent quality anorthosite limited to a shallow (mostly less than 6 m) depth.

The southwest B block extends 220 from 6+60E, 1+12S to approximately 3+80E, 3+00S. There is a recognized potential ore zone of 120 m long, 30 to 50 m wide. The massive anorthosite contains variable amounts of mafic minerals occurring as disseminated hornblende and 2 cm veinlets of augite. The latter is unrelated to primary layering. Primary layering attitudes are unrecognized but believed steeper than 50° to the northwest. The boundary of good quality anorthosite is determined by the presence of alteration developed along regionally significant northeast trending faults. The southwest B block is offset by small displacement northwest trending faults. Dykes are absent.

The average composition of the B area drill cuttings, excluding two samples clearly gabbroic material is:

SiO_2	48.81 wt %	with a	0.72 wt % standard deviation
Al_2O_3	30.86 "	" "	0.78 " "
CaO	15.28 "	" "	0.38 " "
Na_2O	2.43 "	" "	0.10 " "
Fe_2O_3	1.10 "	" "	0.35 " "
MgO	0.47 "	" "	0.45 " "

A 10 tonne bulk sample was taken from the massive anorthosite at the northeast end of the ridge comprising the southwest B block. Following crushing and screening to +1 mm to -4 mm, 6.293.0 tonnes of product were shipped.

Area C,

A smaller structurally bounded area centred on 7+80E, 3+75S. This area has massive anorthosite exposed over 135 m in length and 35 m wide. Six samples collected and analyzed yielded chemical results similar to area B samples.

Area D,

Within area D there are at least three geologically distinct zones. The zones are at least 30 m wide and 60 to 80 m long with boundaries developed by a complex coincidence of primary layering and faults. The larger of the three areas rises 1 to 3 m above the surrounding swamp. Chemical results have higher Fe_2O_3 and MgO than area A, B and C samples.

Additional areas

Two other areas of good anorthosite at least 30 m wide are known but without appreciable lengths exposed. One area is on L 8+40E, 9+37N. The other is on L 0+00 extending southwest off the grid and claim group, then truncated by a major trending fault.

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1.0 TERMS OF REFERENCE

Two 16 claim blocks in Warren Township, Ontario were investigated for high calcium/aluminium plagioclase feldspar suitable as feed for the production of aluminum chemicals. Guidelines were provide by Mr. Don Hains, secretary of Purchem Ltd., holder of the claims in a memorandum of August 25th, 1994 as follows to H. V. Geological Services:

1) Organization, supervision and management of line cutting program in the amount of 33 km, and at a spacing sufficient to develop detailed geological maps at a 1:5,000 scale or better. Surface grab samples are to be obtained. The number of grab samples is to be left to the discretion of the field geologist, but should be consistent with identification of variations in whole rock chemistry of the mapped areas. The areas most suitable for initial development of a quarry should be identified, consistent with defining an area having proven geological reserves of suitable quality anorthosite of at least 400,000 tonnes.

2) Organization, supervision and management of a program of air track drilling (30 holes @ 16 m each) in 5 fences of 6 holes (or 6 fences of 5 holes). Approximately 160 dust samples are to be recovered for analysis from drill holes at 3 m intervals. Tungsten carbide bits are to be used in drilling.

3) Organization, supervision and management of a trenching program consisting of two trenches over each of two areas totalling at least 200 m in length. Whole rock samples and analyses of the trenched areas are to be undertaken. with approximately 30 samples required.

4) Organization, supervision and management of a bulk sampling program. Bulk samples are to be recovered from at least two areas. The main sample should consist of approximately 15 tonnes of raw rock to yield a finished sample of approximately 8 to 9 tonnes from the area considered the most promising for initial development of the quarry. The second sample should consist of approximately 8 tonnes of raw rock to yield a finished sample of approximately 4 to 5 tonnes and be taken from the next best area.

5) Organisation of transport of the bulk samples to suitable crushing facilities and preparation of finished bulk samples as 1 to 4 mm material. processing of the material may include low and high intensity magnetic separation in addition to the

required crushing to size. Purchem would advise H. V. Geological services as to the requirement for magnetic separation upon receipt of the chemical analysis of the percussion drill samples and the whole rock analysis from the trenching program. The laboratory providing the crushing services, including yield, work index, % over size material, equipment used, power requirements etc.

6) organization, management and supervision of packaging of the bulk samples in a form suitable for overseas container shipment. The preferred mode of packaging is in intermediate bulk bags. Each bag is to be suitably identified as to the origin of the material in the deposit.

7) Preparation of detailed geological maps and reports on the deposit providing information on the following

   * location, surface topography and surface areas of the deposit

   * geological reserves of suitable quality

   * plan and cross-section maps of the deposits showing all significant geological features affecting deposit quality, size, accessibility, quarry development and other factors bearing on the requirements for the development of the deposit and extraction of up to 10,000 tonnes per year of anorthosite

   * whole rock and individual sample chemical analysis of deposit indicating variations in geochemistry across the surface of the deposit and with deposit depth

   * notation on any topographic and or biologic features, plants, animals streams, etc. potentially affecting the licensing and development of the quarry.

The terms of reference were amended by Mr. Hains to not require work index for the crushing and grinding. In consultation with Mr. Peter Bevin drill hole depths would be 15.15 m (50 feet) or until drilling passes out of favourable anorthosite or encountered water (no recovery). Excavation of 5 trenches and drill holes along the trenches were deemed acceptable.

Due to time constraints the bulk samples were taken from areas with visibly pure feldspar, largest dimensions and most reasonable access. This was to allow the timely processing of the bulk samples and shipping for overseas test processing.

2.0 INTRODUCTION

Purchem Limited of Toronto has a proprietary process for the extraction of the aluminium chemical, polyaluminium chloride (PAC) from high calcium/aluminium feldspars. This mineral (calcic plagioclase) may occur as massive feldspar (anorthosite) bands containing minimal accessory minerals in the oldest Precambrian anorthosite complexes.

Mapping, sampling and preliminary aluminium extraction tests by the Mineral Development Section of the Ontario Ministry of Northern Development and Mines (MNDM) on material from the Shawmere Anorthosite Complex has identified possibly acceptable rock for the Purchem process (Veldhuyzen 1992, 1993, 1994). This lead to acquisition by Purchem Limited of two 16 claim blocks (P 1197441 and P 1197442) in Warren Township, Timmins Mining District.

2.1 CLAIMS INVESTIGATED

The investigation is of two contiguous 16 claim blocks, P 1197441 and P 1197442, located in the southwest portion of Warren Township. Surface rights are retained by the Crown (Crown land) with the timber management rights held by McChesney Lumber of Timmins.

The claims were staked in October 1993 under the supervision of F. Racciot. The claims were transferred upon recording to A/S Polymer and subsequently transferred to Purchem Limited on August 3rd, 1994. No assessment work has been filed to date. The claims will remain in good standing until October of 1995 without assessment work having to be filed.

2.2 LOCATION AND ACCESS

The two claim blocks are located in the southwest portion of the unsurveyed township of Warren, Timmins Mining District. The centre of the two claim blocks lies at approximately 48° 8' 0" N, 82° 47' 20" W (figure 2.1)

Access to the property is by a private lumber road (established by McChesney Lumber of Timmins) with public access. The road is used year-round to haul logs except during periods of frost heaving. At those times access is restricted to prevent damage to the road base.

The road crosses the southern claim (P 1197441) and swings northward through the middle of the northern claim (P 1197442) (Figure 2.2). From the centre of the claim block, the McChesney Lumber road extends 14 km to the east southeast where it joins highway 101, a major year-round paved highway. From this intersection, 24 km to the east on highway 101 is the village of Foleyet and the CN main railway line with a siding. The City of Timmins is 100 km east of the McChesney Lumber road and highway 101 junction. 67 km west of the McChesney Lumber road and highway 101 junction is the town of Chapleau (Figure 2.1).

2.3 PREVIOUS WORK

No previous claim staking is reported in Warren township, hence no assessment work filed. Geological investigations of the claims and the immediate area are limited to government studies focusing on:

1) geological mapping of the Shawmere Anorthosite Complex,

2) geological mapping and geophysical investigations of the Kapuskasing structure by leg 3 of the Lithoprobe project,

3) an industrial mineral evaluation of the high calcium/aluminium plagioclase feldspar.

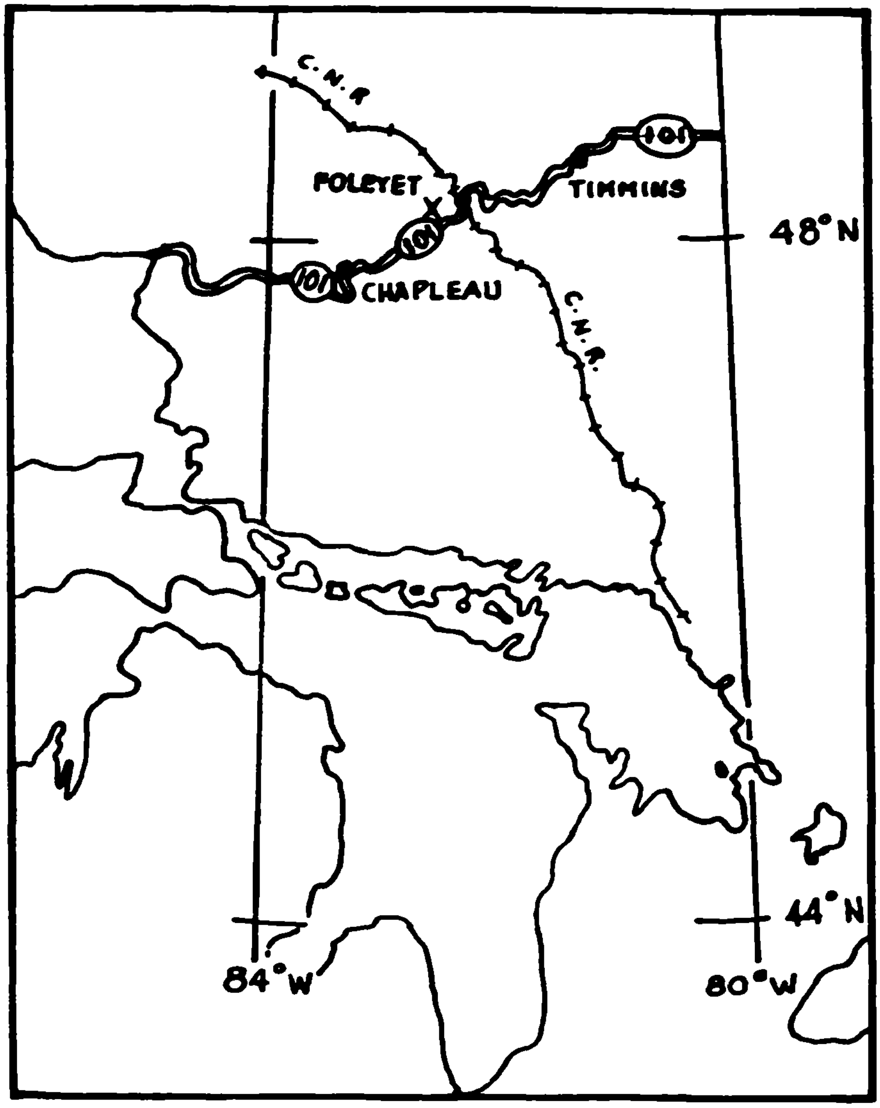


FIGURE 2.1 GENERAL LOCATION MAP OF THE PURCHEM CLAIMS IN WARREN TOWNSHIP, TIMMINS MINING DISTRICT.

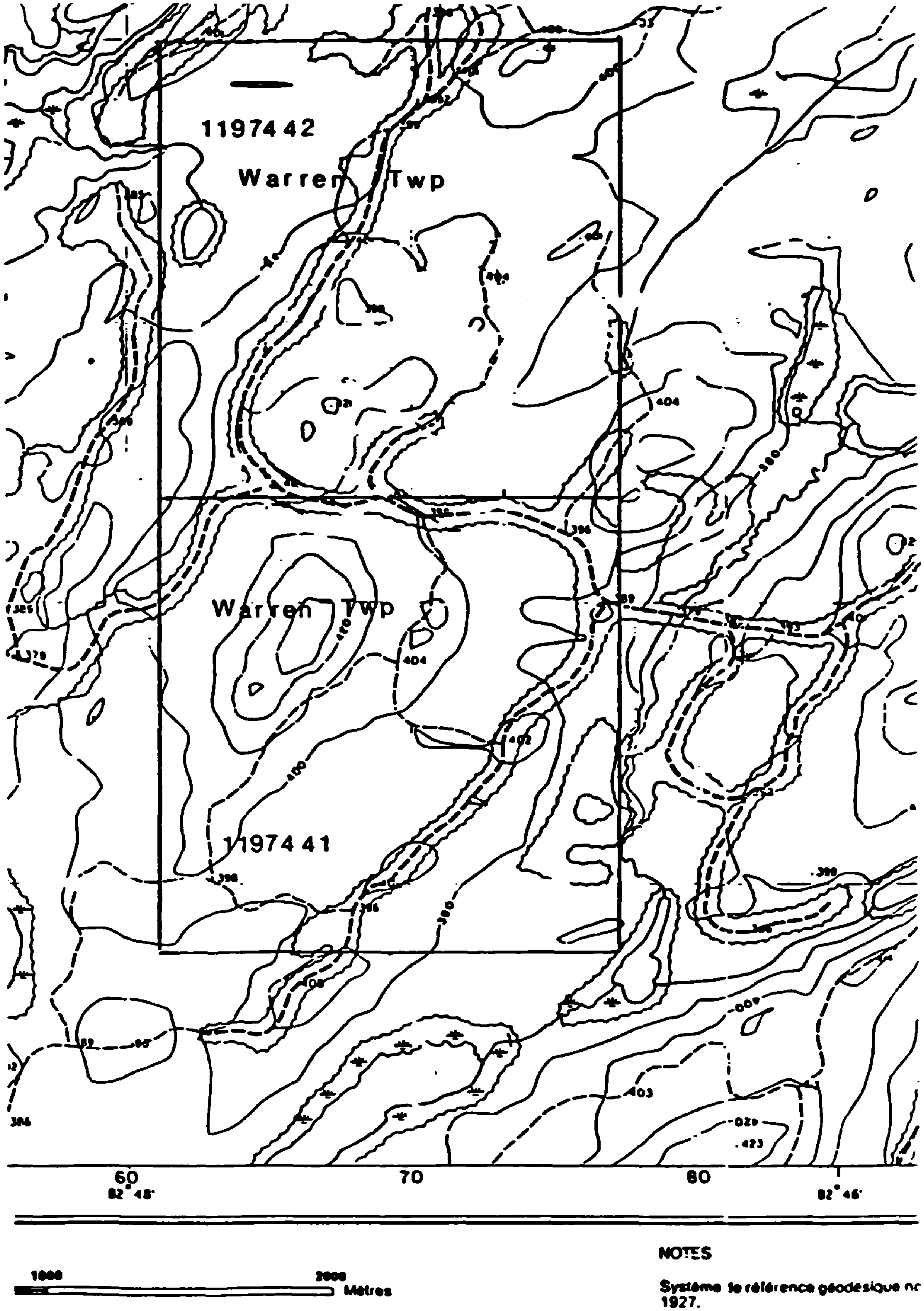


FIGURE 2.2 A PORTION OF THE ONTARIO BASE MAP SHOWING THE LOCAL TOPOGRAPHY, POSITION OF THE McCHESNEY LUMBER ROAD RELATIVE TO THE APPROXIMATE FURCHEM CLAIMS BOUNDARIES

The geology of Warren and adjacent townships has been mapped regionally and then at 1:100,000 scale focusing on the setting of the Shawmere Anorthosite Complex in the Kapuskasing Structure (Thurston et al., 1977; Percival 1981a, 1981b). The Shawmere Anorthosite Complex is a 2.765 billion year old layered anorthosite to gabbro complex which underlies all of Warren township and 10 adjacent townships (Percival 1981a) .

Four compositional zones recognized within the intrusion (Table 2.1) developed during primary magmatic fractionation of a basaltic magma (Simmons et al., 1980). Regional mapping is insufficient to identify specific areas of anorthosite suitable for use in the Purchem process. Mapping at 1:20,000 is limited to the northeastern third of the intrusion (Riccio, 1981), northeast of the Purchem claims. However, the geological observations from the area to the northeast are relevant to the Purchem claims.

Overlying gneisses	
_ _ _ _ _ _ _	probable structural contact
Megacrystic Gabbro	large megacrysts of feldspar (1 to 30 cm) floating in a gabbro matrix.
Massive Anorthosite	massive feldspar zone with thin layers of mafic minerals and interspersed mafic minerals
Banded Zone	interlayering of gabbro with 1 cm to 18 m of massive anorthosite layers
_ _ _ _ _ _	possible structural contact
Border Zone	foliated zone of garnetiferous amphibolites
_ _ _ _ _ _	contact interfingering of anorthosite intrusion with gneisses
Basal gneisses	

Table 2.1 Sequence or aones with the layered the Shawmere Anorthosite Complex

The layering within the Shawmere Complex is disrupted by eight recognized structural events (Table 2.2). These events are recognizable throughout the Kapuskasing Structural Zone, including the Shawmere Anorthosite Complex.

(D1)	gneissic layering
(D2)	small scale folds, now tight isoclinal
(D3)	early tight inclined folds moderately north-dipping axial surfaces
(D4)	Early decoupling of the Kapuskasing Zone and imitation of Ivanhoe Lake Cataclastic Zone, presumed relative age of development and mylonitic and reconstituted mafic gneiss sequence within the Ivanhoe Lake Fault
(D5)	North-west trending gentle to open large scale upright to moderately inclined horizontal folds in part related to east-directed high angle reverse faults
(D6)	Northeast trending upright to moderately inclined, gently plunging folds adjacent to Ivanhoe Lake Cataclastic zone.
(D7)	Normal faulting (relative downthrown to north-west) unknown extent along Kapuskasing Structural NE boundary possibly related.
(D8)	Post lamprophyre faulting

Table 2.2 Structural events recognised as occurring within the Kapuskasing Structural Zone (after Bursnall, 1990)

The Shawmere Anorthosite Complex has been studied as to its setting within the continental Kapuskasing thrust zone, along which deep crustal rocks were brought to the surface. The mechanics and geometry of this structure has been investigated by the Lithoprobe project using deep EM, refraction and reflection seismic surveys (summary in Clowes et al., 1992) in combination with local geological mapping (Percival et al. 1991; Bursnall 1990). Lithoprobe Leg 3 traversed the McChesney Lumber road crossing the claims. No specific data on the claims are published, save one geochemical analysis of a massive anorthosite exposure (Fountain et al, 1990).

An MNDM investigation examined the suitability of using feldspar as a source for extracting aluminium chemicals. Six areas sufficiently large for possible mining were recognised, two of which lie within the Purchem claim group (Veldhuyzen, 1992, 1993). The chemical characteristics and test-leaching experiments have also been completed (Veldhuyzen, 1993, 1994).

3.0 METHODOLOGY

The evaluation of a particular anorthosite exposure or zone must consider errors in the field and/or analytical methodology which may obscured significant details. Similarly, artificially created trends must not be interpreted from geological or analytical noise.

3.1 MAPPING

Mapping was carried out in two manners. Firstly the lines were walked with exposures within 10 to 20 m of the line mapped. If sufficient widths of potentially favourable anorthosite (plagioclase feldspar) were encountered, then pace and compass traverses were carried out perpendicular to the cut lines. Detailed mapping was carried out using flagged lines that were hip chained with stations every 10 to 20 m. Hip chaining may wander 2 to 3 m from the perpendicular of the cut line over 50 to 70 m. This does not represent a significant error in determining a zone's length or width.

Mapping focused on the following factors (in order of importance):

1) the lowest percentage of dark minerals, averaging less than 1

to 2%, locally up to 5%, providing dilution by better quality rock to average 1 to 2% mafics.

2) presence of plagioclase alteration, termed clinozoisite - scapolite alteration, this material dilutes the feldspar making it less suitable for aluminium chemical extraction,

3) mafic mineral alteration to garnet indicates a geochemical process consuming mafic minerals and some feldspar, releasing H_2O from the mafic minerals and Na_2O from the feldspar, both negatively affecting aluminium extraction.

4) presence of carbonate minerals, usually limited to fractures in the bedrock although significant carbonate is present in the fine mud component of the till (as opposed to soil),

5) colour and grain size of the feldspar minerals, structural deformation alters euhedral feldspars to a sugary texture and grains of a lighter colour. This process may add Na_2O, thereby lowering Al_2O_3.

Collection of a representative bedrock sample followed a field examination of the outcrop or trench exposure. Brief descriptions were made noting; percentages and types of mafic minerals, alteration minerals, feldspar colour and crystallinity.

3.2 TRENCHING

Five trenches were completed using a 690 Caterpillar excavator. The trenches were made to a width of 3 to 4 m wide and up to 6 m wide in order to maintain a safe height to width ratio. After excavation, a strip of continuous outcrop was cleaned for the length of trench if possible. Surface mud was removed by hand and the bedrock surface swept.

Rock types, banding, prominent fractures or exposure faces along with the presence of alteration were described and plotted on a 1:100 scale map of the trenches. At the same time profiles of the trench topography was surveyed to within .2 m. The trenches were also the cleared sites for most of the percussion drill holes. After completing the mapping, sampling and drilling, trench intervals with a depth of more than 1.5 m were backfilled.

Samples were collected from the exposed and cleaned outcrop surface where they could be acquired using a 3.5 kg sledge hammer. These locations were inevitably in areas of fracturing and jointing, the sites of greater alteration.

3.3 DRILL HOLE SITING AND SAMPLING

The drilling program establishes a depth extent and to provide continuous sampling for a visually high quality anorthosite with a potentially mineable width. The drill tested unit also has a significant strike length.

Drilling was completed using an air percussion Hydratrack drill. The unit was self contained being both mobile and capable of drilling rapidly to 15.15 m. Deeper drilling could have been accomplished with increased risk of the drill string jamming.

The drill was not designed as sampling equipment, such that a real possibility existed for cross-sample contamination with increased depth of drilling. This is despite using compressed air to clean out the dust by-pass box where most samples were collected. At the same time, the discharge tube from the drill collar to the bypass box could not be completely cleaned between samples

For drill holes DH 1 through DH 5 (all trench E drill holes), samples were collected from a cloth bag attached to the dust collector. To get a sample and prevent cross contamination, the air filter had to be disassembled and blown out, a time consuming process which exposed the drill operator to too much dust. This method collected relatively small volumes of sample and may have introduced a sorting bias due to a much longer air transport in the air suction tube before reaching the dust collector. The one sample interval for which both a dust bypass sample and an air filter bag sample was collected had dissimilar chemical results. The air filter material (15971) had markedly lower Al_2O_3 and higher Fe_2O_3 compared to the by-pass sample (15972) (DH 6, 0-3.03 m).

The remaining drill hole samples were collected from the dust bypass box where all material, from dust to coarse sand was blown at a screen. Fines passed through the screen to the dust collector while most material coarser than fine sand fell through the bottom of an open collection box. This latter material was collected for analysis from the remaining drill holes.

All drill cuttings sampled were laid out on a plastic sheet or within a large plastic bag (a clean garbage bag) and rolled three times in each direction, up and down, side to side before the sample size was reduced by successive scoops yielding approximately 500 grams for analysis.

3.4 GEOCHEMICAL ANALYSES

The identification of a mineable ore body requires sampling appropriate material and obtaining chemical results reflecting compositional variations in the field. To this end, both rock and drill cutting samples were collected and compared relative to one another using basic statistics (averages and standard deviations) for each potential ore zone.

Induced coupled plasma emission spectroscopy (ICP) is the chosen method for analysis. Previous work for MNDM used x-ray fluorescence (XRF). For completeness and as means of comparing the ICP results to previous study results comparing ten duplicate samples analyzed by both ICP and XRF. Splits of the same ICP duplicate analyzed a second time by ICP. Duplicate samples were taken later after the initial samples after being transported and further homogenized. The duplicate samples submitted for analysis to both laboratories as two additional drill holes.

Analytical reproducibility is determined using standard statistical functions provided in a computer spreadsheet program (LOTUS 123) (Appendix IV). As no absolute standards were included, nor repetitive analysis of one sample, error is assumed to equally distributed between duplicate samples. Error is assessed by comparing the following:

a) original ICP samples
b) duplicate ICP samples
c) XRF samples

The results are considered by principle components (SiO_2, Al_2O_3, CaO, Na_2O, Fe_2O_3, MgO). minor components (K_2, TiO_2, MnO, P_2O^5, LOI - loss of ignition). Trace components (Ba, Sr, Be, Sc, Ni, Cr, Cu, V, Zn) analyzed only by ICP.

Loss of ignition (LOI) is in close agreement for all of the duplicate samples with no bias between the original or duplicate samples, irrespective of laboratory. This consistency strongly supports the samples are all the same, with minimal differences as to carbonate or water contents.

3.4.1 ICP REPRODUCIBILITY

An in-depth statistical treatment can not be undertaken on 10 samples. The results present are only to identify the range of error between samples. By not having more than one duplicate value for each sample, the only method of treating the amount of possible error is to statistically evaluate the amount of anticipated error of the basis of the 10 duplicate samples.

3.4.1.1 Major components

The population of possible average error (difference between the original and duplicate analyses) (table 3.1) (Appendix IV) and standard deviation from the possible error differs for each element. Not surprisingly, the larger the percentage of the whole rock that an oxide forms, the larger average error. The largest absolute discrepancy duplicate results is for SiO_2, the major oxide present at 0.79 wt % error with a 0.49 standard deviation. The spread of error is less for Al_2O_3 with 0.68 wt % error, the larger standard deviation 0.55 wt % suggest the ICP method yields less accurate Al_2O_3 results compared to the other components measured.

Components		ICP vs ICP	ICP vs XRF	ICP dup vs XRF	ICP av vs XRF
SiO_2	mean	0.79	0.54	0.46	0.29
	st. dev	0.48	0.31	0.32	0.21
Al_2O_3	mean	0.68	0.55	0.47	0.41
	st. dev	0.55	0.48	0.22	0.21
CaO	mean	0.22	0.24	0.12	0.15
	st. dev	0.15	0.16	0.05	0.09
Na_2O	mean	0.11	0.19	0.14	0.17
	st. dev	0.05	0.08	0.18	0.13
Fe_2O_3	mean	0.08	0.24	0.19	0.22
	st. dev	0.08	0.06	0.07	0.05
MgO	mean	0.07	0.09	0.14	0.11
	st. dev	0.05	0.04	0.04	0.05
K_2O	mean	0.04	0.03	0.04	0.03
	st dev.	0.09	0.01	0.07	0.03
LOI	mean	0.12	0.16	0.20	0.15
	st. dev	0.14	0.14	0.10	0.13

Table 3.1 Statistical treatment of duplicate ICP and XRF results

3.4.1.2 Minor elements

A series of trace elements were also analyzed by ICP. There is no apparent pattern to variation between samples. The erratic results reflect the very low values of the elements present, near the detection limits. This also includes the components P_2O_5, TiO_2, MnO and K_2O which are normally considered major elements.

3.4.2 COMPARISON OF ICP ANALYSES TO XRF ANALYSES

XRF, as a standard method is compared with; first the ICP original sample, second the ICP duplicate sample and thirdly the average of the two ICP analyses for the same sample.

There is a consistent pattern (Appendix IV) for SiO_2, Al_2O_3 and to a lesser extent CaO when comparing results of the ICP analyses to the XRF results. The error or discrepancy is greatest between the two ICP samples; consistently lower between either the two ICP analyses when compared to the XRF result. The error or discrepancy between the average ICP result and the XRF value is least. This pattern suggest for these elements, the XRF method produces a reliable result (accurate) than ICP. Repeated ICP analyses appear to approach the XRF value. Alternatively, this implies the ICP values for SiO_2 and Al_2O_3 have greater error than results obtained using XRF.

Taking into account ICP reproducibility and the narrow range of values in this study almost all values fall with the range of error.

A second pattern (Appendix IV) occurs when comparing results of Na_2O, Fe_2O_3 and MgO analyses. The amount of error or divergence (lack of agreement between sample duplicates) is least between the ICP duplicate samples, larger between either of the ICP analyses and the XRF value. The greatest error is between the average ICP value and the XRF result. This pattern is expected for Na_2O, as it is a light element, poorly measured by XRF. However this is unexpected for both Fe_2O_3 and MgO. For this to be the case there may be a systematic error in either or both analytical methods measuring these components.

When comparing results for Fe_2O_3, there is a divergence between sample results of 0.22 wt % with a 0.05 standard deviation. Variations in the results of this size or smaller should be treated as analytical noise and cannot be used to distinguish variations in geology.

4.0 AIRPHOTO INTERPRETATION

As an aid to resolving the structural fabric and outcrop exposure pattern, an airphoto interpretation was undertaken of the claim block using three sets of airphotos

1971:	scale 1:15,840
1978:	scale 1:15,840
1992:	scale 1:20,000
1992:	scale 1: 3,900 from an enlargement

Of the available airphotos, only the 1992 set were taken following logging of the area.

The following features are recognised:

a) lineations consistent with the structural fabrics of the area (Bursnall 1991)

b) glacial erosional fabric development of rock drumlins.

c) till cover of bedrock

d) extent of present day swamps

Only the first two types of features are directly applicable to defining the possible extent of high purity anorthosite exposures. Interpretations of these two types of features are presented relative to the grid (figure 4.1). The interpretation used the approximate 1:3,900 scale of the enlarged photo and includes photographic distortion.

The interrelationships of the various fabrics is consistent with the age and offsets of the known structural events (table 2.2). The most significant fabric is a northeast to southwest swamps and bedrock ridges. This is coincident with the (D4) and/or (D7) structural fabrics and the last and most significant glacial erosion and transport direction. The northeast to southwest trends are offset by later north-south and northwest to southeast lineations (D8). There also east west lineations of an unknown origin, possibly related to carbonatite intrusion to the west.

The northeast southwest trending topographic highs are more cohesive bedrock ridges as verified by subsequent mapping. Swampy areas appear to be underlain by less cohesive, more easily eroded (glacial scoured) rocks along structural breaks. Zones of more intense faulting have more alteration and are overlain by swamps. Such rocks are considered less suitable for use in the Purchem process.

The area in the southeast of the grid area, approximately from the BL, 13+00E extending southwestward to 1+120E, 12+00S has a more uniform surface cover (thicker till) reflecting different bedrock (banded boundary zone, section 5.1.7). This area is considered to have a much lower potential for significant anorthosite exposures. The transition from the thicker, more continuous till cover to an area with higher topographic relief and prominent bedrock exposures occurs at a poorly expressed structural break.

Trending north-south through the centre of the grid (L 7+20E to L 9+80E) is an interpreted north-south structural zone. Similar zones are identified to the northeast (Riccio, 1981). The series of north-south lineations offset the prominent northeast southwest trending lineations. There may be a left lateral offset across this zone as suggested by the apparent displacement of the rolling flat till interpreted as overlying the banded boundary zone.

The styles of airphoto lineations differ across the north-south break. To the east the lineations are less frequent with indications of more till cover than to the west. The major fabrics trend 060° east of the north-south zone and 040° to 050°. west of the north-south break. This suggests a discontinuity in bedrock layering and/or structural fabrics across the interpreted structural zone.

Northwest en echelon structural breaks cross all primary layering and previously described structural fabrics. Being at right angles to the ice transport direction, these offset are less noticeable. At times they are only suspected by virtue offsets of earlier (NE-SW, N-S) fabrics.

An approximate east west set of lineations border linear depressions. At least some alteration is expected associated with these zones of preferential erosion. The relationship with the other structural patterns or glacial erosion patterns is poorly defined.

5.0 LOCATION OF GRID

A grid was established to cover the area between the regional mapping of the boundary zone in the south and east and the megacrystic gabbro mapped to the north (Percival 1981a. 1981b). This area includes MNDM sample locations described as massive anorthosite (Veldhuyzen, 1992, 1993). The grid is centred on the line separating the two claim blocks and where the claim staking team identified the previous MNDM sampling (Racciot pers. comm.).

5.1 ORIENTATION OF THE GRID

The grid lines were oriented north-south with 120 m separation. The lines obliquely cross the structural (040°) and regional strike of the primary layering (055° to 065°). The longer oblique crossing allows a greater opportunity to recognise favourable horizons (minimum 30 m in width). The 120 m line spacing was chosen based on a combination of cost and the ability to reliably locate outcrops by pace and compass. The choice of line spacing did not consider the thick new alder growth established following clear cut logging.

The grid origin is 80 m south of the western common claim post between the two claims. Line 13+20E was not extended to the south of the base line as this area was anticipated to be outside the area of favourable massive anorthosite.

6.0 GRID MAPPING

A summary of field mapping is presented on one 1:2,000 scale map sheet noting rock types, primary layering and structural overprints (figure 6.1). The data is compiled from 1:500 field mapping sheets and field notes. More favourable areas (Areas A figure 7.1; Area B figure 8.1) have data plotted at 1:500.

Large areas of the map (figure 6.1) are blank, being either swamp (most common) or till covered. In the case of the latter the areas have been logged over and replanted as part of the Ontario Ministry of Natural Resources reforestation program.

6.1 ROCK TYPES

Mapping identified the following rock types at the outcrop scale.

6.1.1 BANDED BOUNDARY ZONE ROCKS

This unit is attributed as being at the base of the Shawmere Anorthosite Complex (table 2.1). The banded boundary zone is a sequence of thin (2 mm to 3 m) interlayered bands of anorthosite to gabbro. The mineral grains comprising this unit are characteristically poorly crystalline and more altered than other rock of the anorthosite complex except those in fault zones. Primary pyroxenes are virtually absent, being replaced by hornblende which are frequently altered to biotites,(?), chlorites (?) and garnet.

A similar rock unit is identified northwest of the claims (Riccio, 1981) folded on northeast southwest axis, commonly plunging northeast. Similar structural and stratigraphic interpretations were not made on the Purchem claims due to thicker and more continuous till cover limiting exposures.

The thin anorthosite horizons have low potential as a feedstock for aluminium chemical production due to too-thin plagioclase horizons and increased alteration.

6.1.2 MASSIVE ANORTHOSITE

Massive anorthosite is an arbitrary division in the spectrum of anorthosite to gabbro. Anorthosite is defined as having less than 10% mafic minerals in massive plagioclase feldspar. The mafic minerals most frequently present are hornblendes with rare pyroxene or garnet. Pyroxenes which are present are frequently rimmed by hornblende and rarely an outer rim of garnet called coronic texture.

Mafic minerals can appear as either uniformly distributed 1 to 4 mm grains or 5 to 25 mm clots or discreet bands defining primary layering. Smaller than 1 mm mafic minerals occur as inclusions within the plagioclase crystals. Mafic banding may separate massive 25 cm to 3 m anorthosite layers.

Clinozoisite - scapolite alteration is present as straight to anastomosing 1 to 4 mm veinlets. Alteration is least on massive topographically high outcrops, most frequently adjacent to topographic depressions, interpreted as fault zones (ie. Area B, 5+49E, 1+43S). In the latter settings, alteration may comprise up to 15 to 20 % of the rock. Carbonate alteration is limited to fractures in the rock adjacent to topographic depressions (interpreted faults).

Most exposures in the northern two thirds of the grid are massive anorthosite. However only exposures containing less than 2 to 3 % (usually tr to 1%) mafic minerals were considered suitable sources for the extraction of aluminium chemicals.

6.1.3 GABBROIC ANORTHOSITE

This unit contains 10 to 20 % mafic minerals. The presence of this unit is neither a positive or negative factor on the quality of adjacent anorthosite exposures.

Mafic minerals occur mostly as hornblende, either uniformly disseminated or as distinct bands reflecting primary igneous layering. Rare coronic pyroxene may occur scattered or in concentrations reflecting primary banding. Augite containing gabbroic anorthosite crystallized from very late stage mafic fluids which moved vertically. In such cases the layering is unrelated to primary igneous layering and boundaries to mineable anorthosite bodies.

6.1.4 ANORTHOSITIC GABBRO

This unit contains 20 to 40 % mafic minerals with the balance plagioclase. It may appear as banded, with primary layering (most common) or coarse grained massive (rarer black granite texture).

6.1.5 GABBRO

This unit has more than 60 % mafic minerals. It may appear as massive or primary banded and can be in close proximity to massive anorthosite, gabbroic anorthosite and anorthosite gabbro. Banding in this unit may show early (D2) or (D3) folding, distorting the direction of primary layering on the outcrop scale.

6.1.6 OLIVINE DIABASE DYKES

Most diabase dykes trend east northeasterly (065) and are considered part of the 2.05 billion year Kapuskasing dyke swarm (West and Ernst, 1990). Mineralogically the dykes contain olivine and are moderately to strongly magnetic with little associated alteration. There are also rare north northwesterly trending dykes interpreted to be part of the 2.454 billion year old Matachewan dyke swarm (West and Ernst, 1990). The two dyke sets are similar in the field except the northwesterly trending dykes have noticeable clinozoisite - scapolite alteration adjacent to the dyke.

Dyke material incorporated within a mineable anorthosite zone is a source of internal ore dilution.

6.1.7 LAMPROPHYRE (?) DYKES,

These dykes are black, often crumbly and weather recessively, and therefore poorly exposed and under represented by mapping. Compositionally these dykes appear more altered than the olivine dykes, but contain much less carbonate than expected in true lamprophyre. The anorthosite surrounding these dykes appears more altered than anorthosite adjacent to the olivine dykes. The lamprophyre (?) dykes strike approximately east west toward the Nemogesenda Carbonatite Complex (west).

6.1.8 SILICIFIED MATERIAL

Three locations had a white aphanitic silicified material grading into massive anorthosite. This unit is found adjacent to northeasterly depressions, interpreted as fault zones where silica was apparently introduced. Comparable silicified gabbroic anorthosite to gabbro has not been recognised.

6.2 STRUCTURAL GEOLOGY

Structural fabrics (table 2.2) identified southwest of the Shawmere Anorthosite Complex are recognised on the Purchem claim group.

The gneissic layering (D1) (Bursnall, 1990) (table 2.2) is primary magmatic layering enhanced by the regional gneissic fabric. This layering defines the local trend of the suitable massive anorthosite units. Their direction however must be identified from layering in adjacent banded anorthosite to gabbro. All subsequent structural events disrupt this layering.

(D2) (Bursnall, 1990) events are tight upright isoclinal folds possibly recognized in banded boundary zone outcrops. These structures are not definitively mapped because of limited exposures.

(D3) (Bursnall, 1990) structures are small scale, tight isoclinal folds with north facing axial planes. An excellent example is in the banded gabbro exposure in Area A (7+20E, 10+00N) where massive anorthosite appears plastically deformed or intruded into the layered gabbro. This fabric distorts the strike of the primary layering.

(D4) (Bursnall, 1990), or early cataclastic decoupling of the Kapuskasing Fault system (thrusting) forms some or all the northeast trending topographic depressions crossing the Purchem claims. These faults may have focused fluids causing alteration and the development of the white siliceous material. Carbonate alteration may also be related to these structures.

The (D5) (Bursnall, 1990) structural is not definitely recognized on Purchem claims.

(D6) (Bursnall, 1990) deformation forms large scale open folds with northeast to southwest fold axes, commonly plunging northeast (Riccio, 1981). Folding may increase the surface widths of high quality anorthosite layers by forming them into antiforms or synforms.

(D7) events (Bursnall, 1990) are near vertical northeast trending reverse faults. Having developed at shallower depths, these structures may be the focus of greater carbonate alteration than the pervious, deeper and earlier structural events.

The last recognised structural event, (D8), is post-lamprophyre faulting. The faults are near vertical trending northwest with right lateral displacements.

6.3 GRID MAPPING

Mapping is limited by areas of poor bedrock exposure due to swamp, till and dense alder growth. Initial mapping identified the low potential areas for massive high purity anorthosite. They are:

1) areas underlain by the banded boundary zone, southeast of a line extending from BL, 13+00E southwest to 10+00S, 2+40E, an area with mostly continuous till cover identified by airphoto interpretation and field mapping,

2) a swampy area west of 3+60E south of the 7+00N, a major north-south and northeast southwest structural zone,

3) a swampy and hummocky area northwest of a line from 3+60 E, 7+00N trending 040° to 8+40E, 14+00N, a topographic depression and interpreted fault zone.

The area from BL, 0+00E to 2+50S extending northeast and southwest is covered by glacial till infilling behind a large bedrock knob. This is the tail of crag and tail feature. There is one limited area of interest on and to the west of 1+20S, 0+00E.

The remaining areas of the grid have sufficient outcrop, and the bedrock sufficiently massive to suggest less alteration. These areas are mapped in more detail with the most favourable zones chosen based on:

a) good quality anorthosite, trace to 1 % mafic minerals with locally up to 3 to 5 % over less than .5 m, total width at least 30 m.

b) minimal structural disruptions or offsets or at a low angle to subparallel to the primary layering, .

c) minimal carbonate or clinozoisite alteration, away from topographic depressions (interpreted fault zones).

6.4 SURFICIAL GEOLOGY

The patterns of both overburden and bedrock exposures are products of the surficial geological process superimposed on the underlying structural patterns.

The last glacial transport and erosion direction was from the northeast to southwest, nearly parallel to the major (D4) and/or (D7) structural fabrics. This allowed preferential erosion along the northeast to southwest zones of structural weakness, resulting in the large linear northeast to southwest depressions. Relatively unfaulted cohesive bedrock forms largely resistant bedrock ridges.

Behind (southwest) these ridges there are very few outcrops in the tail of the crag and tail (figure 6.2). when outcrops do appear they do so along bedrock ridges formed by northwest southeast (D8) faults.

Structural fabrics at high angles to the ice transport direction (D8) and the north-south structural zone have become largely till infilled. This makes these fabrics displacements more difficult to recognize in the field and under represented.

During ice retreat, meltwater discharge via eskers (one is 100 m west of the claim boundaries) into standing water. As the lake water levels lowered, thin till was removed from topographically higher areas and areas with steeper slopes by wave action. Eroded sand, silt and clay were deposited in the adjacent topographic lows

Areas at elevations lower (frequently fault zones)than the zone of wave washing, received the clays and silts mantling the infrequent outcrops. The impervious silts and clay prevented water drainage through the soil and lead to swamp development.

6.5 IDENTIFICATION OF POTENTIAL MINEABLE AREAS

Potential mineable areas are considered in light of the terms of reference. The limitations are in width (minimum 30 m), and suitable strike length (250 m). Shorter strike lengths have potential and noted but do not meet volume requirements as defined by the terms of reference.

7.0 AREA A

The most promising area with regards to strike length and width is subparallel and beneath the McChesney Lumber road. The area (Area A) was previously sampled by the MNDM program (blast sites,

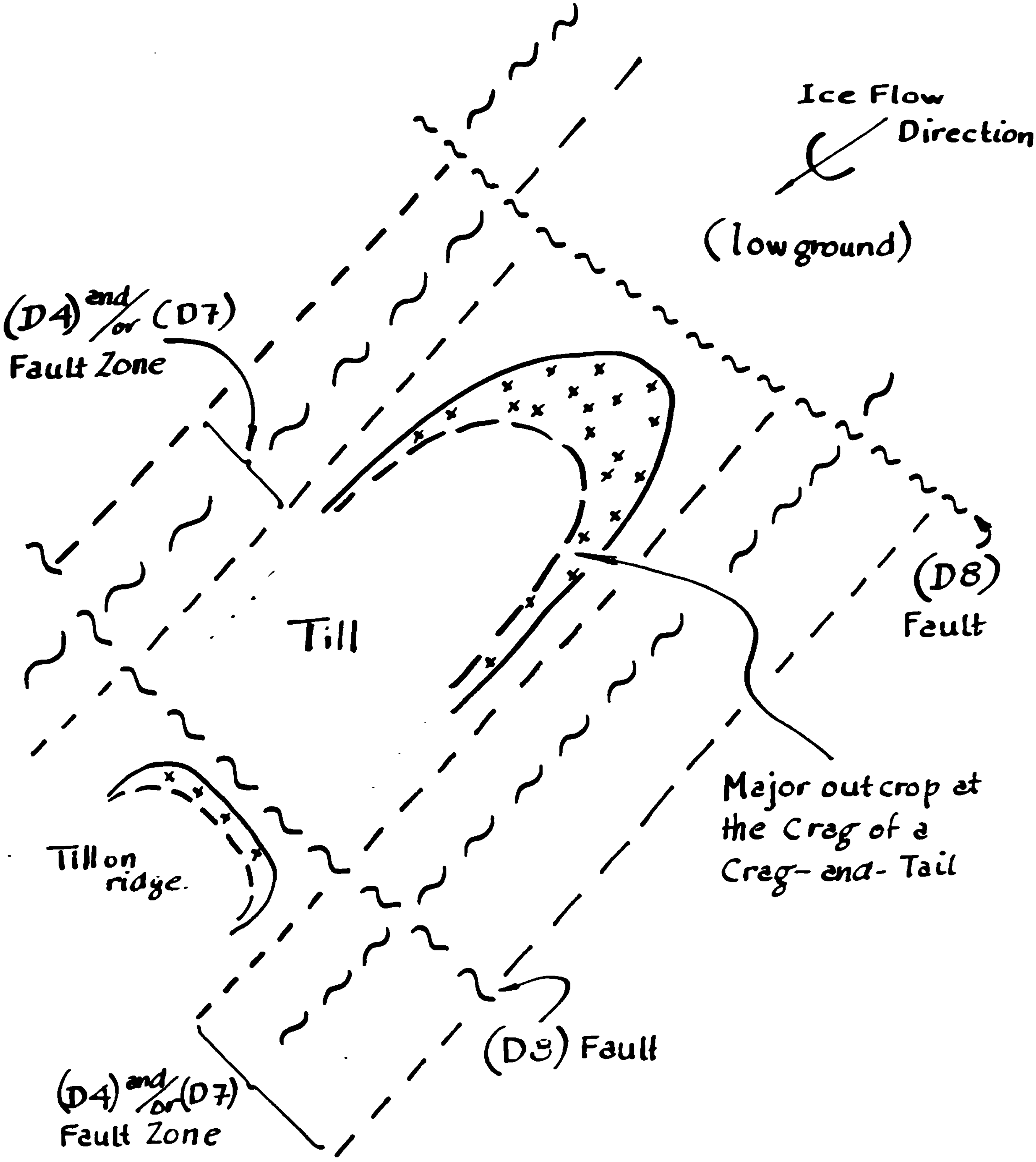


FIGURE 6·2: Schematic of outcrop pattern determined by structure, and ice transport, and erosion direction.

flagging) (Veldhuyzen, 1992, 1993). The area is on claim P 1197442 (figure 6.1) and is crossed by the McChesney Lumber road and four grid lines.

7.1 MAPPING

A good quality anorthosite band with a length of 290 m and a width of 65 m is mapped at 1:500 scale (figure 7.1). The mapping extended beyond the obvious high quality anorthosite to identify possible extensions. The detailed mapping identified locations for trenching and drilling.

Mapping (figure 7.1) identifies three lithological blocks as forming area A:

a) northeastern block, north and east of the swamp at 10+00N, 7+40E,

b) the southwest block containing the main potential ore zone, extends southwest from the swamp at 10+00N, 7+40E,

c) southeast block, south and east of 9+50N, 8+40E, is separated from the southwest and northeast blocks by a prominent northeast trending fault zone.

The extent of the possible ore zone is limited by the structural boundaries of the southwest lithological block.

7.1.1 NORTHEAST BLOCK

Northwest and southeast boundaries are interpreted as northeast southwest trending fault zones, (D4) and/or (D7). The southwest side is a northwest trending (D8) fault zone separating this block from the southwest block. The boundary is marked by a swamp and change in the strike directions of primary layering across the boundary (figure 7.1). The northern boundary is an approximate east west depression with very distinct bedrock faces trending 078°. There is a possibility, these planes may be related to the

(D5) deformation event or carbonatite intrusion to the west.

Increased alteration along the bounding structures is not as prominent in this area as elsewhere on the grid, possibly due to lack of appropriate exposures.

The predominant lithology is massive anorthosite to banded anorthosite. Intervals of anorthosite with less than 1-2% mafic minerals are narrower than 10 m. These bands are separated from similar quality anorthosite by thicker intervals of anorthosite with mafic bands or disseminated mafic minerals averaging 3 to 5%. There are subordinate amounts of banded gabbroic anorthosite to rare intervals of gabbro. There is insufficient good quality anorthosite over a mining width to the dilute high mafic anorthosite to yield a product with an average 1 - 2 % mafic content.

Multiple structural fabrics (D1), (D4), (D6), (D7?) and (D8) are recognized from bedrock exposures and airphoto interpretation. Only primary layering (D1), folding (D6) and northwest trending right lateral faults (D8) are mappable (figure 7.1). Primary layering defines a broad synform (D6) striking northeast, plunging northeast (figure 7.2). The (D8) fault is recognised by an apparent fault offset.

7.1.2 SOUTHWEST AREA, MAIN POTENTIAL ORE ZONE

Boundaries to the northwest and southeast of the southwest block are northeast southwest trending fault zones, (D4) and/or (D7). The northeast boundary is the northwest trending, (D8) fault zone (section 7.1.1) separating this block from the northeast block (figure 7.1). Till cover determines the southwest boundary or limit of bedrock exposure where the bedrock ridge grades into the tail portion of the crag and tail feature. The termination of outcrop to the southwest coincides with two airphoto lineations

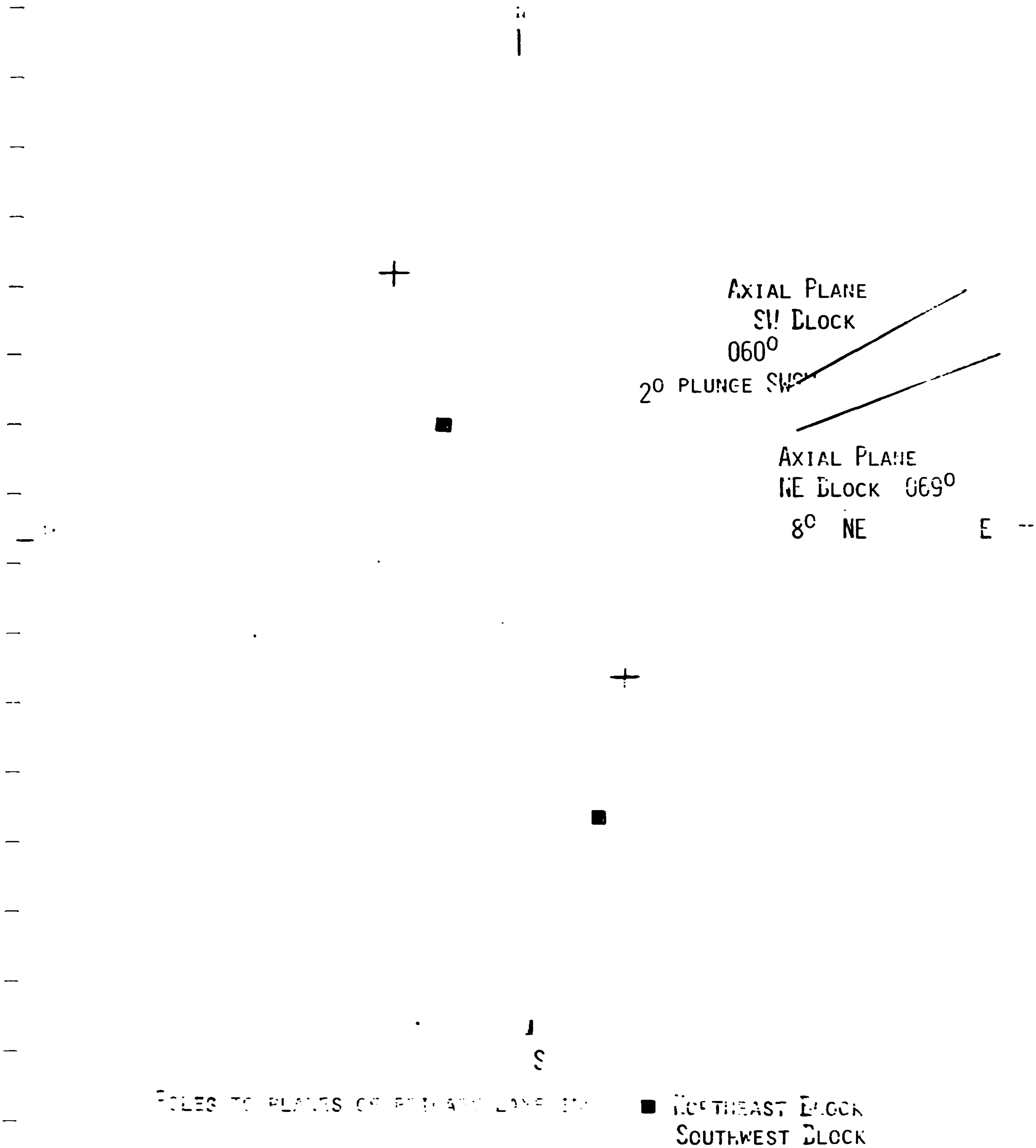


Figure 7.6 Determination of axial planes for the folds in area A two related but different folds (Equalarea net)

interpreted as northwest trending faults, (D8), parallel to the northeast boundary.

Mapping and trenching of the area identified five rock types:

a) banded gabbro along the northwestern side and crest of the outcrop ridge with strike directions changing due to (D2) and (D3),

b) granitic textured gabbro to gabbroic anorthosite occurs in a wedge between the banded gabbro to the northwest and the anorthositic gabbro and the potential anorthosite ore zone in the southeast. The unit is absent in the northeast on line 7+20E, 9+95N, increasing to 10 to 12 m wide to the southwest, near 6+00E, 8+50. The boundaries of this unit approximately conform to the banding observed in the adjacent banded gabbro.

c) the potential massive anorthosite ore zone and marginally higher mafic anorthosite occur southeast of the gabbro following the observed banded gabbro strike. The marginal higher mafic anorthosite is recognized only in the south near L6+00E. Observation from trenching indicates the anorthosite zone may be an antiform,

d) both types of dykes are mapped within the massive anorthosite zone.

e) a white silicified zone is in trench C, adjacent to a possible northeast fault. Limited geographical exposure has prevented the determination of its orientation.

Alteration is minor clinozoisite - scapolite and carbonate on fractures. The only significant additional alteration is the white silicified material in trench C.

All structural fabrics except (D5) are possibly present in this block. (D1), (D2) and (D3) are recognized only from the banded gabbro exposures. (D6) is interpreted from trench exposures.

(D4) and/or (D7) faults form the northwest and southeast boundaries of the southwest block. This fabric may have structurally repeated the potential anorthosite ore layer increasing its apparent width. Within the lithological block both dyke sets are interpreted as having been offset along a northeasterly trending plane. There appears to be minor alteration associated with this fabric.

(D6) folding forms am antiform along the ore zone increased the zone's apparent width if the one significant primary layering attitude is correct. The last structural event (D8) has systematically offset the anorthosite zone in a right lateral manner. The apparent left lateral offsets of the banded gabbro occur due to different vertical displacements of the northwest dipping gabbro contact.

7.1.3 SOUTH EAST BLOCK

This block is separated from the northeast and southwest blocks by a northeast fault zone. The massive anorthosite observed in this area is more variable than the possible ore zone anorthosite and similar to exposures in the northeast structural block. This area is sampled and described separately (section 11.1)

A 15 m wide dyke is similar in width, strike, and composition to the wide dyke in the southwest block. They cannot be one and the same dyke unless they have been displaced by the northeast trending faults separating the two lithological blocks. If so this supports the interpreted (D4) displacement of the dyke in the possible ore zone.

7.2 EXTENT OF POSSIBLE ORE ZONE

The potential ore zone is on the southwest side of the bedrock ridge forming the southwest lithological block. The length of the potential ore zone is interpreted from the 1:500 scale map (figure 7.1) as 290 m long in a northeast southwesterly direction. There is potential for a strike extension to the southwest beneath till cover and possibly displaced by (D8) fault offsets (figure 7.1). Width is determined from mapping (figure 7.1) and the measured lengths of the three trenches excavated across the complete zone except for the intervals beneath the McChesney Lumber road (figure 7.3).

Four trenches were planned, but in consultation with Mr. Peter Bevin, it was agreed only three trenches were required and trench B was cancelled.

The strike of the zone follows the primary layering (D1) in the hanging wall banded gabbro. The nature of the hanging wall or northwest boundary changes laterally. At trench A (figure 7.1), the transition from gabbro to massive anorthosite occurs abruptly across 20 to 30 cm. 10 m to the southwest, the contact of the high purity anorthosite is with speckled gabbro which in turn is conformable with banded gabbro. In trenches C and D, the potential ore anorthosite is bounded on the northwest by an impure anorthosite, which in turn is conformable with the banded gabbro.

Successively displacing the anorthosite ore zone along strike are a series of northwest trending faults (D8). One fault is observed displacing a small dyke. A second is interpreted from a very prominent topographic break in trench C and the banded gabbro contact displacement to the northwest. A third fault is interpreted from the 3 m dyke being abruptly terminated and displaced to the southeast (figure 7.1)

The lack of specific locations and amounts of each fault offsets makes the exact geometry of the west side of the potential ore zone questionable. However, the presence or absence of more or fewer northwest trending (D8) faults will not significantly affect volumes of anorthosite present, only the location of the western boundary of the zone.

The northeast boundary is in the swamp centred on 7+80E, 10+00N, where an interpreted northwest fault terminates both the zone and the southwest structural block. There is no extension to the northeast.

The southeast side of the possible ore zone is more conjectural. It appears to be in part on the south limb of a fold with an axial plane paralleling the good quality anorthosite. For the most part however, a major shear zones (D4) appears to obliquely cross cut the fold, forming the southeast boundary to the zone. However, extensive overburden makes the location of the boundary difficult.

7.3 GEOLOGICAL CHARACTER OF THE POTENTIAL ORE ZONE

The lateral continuity of the possible ore zone is interrupted by two sets of dykes (060° and 085° to 095°) and at least two fault sets. Examination of trench exposures (figure 7.3) identified the following aspects of the potential ore zone, undocumented by the 1:500 scale mapping:

a) dykes are more important than surface mapping suggests, each trench has at least one dyke and some two. More unmapped dykes are not unexpected,

b) the northeast trending shear fabric is very pervasive, forming irregular ridges subparallel to the primary bedrock layering, This may or may not have lead to structural thickening of the favourable anorthosite horizon or added alteration to the anorthosite,

c) a possible northeast southwest antiform

d) greater anorthosite alteration is greater near the faulted southeastern boundary and the large dyke than elsewhere.

The topography of the trenches (figure 7.4) is very abrupt and irregular, perpendicular to the very pervasive northeast trending (D4) and/or (D7) structural fabrics. Displacement could not be determined as they are subparallel to primary layering. Only in the case of the large dyke in the southwest of the potential ore zone, can displacements be estimated.

Two covered intervals (bedrock depressions) in trenches C and D are interpreted as easily eroded brittle fault zones. Carbonate and more clinozoisite - scapolite alteration are recognized southeast of the McChesney Lumber road in trenches C and D near the (sheared?) large dyke contact.

Anorthosite descriptions and the assay results along the trenches (figure 7.3) indicates textural, and to a lesser extent the chemical variability of the anorthosite zone. The absence or presence of megacrysts in the sample material does not appear to be a positive or negative factor. Hornblendes size may negatively affect the results when they are in effect, nuggets of iron-bearing minerals (Trench A, sample 15947) and then only in the case of hand samples.

7.3.1 TOPOGRAPHY OF TRENCH PROFILES

The elevations are presented in cross section with the drill results (figure 7.4) for each trench relative to a common datum established along the lumber road by Mr. Peter Bevin. The relative elevations may be in error by .5 m over the 290 m strike length of the zone. The largest error is suspected from tying in the trench levels to the road level.

In all trenches, the irregular topographic relief supports the interpretation of (D4) and/or (D7) and (D8) fabrics. The extreme topography may have prevented the sampling of narrow zones of alteration in the depressions. Northwest trending structures (D8) are only exposed in trench C where the southwest side of the interpreted fault is 2 m higher than the northeast side. The extent to which similar relief is present on other northwest faults is unknown.

The topographic elevations of drilling along the road (figure 7.5) lacks appropriate exposures to identify bedrock relief associated with northwest trending (D8) faults.

7.3.2 SURFACE SAMPLE ANALYSES

Bedrock samples were collected from 24 locations in the three trenches and analyzed. One sample knowingly contained an anomalously large 12 mm hornblende crystal (sample 15947).

Despite the small data base and limits of ICP reproducibility (section 3.4.1), the results are very consistent with regards to mean average and standard deviation (table 7.1). The higher variability of Al_2O_3 is due to methodology and not necessarily the original sample material.

COMPONENTS	WEIGHT PER CENT	STANDARD DEVIATION
SiO_2	49.06	0.50
Al_2O_3	30.55	0.64
CaO	15.15	0.34
Na_2O	2.46	0.13
Fe_2O_3	1.37	0.43
MgO	0.43	0.11
K_2O	0.09	0.04
LOI	0.70	0.28

Table 7.1 Statistical treatment of the grab samples collected from the area A trenches

All rock samples contain similar high Al_2O_3, low Fe_2O_3 and MgO, west and east of the McChesney Lumber road, including east of the major dyke in trench C (figure 7.3). The near constant ratio of Fe_2O_3 to MgO suggests their occurrence in a common mineral phase (hornblende).

7.4 DRILLING PROGRAM

Percussion holes were drilled on the three excavated trenches and two additional holes located between the trenches to define ore. Blocks with significant dyke material, highly sheared material or higher hornblende in the anorthosite were avoided. Results are presented as Al_2O_3 over Fe_2O_3 (figures 7.4 and 7.5), usually for 3.03 m intervals (10 feet). If visual changes in the cuttings were noted, then smaller intervals were sampled. Smaller dykes or mafic bands are not discounted because they are volumetrically very small and pinch out laterally as observed near the bulk sample location.

7.4.1 DRILL CUTTINGS ANALYSES

The drill sample results are interpreted as averages for the recorded drill hole interval. Deeper intervals have the potential for being contaminated by material from higher in the drill hole.

A statistical treatment of the analytical results (table 7.2) identifies sample intervals with statistically significant negative results, (higher Fe_2O_3, MgO, LOI, Na_2O and SiO_2 and/or lower Al_2O_3 and CaO).

Trench A drill hole results have erratic values, higher in Fe_2O_3, MgO and SiO_2 with lower Al_2O_3. These cases may represent minor zones of mafic minerals (increased Fe_2O_3, MgO) or clinozoisite-scapolite (higher SiO_2 and lower Al_2O_3 with no other significant major element changes). DH 28 has decreased Al_2O_3 for the interval 6.06 to 15.15 m, suggestive of alteration along a shear zone. Similar elevated MgO occurs in DH 30, DH 31 and DH 32 samples. In DH 32, MgO is associated with increased Na_2O LOI and decreased Al_2O_3. These chemical trends may have been superimposed on the anorthosite by the adjacent dyke, 1.2 m to the northwest.

COMPONENTS	WEIGHT PER CENT	STANDARD DEVIATION
SiO_2	48.11	0.70
Al_2O_3	30.97	. 0.55
CaO	15.52	0.37
Na_2O	2.45	0.09
Fe_2O_3	1.32	0.14
MgO	0.42	0.07
K_2O	not available	not available
LOI	0.95	0.66

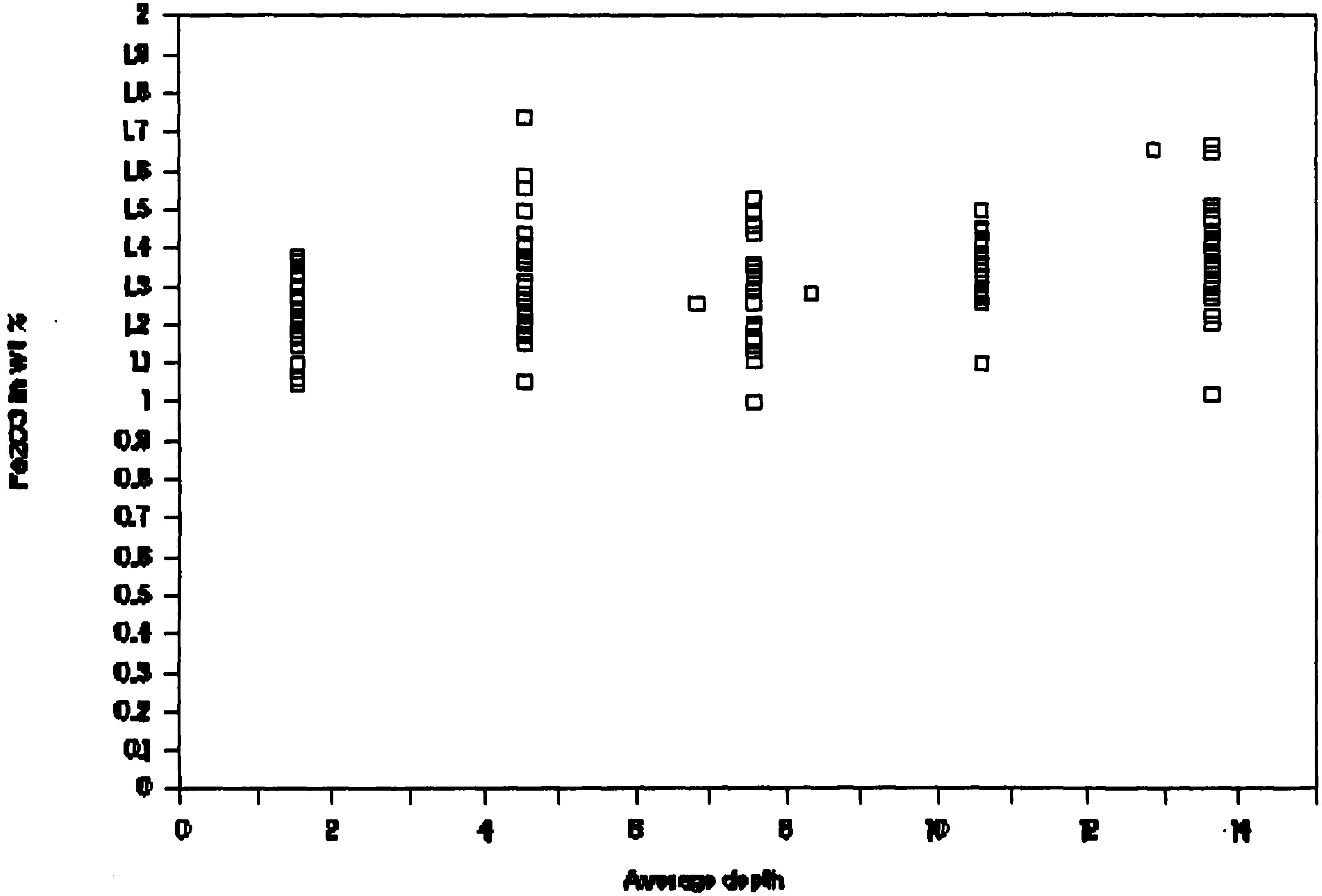
Table 7.2 Statistical treatment of the drill cutting chemical analyses from 120 samples from area A

DH 25 and the holes along trench C (DH 19, DH 20, DH 21, DH 22, DH 23, DH 24) collectively contain 3 samples which have higher than the mean Fe_2O_3 plus one standard deviation. Higher SiO_2 values may reflect lesser amounts of SiO_2 undersaturated mafic minerals.

Of the trench D drill cutting results, the bottom DH 12 sample has higher Na_2O, LOI and lower Al_2O_3, a chemical signature expected from alteration, possibly associated with the sheared material mapped 5 m to the southeast. Most results from drill holes northwest of the lumber road (DH 13, DH 14, DH 15, DH 17) have more deleterious values of Fe_2O_3, MgO and lower Al_2O_3. In DH 16, the 6.06 to 15.15 m interval has lower Al_2O_3, higher MgO and in part higher LOI. This anomalous zone is in close proximity to the interpreted northwest structural offset (D8) occupying the major topographic break obliquely crossing trench C (figure 7.3)

There is a pattern of Fe_2O_3 with drill hole depth (figure 7.6). Fe_2O_3 increases and becomes more erratic with depth. This possibly reflects drill holes being started on homogeneou, massive surfaces,

Area A drill cuttings analyses



surfaces, easily cleaned and usually devoid of smaller dykes and fractures containing alteration (recessive). With depth these rock types and settings are intersected more frequently, with the resultant chemical analyses being more variable.

7.5 BULK SAMPLE

A bulk sample was obtained from a smooth bedrock exposure adjacent to the road and a MNDM blasted sample site. One drill hole, DH 18 was collected from the site (figure 7.5) with consistently good results (Al_2O_3 of 30.92 wt % and Fe_2O_3 of 1.38 wt %).

The blast was made by drilling 16 holes in a 4 by 4 yard pattern with 6 additional tightly spaced holes to make an initial cut and direct the blast away from the road. The 2 1/2 inch drill holes were loaded with 75 % forcite leaving a 4 foot collar at the top of the hole to contain the blast.

A sample of 15 to 18 tonnes containing minimal oversize was removed and shipped to Lakefield Research for crushing and screening (Appendix V). The sample was fine crushed and screened at -4 mm with the oversize recirculated for further crushing. A second screening removed the +1 mm which was bagged as product. The -1 mm fraction was rejected. The mass balance for material produced (table 7.3) does not take into account the 10 to 15 % - 1 mm fines incorporated into the product due to moisture.

Feed material kg	product processed (kg)		fines rejected
	bag # shipped	weight of bag	
9,698.0	1	795.5	575.0
	2	925.0	(5.9 %)
	3	704.5	
	4	1090.9	
	5	840.9	
	6	1090.9	
	7	977.3	
	8	863.6	
	9	897.7	
	10	977.3	
	Total	gross 9148.0	net 9,123.0

Table 7.3 Mass balance for the bulk sample processed and shipped by Lakefield Research

8.0 AREA B

Located south of the McChesney Lumber road, at from 0+60N, 8+80E extending southwest to 2+50S, 4+80S, Area B has limited outcrop exposed discontinuously along a northeast southwest trend. There are two principle areas or blocks, one at 0+60N, 8+80E (northeast B block), the other beginning at 1+12, 6+60E (southwest B block). The two areas are separated along strike by a 240 m interval of low till covered ground.

To correlate low isolated outcrops, shorter lines were cut perpendicular to the main north-south lines and a second line cut along the projected strike from 0+81N, 8+93E where MNDM blasted a 2 tonne bulk sample (Veldhuyzen, 1993) to 1+25S 6+00E.

8.1 MAPPING

Outcrops are mostly along the northeast southwest ridge, site of the previous MNDM sampling (Veldhuyzen 1992, 1993). Other relatively isolated outcrops not part of the main northeast southwest bedrock ridge are separated from the bedrock ridge by significant covered intervals interpreted as either (D4) and/or (D7) faults.

8.1.1 NORTHEAST B BLOCK

Boundaries of the northeast B block are poorly defined. The northwest to north boundary is a low swampy area interpreted to be a northeast trending fault, (D4) and/or (D7). The western boundary is a north-south low swampy to till covered interval interpreted to result from a north-south structural zone, one of the airphoto lineations identified as trending north-south through the centre of the grid (figures 4.1 and 6.1). The eastern boundary is formed by several en echelon northwest (D8) faults. They form the northeast termination of the outcrop ridge. The southern limit is an east west depression paralleling the grid base line.

Most of the northeast B block exposures are high purity anorthosite. The north side of the exposures are banded hornblende rich anorthosite to gabbroic anorthosite striking 070°, dipping 30° south, beneath the good quality anorthosite. The south side of the good quality anorthosite has exposures of sheared high hornblende anorthosite to gabbroic anorthosite. Some material has 10 to 20 mm crystals of hornblendes. Primary layering is not observed.

A trench along the crest of the bedrock ridge was excavated but remained unmapped before being blasted and bulldozed by contractors for McChesney Lumber as part of their road improvement efforts. The uncollected data is of limited importance due to prior negative drilling and mapping results.

Elsewhere on the grid, a southeast dip is observed only in (D6) folds which can limit the volume of high quality anorthosite present. A northwest (D8) fault forms the southeast boundary of the ridge and the good quality anorthosite zone. No other structural fabrics are recognized in the northeast B block.

8.1.2 SOUTHWEST B BLOCK

The main southwest B zone appears to strike 040 , although no primary banding is recognized. Exposures are massive anorthosite apparently bounded on the northwest and southeast sides by northeasterly (D4) and/or (D7) faults. The outcrop ridge is terminated at 3+80E, 3+30S by a (D8) fault evidenced by a northwest rock face and depression. The northeastern boundary occurs where a north-south structural break obliquely truncates the 040° trending bedrock ridge. Southeast of the potential ore zone and across an interpreted northeast southwest fault zone is an area of thin till with sporadic shallow low lying outcrops.

The main bedrock ridge is massive anorthosite containing very little (< 1-2 %) disseminated hornblende and irregularly distributed clots or veinlets (4 cm width of 40 % augite up to 4 m long) of mostly augite or altered augite. Augite is not crystallised as part of the primary layering, but developed as remnant dense gabbro fluid which sank in fractures cross cutting the feldspar and crystallised (veinlet in trench F).

The up ice direction (northeast) of the southwest B block is relatively smooth, with a uniform slope (figure 6.2). Northeast southwest faulting is limited to the southeast boundary (mapped as a shear) and the topographically lower area at the northwest end of trench F (figure 8.2 and 8.3). The outcrop is sufficiently rounded and without abrupt changes in relief that very few surface samples could be obtained, unlike the trenches in area A.

The extension southwest of Line 6+00E is poorly mapped outcrops due to thin till cover deposited behind the bedrock knob, but are still in evidence at 4+00 S, 3+60 E. Whether suitable mineable anorthosite horizon extends continuously over this interval has not been determined.

Northwest faults (D8) appear to offset the bedrock ridge and the northeast southwest (D4) and/or (D7) (figure 8.1).

8.2 GEOLOGICAL EXTENT OF POTENTIAL ORE ZONE

The northeast B block and southwest B block are considered separately as potential ore zones.

8.2.1 NORTHEAST B BLOCK, POTENTIAL ORE ZONE

Approximately 50 to 60 m width of high purity anorthosite is of interest. The south dipping banded anorthosite to gabbroic anorthosite suggest a distinct depth cut off. Field observations to the southeast of the zone and the drill results confirm the southeast dip. Due to the collection of samples from the dust collector and not from the bypass box, holes were terminated above the 15.15 m depth when abundant black minerals first appeared in the cuttings. In doing so a significant amount of mafic minerals did not reach the dust collector and hence not measured by the chemical analyses.

The block is interpreted to be part of a synform and if drill results are correct, the centre of the synform passes through the drill and trench fence in an anticipated northeast southwest (D6) direction. Following the blasting and bulldozing by McChesney Lumber contractors for road relocation, very little good quality anorthosite remains.

8.2.2 SOUTHEAST B BLOCK, POTENTIAL ORE ZONE

The massive anorthosite outcrop containing potential ore is bounded by the two parallel northeast southwest structures and possible north-south fault on the northeastern side. The lack of good primary layering does not allow specific depths, dips or thicknesses to be ascribed to the zone.

Along structural strike, southwest of trench F, the overburden thickens. In this area there is evidence for interpreting a northwest (D8) fault with an unknown offset. The number and frequency of parallel faults may make the strike of the favourable zone difficult to locate. However, the continuity of the bedrock ridge and similar exposures to the southwest with favourable chemical results (figure 8.4) (between 3+60E and 4+80E) strongly suggest a continuation of the same or a similar anorthosite unit.

8.2.3 SAMPLE ANALYSES

Sample results from trenches E and F (figure 8.3) were combined with rocks collected from the projected extension of area B (figure 8.4) in a statistical analysis. The results (table 8.1) compare favourably with the results from area A trench and drill samples with regards to their mean averages and lower standard deviations of sought after parameters (high Al_2O_3, CaO; low Fe_2O_3, MgO, SiO_2, Na_2O).

The results are very favourable with low standard deviations for all components despite the small number (19) of samples. Al_2O_3 is higher and Fe_2O_3 lower than the area A samples. The same holds true for the other sought after trends (high CaO, low SiO_2, MgO and Na_2O).

COMPONENTS	WEIGHT PER CENT	STANDARD DEVIATION
SiO_2	48.92	0.48
Al_2O_3	31.19	0.46
CaO	15.23	0.36
Na_2O	2.42	0.15
Fe_2O_3	1.11	0.29
MgO	0.36	0.07
K_2O	0,07	0.02
LOI	0.53	016

Table 8.1 Statistical treatment of the grab samples collected from the area B trenches and the apparent along strike extension using 19 samples.

The trench F samples and the southwest along strike extension samples have more variable results than the trench E results. A general observation is the trench E samples have much lower Na_2O (less albite) than the trench F samples.

8.3 DRILLING PROGRAM

The visual observations of the trench E drill results are supported in part by the chemical analyses. The high quality anorthosite occurs on surface with poorer quality anorthosite intersected at shallow depths as expected from observed 30° south dipping banded anorthosite north of DH 1. However the mafic minerals encountered in DH 2 and DH 3 at the 6.06 to 9.09 m intervals and visually observable mafic minerals in the lower cuttings from DH 3 and DH 4 indicate very little depth extent to the higher quality anorthosite. The very high Fe_2O_3 at the lower two samples from DH 5 confirms these visual observations.

Drilling on the southwest B block has no similar mafic concentrations.

8.3.1 DRILL CUTTINGS ANALYSES

The drill cutting results are evaluated statistically by considering all drill results from area B to define mean average and standard deviation for the major components (table 8.2). These values are used to identify drill intervals with negative results: higher Fe_2O_3, MgO, LOI, Na_2O and SiO_2 and/or lower Al_2O_3 and CaO.

COMPONENTS	WEIGHT PER CENT	STANDARD DEVIATION
SiO_2	48.81	0.72
Al_2O_3	30.86	0.78
CaO	15.28	0.38
Na_2O	2.43	0.10
Fe_2O_3	1.10	0.35
MgO	0.47	0.45
K_2O	0.07	0.04
LOI	0.82	0.76

Table 8.2 Statistical treatment of the drill cutting chemical analyses from area B drill holes using 50 samples. Two samples with over 10 % Fe_2O_3 were excluded

Some trench E drill hole results have high and low Al_2O_3 with commensurate low and high Fe_2O_3 and MgO. Results with significantly more Fe_2O_3 and MgO more than one standard deviation above the mean average, contain significantly more mafic minerals. The mafic minerals are interpreted as occurring in banded anorthosite to gabbroic anorthosite intersected within these sample intervals.

DH 1 was stopped at 9.09 m when mafic minerals, part of the southeasterly dipping banded anorthosite exposed 12 to 15 m to the north, was encountered. DH 2 through 5 erratically encountered mafic minerals in the drilling such that all drill holes except DH

2 were terminated above 15.15 m. DH 2 and DH 3 have intervals with very high Fe_2O_3 (greater than 2 %) suggesting mafic bands may be continuous between the two drill holes. The very high (>10%) Fe_2O_3 in the lower DH 5 intervals are anorthositic gabbro to gabbro. The interpreted geometry is a synform with all drill holes except DH 4 passed through the good quality anorthosite on surface into the underlying banded, mafic anorthosite.

The lack of consistent intersections of higher Fe_2O_3 along the trench E drill holes in a well defined fold pattern may be due to the discontinuous nature of the mafic banding as seen in the shallow dipping anorthosite west of area C (7+00E, 3+30S) and the northeast block of area A.

Subsequent to drilling and before trench E could be mapped in detail, contractors from McChesney Lumber removed 3 m of the ridge crest along the trench to relocate the lumber road. Only 6 to possibly 9 m of high quality anorthosite remains above the banded anorthosite to gabbro.

Trench F drill results are much more consistent. The higher mafic minerals encountered in trench E have a minimal influence on the average values of trench E and F (table 8.2) as opposed to considering only trench F data (table 8.3). Except for Fe_2O_3 and MgO which are significantly lower, and SiO_2 which is higher, the other major elements have little difference in both their averages and standard deviation.

The Al_2O_3 for trench F drilling is very consistent with marginally lower Fe_2O_3 (0.97 verses 1.10 wt %) than for the combined trench E and F results. There are several trends which may relate to the geology and grade and not statistical anomalies.

COMPONENTS	WEIGHT PER CENT	STANDARD DEVIATION
SiO_2	49.15	0.50
Al_2O_3	30.69	0.52
CaO	15.38	0.31
Na_2O	2.45	0.10
Fe_2O_3	0.97	0.13
MgO	0.32	0.07
K_2O	0.06	0.04
LOI	0.83	0.74

Table 8.3 Statistical treatment of the drill cutting and rock chemical analyses from trench F using 37 samples.

The lower Al_2O_3 and much higher LOI from DH 7 12.12 to 15.15 m interval suggests more alteration, probably related to the nearby (7.4 m) fault zone forming the southeast boundary of the ore zone. Lower Al_2O_3 in the bottom of DH 7 may correlate with similar chemical results obtained from DH 6 (figure 8.3). Data from the other drill holes does not supports this speculation. The only systematic negative (too much SiO_2, Fe_2O_3, MgO, too little CaO, Al_2O_3) variance from the mean by one standard deviation is for high Na_2O in the lower 6.06 to 15.15 m interval of DH 11. This may be a reflection of added alteration associated with the northeast trending shear zone forming the topographic low area northwest and the boundary of the potential ore zone.

The Fe_2O_3 values are lower than in area A, but the magnesium values are nearly comparable. This suggests the accessory minerals are magnetite and hornblende for area A and less magnetite with hornblende in area B samples.

Alteration may be under represented in the drilling because the shears and fractures are near vertical and less likely to have been intersected at their wide spacing.

8.4 BULK SAMPLE

A 10 to 12 tonne bulk sample was obtained the crest of the ridge of the southwest B block away from the altered, topographically lower areas (figures 8.1 and 8.3). One drill hole (DH 6) was completed in the bulk sample location. The chemical results are slightly lower than the area A values (average Al_2O_3 30.05 wt %, Fe_2O_3 3 wt %) decreasing in quality with depth (figure 8.3)

The upper sample interval of DH 6 had both air cleaner bag and dust by-pass box sample material (figure 8.3). The air cleaner sample has higher mafic mineral components suggesting a bias to heavier iron-bearing minerals. Samples collected from the dust by-pass box are very similar for all samples above the 12.12 m depth. This suggests the sample taken was very homogeneous for the depth of sample extracted.

The bulk sample was taken by blasting a 3 by 4 m drill pattern. The holes were loaded with 75 % forcite for the lower 3 m of the holes. The upper parts were left as a collar to contain the blast. The drill holes were packed with drill cuttings to minimize contamination. The blast was completed in two steps to produce well in excess of the required 10 tonne sample.

The 10 to 12 tonne sample contained minimal oversize was shipped to Lakefield Research for crushing and screening (Appendix V). Sample crushing was by to - 4 mm with the oversize recirculated for crushing. A second screening removed the +1 mm bagging as product. Fines (-1 mm) were rejected. The mass balance for material produced (table 8.4) does not take into account the 10 to 15 % fines incorporated in the product due to moisture in the sample.

Feed material (kg)	product processed (kg)		fines rejected
	bag # shipped	weight of bag	
6643.0	1	954.5	350.0
	2	1022.7	(5.3 %)
	3	1159.0	
	4	1090.0	
	5	1063.6	
	6	1050.0	
	Total	gross 6308.0	net 6,293.0

Table 8.4 Mass balance for the bulk sample obtained from the southwest B block of area as processed and shipped by Lakefield Research

9.0 AREA C

A ridge of consistent high purity anorthosite with little if any primary banding is centred on 7+70E, 3+75S (figure 6.1). There is extensive outcrop with thin overburden and tree cover, increasing to the southwest.

9.1 MAPPING

The area was mapped from flagged lines established as 25 m intervals perpendicular to L 7+20E. The area is bounded by a bifurcation and joining of two northeast trending faults, (D4) and/or (D7), observable in part as prominent airphoto lineations (figure 4.1). The northeast termination of the area may also be the north-south structural zone identified in the middle of the grid (figures 4.1 and 6.1).

The area between the two faults is approximately 35 m wide and 120 m long with at least 15 m of relief. The anorthosite is massive, primary layering is not been observed. Very rare quartz is observed adjacent to the interpreted fault boundaries. The mechanisms responsible for the fault boundaries also formed very prominent cliffs parallel to the recognized (D4) and/or (D7) fabrics. The northwest outcrop boundary clearly dips southeasterly indicating normal faulting relative to regional compression in the Kapuskasing structure and tentatively correlated with (D7).

The convergence of the two bounding structures northeast and southwest boundaries indicates very little additional strike potential (figure 6.1).

9.2 SAMPLE ANALYSIS

The six samples analyzed from area C have higher than average Al_2O_3, comparable to results from areas A and B. 4 of the 6 samples had below average Fe_2O_3 contents while the remaining 2 had higher than average (figure 8.4). The results are very favourable and would warrant further exploration provided the limited size of the area is acceptable.

10.0 AREA D

The area identified as Area D is located at 10+60E, 9+18N to 9+55N and 12+20E, 10+40N to 11+20N. Unlike all other areas considered as favourable, anorthosite horizons, area D is not a continuous uninterrupted bedrock unit. It is also the only area considered which lies east of the major north-south structural zone extending through the middle of the grid. In this area, the primary layering (070°) is at a sufficiently high angle to faulting (040°) such that suitable widths of high purity anorthosite are segmented with relatively short strike lengths.

10.1 MAPPING

Three areas, 25 to 40 m wide, 110 to 70 m long exposures of massive low hornblende anorthosite are preliminarily mapped (figure 6.1, and sampled (figure 8.4).

One exposure is centred on 10+80, 9+25N, is an isolated dome or low ridge (1.5 m high) of anorthosite rising from the surrounding swampy ground. The good quality anorthosite is variable in composition without clear boundaries defined by primary layering. The western boundary is a topographic north-south break, part of the major north-south structural break in the centre of the grid. The quality of anorthosite is variable being massive with zones of higher (2 to 3%) hornblende as either disseminated wispy bands or as lines of coarse 12 to 24 mm clots or crystals.

Two other localities are crossed by line 12+00E. They are within an area of undulating bedrock surface covered by thin till. Separating the two areas of bedrock exposures is a northeast trending shear located at 10+35N 12+00E.

For both of the possibly acceptable anorthosite areas on L 12+00E, have north and south boundaries, poorly defined by primary banding. The eastern boundaries are interpreted as northeast trending fault zones (D4) and/or (D7). The western boundaries are part of the north-south structural zone trending through the centre of the grid.

The two L 12+00E anorthosite exposures are part of dipping anorthosite bands. Sampling was of the more massive anorthosite with an average 1 to 2 % hornblende, both disseminated and as distinct clots of up to 20 mm, locally up to 5%. These exposures are more variable than areas A, B or C. The two areas may be the same unit only folded. in a large antiform (figure 6.1).

A (D6) fold can be interpreted from primary (D1) layering with each of the two areas of interest on L 12+00E found on each of the fold limbs. This assumes the northeast trending (D4) and/or (D7) fault (figure 6.1), forming the 20 m depression between the two areas has minimal displacement. Other northeast trending structures (D4) and/or(D7) form the north and south boundaries of the combined areas containing the possibly good anorthosite. Northwest trending faults are indicated by planes in outcrops but significant offsets have not been recognized. As noted above, the north-south structure is present, forming the western boundaries of the two zones.

10.2 SAMPLE ANALYSES

Ten samples were collected from area D, eight yielded results similar to results from areas A, B and C. These may be under representing the amount of mafic minerals present. Two results yielded higher Fe_2O_3 and considered too poor relative to other larger and extensive exposures mapped. The number of samples is too few for statistical evaluation.

11.0 OTHER AREAS

An unaltered sample from any massive or near massive anorthosite exposure on the grid, can, in all likelihood yield good results. Some areas were preliminarily mapped and sampled. They received less attention due to their limited extents.

11.1 LOCATION 8+40 E, 9+75 N

This area is the southeast block of area A (figure 7.1). Outcrop exposure is limited by swampy cover and low relief. The character of the lithologies are similar to the northwest block of area A, while the structural patterns are similar to the southwest block of Area A.

The chemical results are consistent with the Area A (figure 8.4) where six samples having lower Fe_2O_3 and two samples having significantly higher Fe_2O_3. This confirms the variable amounts of disseminated and 10 mm clots of hornblende visually noted.

11.2 LOCATION 0+00, 1+30 S

No sampling and minimal mapping was completed in this area. A large exposure of white sugary anorthosite trends west southwest from 0+00E, 1+30S for 32 m. The southwest extension of the outcrop is terminated by northeast (D4) and/or (D7) fault. A similar or continuation of this exposure, possibly offset by the northeast trending fault, is immediately west of the claim group.

12.0 RECOMMENDATIONS

Results of this mapping and sampling program must be assessed relative to the products produced by the Purchem process. If the bulk sample material shipped is suitable, then continued work may focus on production preparations and/or expanding a search for better quality material than identified in this study.

The coincidence of suitable structural and stratigraphic areas within the claim group may contain large areas of possibly suitable anorthosite. The limits of areas A and B may be extended by additional trenching, and in the case of area B, geological mapping. Trenching of the known areas should focus on the role of right lateral offsets in displacing the favourable horizons.

12.1 CONTINUED EXPLORATION OF THE CLAIM GROUP

Focus on proving reserves or defining more appropriate areas to mine may be accomplished by:

a) test the lateral continuation of both area A and B (trenching south of the known exposures accounting for right lateral fault offsets). Additional trenching south and west of area B may reveal two parallel zones of interest covered by minimal overburden (tree covered) 250 m from the established logging road.

b) extend the depth of suitable anorthosite in areas A and B by deeper percussion drilling or diamond drilling. Diamond drilling is the chosen option because the added depth may preclude good sampling; ground water, cross-sample contamination. Diamond drilling would allow recognition of alteration types and primary layering, observations unavailable from percussion drilling.

c) complete additional mapping and sampling with possible trenching and percussion drilling on areas C and possibly D.

12.2 ADDITIONAL AREAS

Additional areas outside of the claim group are:

a) southwest of the cut grid 0+00E, 1+20S is a massive anorthosite ridge trending 070°, truncated by a major 040° structural zone,

b) west of the fault zone cited in a) similar lithologies may be present although continuations across the possibly regional fault is unlikely.

c) setting aud lithologies described as area D may continue to the north and east of area D, off the claim group. In exploring this area, faults at a higher angle to primary layering results in smaller lenses of suitable anorthosite, rather than more laterally continuous zones (ie. areas A, B).

d) apparently similar lithologies with similar chemical composition (Simmons et al. 1980) are reported northeast of the claim block near Lemoine Lake (Riccio 1981)

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CERTIFICATE

I, Hendrik Veldhuyzen do hearby certify that:

1) I am a consulting geologist and reside in the Borough of East York,

2) I am a graduate of Queen's University, B.Sc., Geological Sciences, subject of specialization, and McGill University, M.Sc. Geological Sciences;

3) I have practised my profession full-time since 1979;

4) I am, and have been a registered Professional geologist with the Association of Professional Engineers and Geoscientists of Newfoundland beginning 1991.

5) This report is based only on fieldwork carried out or supervised by myself during the period September 4th to October 8th, 1994

6) I have not, nor do I expect any financial interest from Purchem Limited or associated companies beyond professional and contract service fees

Respectfully submitted

H. Veldhuyzen

Hendrik Veldhuyzen, B.Sc., M.Sc.
P. Geol.

dated Nov. 29th/94

Appendix I - Raw ICP geochemical data

- Samples processed by Swastika Laboratories Ltd.

- Analyses prepared by TSL/assayers

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Date : NOV-01-1994

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

W-2592-R01

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
751	48.73	30.84	1.12	14.98	0.35	2.69	0.06	0.03	0.01	0.10	50	230	< 10	< 2	1	< 30	< 1	< 5	290	< 5	15	< 5	< 5	0.80	99.72
752	49.11	31.59	1.10	15.45	0.37	2.58	0.02	0.04	0.01	0.12	30	220	< 10	< 2	1	< 30	< 1	< 5	250	5	15	< 5	< 5	0.55	100.94
753	47.29	30.41	1.20	15.09	0.36	2.41	0.06	0.08	0.01	0.10	40	210	< 10	2	3	< 30	< 1	20	200	< 5	30	< 5	20	0.96	97.96
754	47.59	30.16	1.42	15.28	0.42	2.49	0.08	0.10	0.02	0.10	40	210	< 10	< 2	3	< 30	< 1	5	200	< 5	25	< 5	10	1.16	98.80
755	47.66	31.26	1.33	15.03	0.41	2.54	0.06	0.08	0.01	0.10	40	220	< 10	< 2	2	< 30	< 1	< 5	205	< 5	15	< 5	5	2.42	100.91
756	47.38	30.64	1.25	14.97	0.42	2.62	0.08	0.07	0.01	0.12	50	210	< 10	< 2	2	< 30	< 1	25	180	< 5	35	< 5	5	1.26	98.81
757	46.78	30.43	1.62	14.66	0.53	2.51	0.10	0.09	0.02	0.10	50	210	< 10	< 2	3	< 30	< 1	20	285	5	15	< 5	10	1.19	98.02
758	48.11	31.05	1.37	15.52	0.44	2.40	0.06	0.07	0.02	0.08	30	190	< 10	< 2	1	< 30	< 1	< 5	180	< 5	20	< 5	< 5	0.30	99.42
759	48.44	30.88	1.31	15.55	0.37	2.40	0.04	0.08	0.01	0.10	20	190	< 10	< 2	2	< 30	< 1	10	170	< 5	25	< 5	< 5	0.49	99.67
760	47.48	30.51	1.17	14.80	0.31	2.39	0.06	0.08	0.01	0.10	30	200	< 10	< 2	1	< 30	< 1	< 5	330	< 5	15	< 5	< 5	0.83	97.73
761	48.46	30.10	1.43	14.62	0.24	2.53	0.08	0.07	0.02	0.10	60	210	10	< 2	2	< 30	< 1	10	230	< 5	30	< 5	10	1.58	99.21
762	48.25	30.41	1.01	15.31	0.26	2.53	0.08	0.06	0.01	0.12	40	210	< 10	< 2	< 1	< 30	< 1	< 5	200	< 5	10	< 5	5	1.08	99.10
763	48.71	31.45	1.22	15.46	0.38	2.45	0.04	0.07	0.01	0.10	20	210	< 10	< 2	2	< 30	< 1	10	310	< 5	20	< 5	< 5	0.80	100.65
764	47.59	30.45	1.48	15.48	0.49	2.47	<0.02	0.09	0.02	0.10	30	220	< 10	< 2	3	< 30	< 1	< 5	365	< 5	25	< 5	5	0.67	98.83
765	46.57	30.36	1.23	15.21	0.36	2.35	0.06	0.06	0.01	0.10	20	190	< 10	< 2	2	< 30	< 1	10	230	< 5	30	< 5	< 5	1.45	97.77
766	46.83	30.00	1.38	15.14	0.43	2.36	0.04	0.06	0.02	0.12	20	190	< 10	< 2	2	< 30	< 1	5	260	< 5	20	< 5	< 5	1.47	97.84
767	46.95	29.50	1.47	15.27	0.47	2.39	0.06	0.09	0.01	0.12	30	200	< 10	< 2	2	< 30	< 1	20	185	20	25	< 5	10	1.20	97.52
768	48.32	30.61	1.21	15.60	0.39	2.43	0.04	0.08	0.01	0.10	20	200	< 10	< 2	2	< 30	< 1	< 5	85	< 5	15	< 5	< 5	0.46	99.26
769	47.75	30.10	1.53	15.48	0.47	2.35	0.04	0.07	0.03	0.12	20	190	< 10	< 2	2	< 30	< 1	10	270	15	20	< 5	15	0.30	98.24
770	47.65	31.05	1.52	15.54	0.58	2.39	0.02	0.08	0.01	0.12	30	200	< 10	< 2	2	< 30	< 1	10	435	< 5	25	< 5	5	0.39	99.36
771	48.75	31.22	1.42	15.58	0.52	2.54	0.10	0.07	0.02	0.10	20	210	< 10	< 2	3	< 30	1	< 5	55	< 5	25	< 5	10	0.67	100.98
773	48.63	31.40	1.06	15.46	0.32	2.53	0.04	0.06	0.01	0.10	20	200	< 10	< 2	1	< 30	< 1	< 5	200	< 5	15	< 5	10	0.55	100.14
774	49.09	30.90	1.39	15.58	0.42	2.48	0.08	0.07	0.02	0.10	20	200	< 10	< 2	2	< 30	< 1	< 5	235	< 5	15	< 5	< 5	0.54	100.64
775	48.70	31.03	1.35	15.99	0.44	2.51	0.06	0.07	0.02	0.12	30	210	10	< 2	2	< 30	< 1	< 5	35	15	25	< 5	10	0.70	100.97
776	48.58	31.14	1.29	15.77	0.42	2.39	0.04	0.07	0.01	0.10	20	200	10	< 2	2	< 30	< 1	20	290	< 5	25	< 5	5	0.73	100.56
777	48.88	30.44	1.49	15.91	0.57	2.37	0.06	0.08	0.02	0.10	30	200	< 10	< 2	2	< 30	< 1	< 5	340	15	25	< 5	5	0.78	100.69
778	47.90	30.41	1.19	15.46	0.42	2.39	0.04	0.06	0.01	0.12	10	200	< 10	< 2	2	< 30	< 1	5	115	5	10	< 5	10	0.77	98.75
779	48.67	31.02	1.21	15.70	0.35	2.40	0.02	0.05	0.01	0.08	20	200	< 10	< 2	2	< 30	< 1	15	400	5	20	< 5	5	0.79	100.30
780	48.79	30.45	1.36	15.72	0.53	2.41	<0.02	0.06	0.01	0.10	30	200	< 10	2	2	< 30	< 1	25	780	< 5	25	< 5	5	1.00	100.45
781	49.23	30.26	1.10	15.26	0.34	2.57	0.06	0.06	0.01	0.10	30	220	10	< 2	1	< 30	< 1	< 5	160	< 5	20	< 5	5	1.27	100.27
782	46.70	30.10	1.20	15.30	0.35	2.79	0.32	0.08	0.02	0.10	40	220	10	< 2	3	< 30	1	25	470	25	50	< 5	15	3.06	100.01
783	48.70	30.50	1.17	15.78	0.43	2.46	0.04	0.06	0.01	0.10	20	200	< 10	< 2	1	< 30	< 1	5	315	< 5	25	< 5	30	0.56	99.80
784	48.63	31.06	1.37	15.89	0.44	2.41	0.04	0.08	0.02	0.10	20	200	< 10	< 2	2	< 30	< 1	5	285	20	30	< 5	10	0.65	100.67
785	49.15	30.07	1.33	16.05	0.39	2.38	0.04	0.06	0.01	0.10	40	200	10	< 2	< 1	< 30	< 1	15	365	30	45	< 5	.10	0.84	100.43
786	48.18	30.82	1.36	15.73	0.40	2.38	0.04	0.07	0.02	0.10	10	200	< 10	< 2	2	< 30	1	30	635	< 5	40	< 5	10	0.86	99.95

SIGNED : [signature]

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T. ISL. RS 'OI Fi

1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA,ONTARIO L4W-1A4
PHONE #: (905)602-8236 FAX #: (905)206-0513

H.V. GEOLOGICAL SERVICES

ATTN: H. VELDHUYZEN

REPORT No. : **M4087**
Page No. : 2 of 2
File No. : M4087
Date : NOV-01-1994

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

4W-2592-RG1

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
5787	48.52	31.05	1.23	15.77	0.35	2.44	<0.02	0.06	0.02	0.10	10	200	< 10	< 2	1	< 30	< 1	< 5	290	< 5	15	< 5	5	1.05	100.59
5788	49.11	30.91	1.30	15.75	0.42	2.53	0.04	0.06	0.01	0.10	20	210	< 10	< 2	1	< 30	< 1	< 5	285	< 5	30	< 5	5	0.36	100.58
5789	48.75	30.27	1.21	15.42	0.36	2.46	0.04	0.06	0.01	0.08	10	210	< 10	< 2	2	< 30	1	< 5	275	< 5	20	< 5	< 5	0.40	99.06
5790	49.35	30.89	1.20	16.08	0.35	2.48	0.02	0.05	0.01	0.12	20	210	< 10	< 2	1	< 30	< 1	15	395	< 5	25	< 5	< 5	0.37	100.93
5791	47.60	31.20	1.44	14.46	0.44	2.42	0.20	0.07	0.03	0.10	40	200	10	2	2	< 30	< 1	20	355	10	20	< 5	10	1.18	99.12
5792	48.66	31.61	1.45	15.03	0.42	2.45	0.08	0.08	0.02	0.10	30	200	< 10	< 2	2	< 30	< 1	15	330	30	20	< 5	10	0.55	100.45
5793	49.33	31.79	1.05	14.67	0.34	2.47	0.06	0.06	0.01	0.14	30	200	< 10	< 2	2	< 30	< 1	5	335	20	15	< 5	5	0.57	100.47
5794	48.53	30.85	1.28	14.60	0.37	2.55	0.10	0.07	0.02	0.08	30	190	< 10	2	2	< 30	< 1	5	310	15	25	< 5	< 5	2.47	100.93
5795	47.93	31.23	1.14	14.37	0.34	2.55	0.10	0.06	0.01	0.10	30	200	< 10	2	< 1	< 30	< 1	10	305	< 5	15	< 5	< 5	2.89	100.72
5796	49.12	31.10	1.33	15.13	0.44	2.45	0.10	0.07	0.02	0.10	20	190	< 10	< 2	2	< 30	< 1	10	310	< 5	20	< 5	< 5	0.75	100.58
5797	48.20	31.20	1.41	15.07	0.47	2.48	0.10	0.07	0.02	0.12	50	210	10	< 2	2	< 30	< 1	20	335	10	40	< 5	10	0.66	99.80
5798	49.17	31.02	1.16	14.92	0.35	2.50	0.08	0.07	0.01	0.12	30	200	10	< 2	1	< 30	< 1	10	250	10	20	< 5	5	0.33	99.74
5799	49.25	30.99	1.17	15.28	0.35	2.52	0.04	0.07	0.02	0.10	30	210	< 10	< 2	2	< 30	< 1	15	380	10	25	< 5	< 5	0.36	100.13
5800	48.68	31.03	1.16	15.22	0.34	2.38	0.10	0.07	0.01	0.10	40	190	< 10	< 2	1	< 30	< 1	15	270	< 5	15	< 5	< 5	1.08	100.18
5801	47.70	29.93	1.26	14.72	0.41	2.30	0.08	0.09	0.02	0.10	40	200	10	2	2	< 30	< 1	20	45	5	20	< 5	< 5	1.44	98.03
5802	48.84	30.44	1.49	15.26	0.42	2.37	0.06	0.09	0.02	0.08	40	200	10	2	2	< 30	< 1	25	420	25	20	< 5	< 5	0.68	99.74
5803	48.91	30.38	1.35	14.94	0.36	2.45	0.10	0.07	0.02	0.08	30	190	< 10	< 2	2	< 30	< 1	15	295	< 5	25	< 5	< 5	0.36	99.02
5804	48.15	30.67	1.24	14.70	0.38	2.45	0.04	0.07	0.02	0.10	20	200	< 10	< 2	2	< 30	< 1	< 5	310	< 5	15	< 5	5	0.42	98.22
5805	48.65	29.92	1.47	15.20	0.41	2.46	0.06	0.07	0.02	0.10	30	200	< 10	< 2	< 1	< 30	< 1	10	555	5	30	< 5	< 5	0.32	98.68
5806	47.88	30.58	1.36	15.13	0.42	2.38	0.06	0.08	0.02	0.10	30	190	< 10	2	2	< 30	< 1	15	350	< 5	20	< 5	< 5	0.90	98.91
5807	48.56	30.88	1.34	15.37	0.41	2.38	0.06	0.08	0.01	0.10	20	190	< 10	< 2	2	< 30	< 1	15	340	< 5	25	< 5	< 5	0.62	99.80
5808	47.32	31.22	1.08	15.34	0.35	2.38	0.06	0.04	0.02	0.08	30	200	< 10	< 2	< 1	< 30	< 1	25	465	10	20	< 5	< 5	0.34	98.22
5809	49.69	31.24	1.16	15.36	0.36	2.46	0.08	0.06	0.01	0.08	30	200	< 10	2	2	< 30	< 1	10	470	20	15	< 5	< 5	0.45	100.95
5810	48.27	30.51	1.18	14.79	0.34	2.49	0.08	0.06	0.01	0.08	40	200	< 10	< 2	1	< 30	< 1	10	360	< 5	20	< 5	< 5	0.47	98.29

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1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA,ONTARIO L4W-1A4
PHONE #: (905)602-8236 FAX #: (905)206-0513

H.V. GEOLOGICAL SERVICES
ATTN: H. VELDHUYZEN

REPORT No. : M4083
Page No. : 1 of 2
File No. : M4083
Date : OCT-28-1994

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

4W-2593-RG1

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
5811	48.54	31.35	1.26	15.54	0.38	2.46	0.08	0.06	0.01	0.12	30	190	< 10	< 2	2	< 30	< 1	10	490	< 5	20	< 5	< 5	0.79	100.59
5812	47.43	30.64	1.19	15.67	0.34	2.43	0.04	0.06	0.01	0.10	20	190	< 10	< 2	1	< 30	< 1	< 5	400	< 5	25	< 5	< 5	1.03	98.93
5813	47.29	30.63	1.15	15.74	0.48	2.28	0.06	0.06	0.02	0.10	20	190	< 10	< 2	2	< 30	< 1	15	205	15	25	< 5	< 5	0.72	98.51
5814	47.22	31.20	1.18	15.43	0.32	2.37	0.04	0.04	0.01	0.10	40	180	< 10	< 2	2	< 30	< 1	10	335	< 5	15	< 5	< 5	0.49	98.40
5815	47.65	30.91	1.09	15.27	0.32	2.36	0.04	0.04	0.01	0.10	30	180	< 10	< 2	2	< 30	< 1	15	575	5	25	< 5	10	0.57	98.38
5816	47.35	30.31	1.26	15.65	0.34	2.32	0.06	0.05	0.01	0.10	30	180	< 10	< 2	2	< 30	< 1	10	390	< 5	20	< 5	< 5	1.16	98.61
5817	47.38	31.31	1.27	15.17	0.36	2.56	0.04	0.06	0.02	0.12	30	210	< 10	< 2	3	< 30	< 1	< 5	630	10	20	< 5	< 5	0.85	99.13
5818	47.37	31.38	1.34	15.30	0.45	2.43	0.10	0.08	0.02	0.10	30	190	< 10	< 2	3	< 30	< 1	20	180	< 5	20	< 5	10	0.51	99.08
5819	47.41	30.87	1.35	15.50	0.44	2.39	0.06	0.08	0.02	0.12	30	190	< 10	< 2	2	< 30	< 1	20	250	< 5	20	< 5	< 5	0.46	98.70
5820	47.59	31.60	1.26	15.99	0.47	2.58	0.12	0.08	0.02	0.10	40	210	< 10	< 2	2	< 30	< 1	< 5	135	< 5	20	< 5	5	0.58	100.39
5821	47.30	31.58	1.35	15.47	0.43	2.40	0.04	0.07	0.02	0.10	30	200	< 10	< 2	3	< 30	< 1	< 5	390	< 5	30	< 5	< 5	1.22	99.97
5822	47.29	31.60	1.27	15.82	0.42	2.46	0.06	0.09	0.02	0.10	30	210	< 10	< 2	3	< 30	< 1	< 5	280	< 5	20	< 5	< 5	1.15	100.29
5823	47.20	32.10	1.22	16.49	0.49	2.50	0.08	0.06	0.02	0.10	30	210	< 10	< 2	2	< 30	< 1	15	120	< 5	25	< 5	5	0.49	100.73
5824	47.20	31.18	1.27	15.64	0.45	2.49	0.08	0.08	0.02	0.10	30	200	< 10	< 2	2	< 30	< 1	5	150	5	15	< 5	< 5	0.87	99.35
5825	47.58	31.73	1.32	16.22	0.43	2.46	0.06	0.08	0.02	0.10	30	210	< 10	< 2	1	< 30	< 1	10	335	< 5	20	< 5	< 5	0.83	100.83
5826	47.34	31.18	1.35	15.99	0.50	2.47	0.04	0.08	0.01	0.10	20	210	< 10	< 2	2	< 30	< 1	10	345	< 5	30	< 5	< 5	0.83	99.87
5827	47.17	32.14	1.40	15.94	0.50	2.57	0.06	0.08	0.02	0.10	20	220	< 10	< 2	2	< 30	< 1	10	365	5	20	< 5	< 5	0.70	100.69
5828	47.44	31.70	1.28	16.24	0.46	2.53	0.06	0.08	0.02	0.10	30	210	< 10	< 2	2	< 30	< 1	< 5	215	< 5	15	< 5	< 5	0.39	100.32
5829	47.56	31.95	1.24	16.21	0.47	2.47	0.08	0.09	0.01	0.10	30	210	< 10	< 2	3	< 30	< 1	15	140	< 5	20	< 5	< 5	0.50	100.67
5830	47.48	31.65	1.53	15.72	0.51	2.45	0.08	0.09	0.02	0.12	40	190	< 10	< 2	2	< 30	1	10	305	5	25	< 5	< 5	0.45	100.10
5831	47.32	31.36	1.42	16.11	0.52	2.51	0.08	0.08	0.02	0.10	30	200	< 10	< 2	2	< 30	< 1	< 5	195	< 5	20	< 5	< 5	0.44	99.94
5832	46.45	31.74	1.41	15.87	0.52	2.55	0.06	0.07	0.02	0.10	30	220	< 10	< 2	3	< 30	< 1	20	270	< 5	25	< 5	10	0.74	99.52
5833	46.20	31.45	1.22	15.71	0.44	2.48	0.06	0.08	0.02	0.10	30	200	< 10	< 2	2	< 30	< 1	15	265	5	15	< 5	< 5	1.17	98.93
5834	46.20	29.25	1.70	15.41	0.58	2.58	0.20	0.15	0.03	0.12	60	220	< 10	< 2	2	< 30	1	25	230	5	20	< 5	5	1.77	97.96
5835	46.70	29.53	1.44	15.43	0.60	2.54	0.36	0.10	0.03	0.10	30	220	< 10	< 2	2	< 30	1	20	230	10	25	< 5	10	3.22	100.06
5836	46.68	29.50	1.34	15.02	0.66	2.98	0.32	0.25	0.02	0.14	20	230	< 10	< 2	2	< 30	1	< 5	170	15	25	< 5	5	3.94	100.86
5837	46.35	29.89	1.36	15.18	0.50	2.64	0.18	0.11	0.02	0.12	30	240	< 10	< 2	2	< 30	1	10	220	15	25	< 5	5	2.30	98.65
5838	47.25	31.95	1.15	16.14	0.45	2.51	0.06	0.04	0.01	0.12	30	220	< 10	< 2	2	< 30	< 1	15	290	10	20	< 5	< 5	0.55	100.22
5839	46.76	32.41	1.06	15.91	0.45	2.53	0.06	0.06	0.01	0.10	40	210	< 10	< 2	2	< 30	< 1	< 5	145	10	15	< 5	5	1.35	100.69
5840	49.54	31.04	1.01	15.10	0.43	2.54	0.06	0.04	0.02	0.10	50	220	< 10	< 2	1	< 30	< 1	20	195	10	35	< 5	15	0.83	100.72
5841	47.79	30.42	1.36	15.20	0.43	2.44	0.06	0.07	0.02	0.10	20	200	< 10	< 2	2	< 30	< 1	20	180	< 5	15	< 5	< 5	1.38	99.25
5842	47.50	31.41	1.32	15.47	0.36	2.57	0.12	0.08	0.01	0.10	20	200	< 10	< 2	2	< 30	< 1	20	290	< 5	15	< 5	< 5	1.76	100.70
5843	47.16	30.96	1.19	15.20	0.37	2.40	<0.02	0.06	0.01	0.10	60	200	< 10	< 2	2	< 30	< 1	< 5	230	5	15	< 5	5	0.53	98.00
5844	47.50	31.07	1.27	15.95	0.42	2.42	0.06	0.08	0.01	0.12	20	220	< 10	< 2	1	< 30	< 1	< 5	145	5	25	< 5	15	0.95	100.74
5845	47.96	30.57	1.25	15.59	0.37	2.37	<0.02	0.08	0.01	0.10	20	200	< 10	< 2	2	< 30	< 1	< 5	220	< 5	20	< 5	10	1.13	99.44

SIGNED : [signature]

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1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA,ONTARIO L4W-1A4
PHONE #: (905)602-8236 FAX #: (905)206-0513

H.V. GEOLOGICAL SERVICES
ATTN: H. VELDHUYZEN

REPORT No. : M4083

File No. : M4083
Date : OCT-28-1994

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

4W-2593-RG1

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
846	47.86	29.46	1.25	15.34	0.36	2.24	0.04	0.07	0.01	0.10	30	190	< 10	< 2	2	< 30	< 1	10	230	< 5	15	< 5	5	0.85	97.58
847	47.53	30.47	1.35	15.43	0.43	2.28	0.06	0.08	0.02	0.10	20	190	< 10	< 2	2	< 30	< 1	15	220	10	35	< 5	10	0.54	98.29
848	48.80	30.15	1.35	15.51	0.45	2.36	0.02	0.08	0.01	0.10	20	200	< 10	< 2	1	< 30	< 1	5	240	10	15	< 5	10	1.05	99.88
849	48.79	30.57	1.30	15.52	0.43	2.45	0.06	0.06	0.01	0.10	30	220	< 10	< 2	2	< 30	< 1	15	220	< 5	25	< 5	10	0.91	100.19
850	48.68	30.87	1.42	15.70	0.39	2.34	0.04	0.07	0.02	0.10	10	200	< 10	< 2	1	< 30	< 1	10	255	< 5	20	< 5	5	1.26	100.87
851	47.83	31.09	1.49	15.83	0.39	2.33	0.04	0.09	0.02	0.12	20	210	< 10	< 2	2	< 30	< 1	< 5	290	10	25	< 5	5	0.62	99.83
852	47.77	30.44	1.48	15.72	0.42	2.32	0.08	0.09	0.02	0.10	30	190	< 10	< 2	2	< 30	< 1	< 5	290	< 5	20	< 5	10	0.45	98.88
853	47.33	30.01	1.63	15.38	0.41	2.27	0.04	0.09	0.02	0.10	30	190	< 10	< 2	2	< 30	< 1	< 5	260	< 5	25	< 5	10	0.42	97.69
854	48.66	30.29	1.37	15.76	0.40	2.38	0.04	0.08	0.01	0.10	30	200	< 10	< 2	2	< 30	< 1	5	245	5	30	< 5	10	0.52	99.60
855	47.24	30.17	1.38	15.35	0.40	2.42	0.04	0.07	0.01	0.10	20	210	< 10	< 2	2	< 30	< 1	< 5	320	< 5	25	< 5	5	0.80	97.98
856	48.53	29.69	1.29	15.52	0.37	2.42	0.04	0.06	0.01	0.10	30	210	< 10	< 2	1	< 30	< 1	5	330	5	20	< 5	< 5	2.18	100.22
857	48.81	30.59	1.38	15.79	0.36	2.45	0.04	0.06	0.01	0.10	30	210	< 10	< 2	2	< 30	< 1	5	340	< 5	25	< 5	< 5	1.04	100.63
858	47.24	29.50	1.62	15.76	0.54	2.34	0.04	0.10	0.02	0.12	30	230	< 10	< 2	2	< 30	< 1	10	335	5	25	< 5	10	1.12	98.41
859	47.99	30.01	1.32	15.88	0.36	2.39	0.04	0.06	0.01	0.10	30	210	< 10	< 2	1	< 30	< 1	< 5	220	5	25	< 5	5	1.03	99.19
860	47.88	30.97	1.59	15.57	0.42	2.50	0.10	0.07	0.03	0.10	30	210	< 10	< 2	2	< 30	< 1	15	330	5	20	< 5	10	0.97	100.20
861	48.60	31.34	1.37	15.76	0.42	2.44	0.04	0.08	0.02	0.10	30	210	< 10	< 2	2	< 30	< 1	< 5	410	10	25	< 5	10	0.63	100.79
862	47.56	31.70	1.30	15.47	0.36	2.39	0.04	0.07	0.01	0.10	30	210	< 10	< 2	2	< 30	< 1	10	380	5	25	< 5	10	0.59	99.57
863	48.72	31.43	1.44	15.33	0.45	2.49	0.08	0.08	0.01	0.10	40	210	< 10	< 2	2	< 30	< 1	< 5	300	< 5	20	< 5	5	0.80	100.92
864	48.48	31.46	1.32	15.60	0.41	2.45	0.06	0.07	0.01	0.10	20	200	< 10	< 2	1	< 30	< 1	< 5	395	5	20	< 5	10	0.67	100.64
865	47.09	31.53	1.42	15.30	0.39	2.29	0.02	0.08	0.02	0.12	20	200	< 10	< 2	2	< 30	< 1	< 5	340	< 5	35	< 5	5	0.56	98.81
866	47.04	31.05	1.28	15.23	0.39	2.29	0.04	0.07	0.01	0.10	20	200	< 10	< 2	1	< 30	< 1	5	205	< 5	15	< 5	< 5	0.85	98.35
867	46.20	31.02	1.46	14.88	0.39	2.30	0.06	0.08	0.02	0.10	30	290	< 10	< 2	2	< 30	< 1	5	260	< 5	20	< 5	5	3.41	99.92
868	48.40	31.53	1.18	15.74	0.34	2.38	0.06	0.08	0.01	0.10	20	190	< 10	< 2	1	< 30	< 1	10	225	< 5	35	< 5	< 5	0.70	100.50
869	48.56	30.94	1.37	15.68	0.46	2.43	0.06	0.08	0.02	0.10	20	200	< 10	< 2	2	< 30	< 1	15	250	< 5	25	< 5	5	0.78	100.46
870	48.23	30.96	1.30	15.37	0.34	2.48	0.08	0.07	0.01	0.10	40	190	< 10	< 2	2	< 30	< 1	10	250	5	25	< 5	5	1.71	100.64
871	48.29	31.64	1.40	15.31	0.40	2.37	0.06	0.07	0.01	0.10	40	190	< 10	< 2	2	< 30	< 1	5	330	< 5	25	< 5	5	0.77	100.43
872	47.93	31.51	1.19	15.74	0.35	2.44	0.06	0.07	0.01	0.12	20	190	< 10	< 2	2	< 30	< 1	10	240	< 5	20	< 5	5	1.08	100.49
873	48.10	31.65	1.20	15.75	0.36	2.40	0.06	0.07	0.02	0.12	20	190	< 10	< 2	1	< 30	< 1	10	240	< 5	20	< 5	5	0.61	100.33

SIGNED :

1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA, ONTARIO L4W-1A4
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.V. GEOLOGICAL SERVICES
TTN: H. VELDHUYZEN

W-2594-RG1

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

REPORT No. : M4089

File No. : M4089
Date : NOV-01-1994

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
884	49.99	30.25	1.30	15.14	0.45	2.34	0.08	0.05	0.02	0.10	30	220	< 10	< 2	2	< 30	< 1	20	405	< 5	20	< 5	< 5	0.66	100.38
885	47.59	30.07	1.11	14.81	0.43	2.47	0.08	0.07	0.02	0.10	40	200	< 10	2	3	< 30	< 1	20	330	< 5	25	< 5	< 5	0.87	97.61
886	49.65	30.34	1.22	15.39	0.51	2.46	0.08	0.12	0.02	0.10	40	210	< 10	< 2	1	< 30	< 1	5	245	< 5	20	< 5	< 5	0.91	100.81
887	49.30	29.59	1.44	15.31	0.53	2.52	0.14	0.10	0.02	0.10	40	220	10	< 2	3	< 30	< 1	< 5	240	< 5	20	< 5	< 5	0.78	99.84
888	49.38	29.65	1.33	14.34	0.44	2.55	0.12	0.10	0.02	0.12	50	220	10	< 2	2	< 30	< 1	< 5	185	< 5	20	< 5	< 5	0.59	98.64
889	49.72	30.11	1.49	15.31	0.53	2.47	0.08	0.09	0.02	0.12	40	220	10	2	2	< 30	< 1	20	210	< 5	10	< 5	10	0.67	100.61
890	49.18	30.97	1.42	15.52	0.55	2.46	0.08	0.08	0.02	0.10	30	210	10	< 2	2	< 30	< 1	15	365	< 5	30	< 5	< 5	0.33	100.70
891	48.96	30.14	1.18	15.83	0.42	2.43	0.06	0.06	0.02	0.12	30	200	< 10	< 2	2	< 30	< 1	10	80	10	15	< 5	< 5	0.40	99.62
892	48.36	30.33	1.20	15.10	0.39	2.61	0.08	0.09	0.01	0.12	30	210	10	< 2	2	< 30	< 1	< 5	85	< 5	15	< 5	< 5	0.93	99.22
893	49.26	30.05	1.27	15.48	0.41	2.49	0.08	0.05	0.02	0.08	40	200	< 10	2	1	< 30	< 1	10	220	< 5	20	< 5	5	0.53	99.74
894	49.08	31.32	1.12	15.28	0.41	2.39	0.10	0.06	0.01	0.10	50	190	< 10	< 2	2	< 30	< 1	10	235	< 5	10	< 5	5	0.66	100.54
895	48.22	30.10	2.07	14.79	0.55	2.34	0.08	0.11	0.02	0.10	60	190	< 10	< 2	3	< 30	< 1	15	145	< 5	25	< 5	< 5	0.79	99.15
896	48.84	31.14	1.26	15.33	0.43	2.52	0.10	0.06	0.02	0.10	30	220	< 10	< 2	2	< 30	< 1	15	255	< 5	20	< 5	5	0.25	100.04
897	49.72	30.06	0.90	15.12	0.40	2.51	0.12	0.04	0.01	0.08	40	230	< 10	< 2	< 1	< 30	< 1	20	225	10	10	< 5	< 5	0.77	99.75
898	48.76	30.57	1.08	15.10	0.40	2.62	0.06	0.10	0.01	0.08	50	220	< 10	< 2	2	< 30	< 1	20	115	< 5	10	< 5	< 5	0.51	99.28
899	49.10	30.20	1.63	14.84	0.37	2.61	0.16	0.07	0.03	0.10	40	220	< 10	< 2	< 1	< 30	1	5	220	5	15	< 5	< 5	0.67	99.79
900	49.10	31.32	1.12	15.24	0.35	2.45	0.08	0.06	0.01	0.10	30	200	< 10	< 2	< 1	< 30	1	5	185	< 5	10	< 5	< 5	0.78	100.61
901	48.42	30.03	0.80	15.12	0.33	2.45	0.04	0.03	<0.01	0.10	30	230	< 10	< 2	< 1	< 30	< 1	< 5	125	5	15	< 5	< 5	0.46	97.79
902	48.07	31.23	0.94	15.60	0.31	2.15	0.08	0.04	0.01	0.10	30	200	< 10	< 2	< 1	< 30	1	10	85	10	5	< 5	< 5	0.34	98.86
903	48.05	31.70	1.34	15.65	0.46	2.17	0.06	0.08	0.02	0.10	20	190	< 10	< 2	1	< 30	< 1	< 5	80	< 5	15	< 5	< 5	0.33	99.95
904	48.20	30.51	1.35	15.60	0.48	2.27	0.06	0.07	0.02	0.08	40	200	< 10	< 2	2	< 30	< 1	10	120	5	15	< 5	< 5	0.37	98.99
905	48.04	31.43	0.96	15.60	0.31	2.11	0.08	0.04	0.01	0.10	60	210	< 10	< 2	< 1	< 30	1	< 5	175	< 5	< 5	< 5	15	0.54	99.22
906	47.96	30.11	2.12	15.29	0.45	2.35	0.06	0.11	0.03	0.10	50	190	< 10	< 2	3	< 30	< 1	< 5	145	10	25	< 5	< 5	0.36	98.93
907	48.59	30.72	0.82	14.67	0.40	2.53	0.08	0.04	0.01	0.12	20	210	< 10	< 2	< 1	< 30	1	< 5	110	< 5	< 5	< 5	< 5	0.72	98.68
908	49.33	30.76	1.13	15.67	0.31	2.39	0.04	0.06	0.01	0.12	30	200	10	2	< 1	< 30	1	20	350	< 5	15	< 5	< 5	0.41	100.22
909	49.44	31.23	1.24	14.56	0.44	2.69	0.08	0.05	0.02	0.12	50	220	10	2	2	< 30	< 1	10	70	< 5	5	< 5	5	0.65	100.51
910	49.24	30.43	0.98	14.81	0.27	2.54	0.06	0.06	0.01	0.10	30	210	< 10	< 2	< 1	< 30	< 1	20	130	< 5	5	< 5	< 5	1.02	99.51
911	49.46	31.54	1.05	15.06	0.30	2.52	0.08	0.07	0.01	0.10	30	200	< 10	< 2	< 1	< 30	< 1	25	185	< 5	15	< 5	10	0.48	100.67
912	48.76	31.75	0.89	15.33	0.24	2.32	0.14	0.03	0.02	0.08	40	200	< 10	< 2	< 1	< 30	< 1	< 5	135	10	< 5	< 5	10	0.53	100.10
913	47.85	30.75	1.51	14.71	0.54	2.25	0.08	0.09	0.02	0.10	30	190	< 10	< 2	2	< 30	< 1	20	230	< 5	20	< 5	5	0.57	98.47
914	49.70	30.33	1.32	15.12	0.45	2.61	0.04	0.07	0.02	0.08	30	210	< 10	< 2	1	< 30	< 1	10	320	5	15	< 5	< 5	0.43	100.16
915	48.92	30.99	0.73	14.74	0.33	2.55	0.10	0.03	0.01	0.10	40	220	< 10	< 2	< 1	< 30	< 1	20	155	< 5	15	< 5	10	0.29	98.79
916	48.97	31.11	1.08	15.18	0.39	2.47	0.06	0.06	0.01	0.08	40	200	< 10	2	1	< 30	< 1	< 5	150	5	10	< 5	10	0.61	100.03
917	49.28	31.36	0.91	14.94	0.40	2.60	0.08	0.03	0.01	0.12	30	220	< 10	< 2	1	< 30	< 1	35	300	5	10	< 5	10	0.55	100.26
918	47.86	31.25	0.94	14.84	0.27	2.35	0.06	0.06	0.01	0.10	30	190	< 10	< 2	< 1	< 30	< 1	10	205	< 5	10	< 5	< 5	0.60	98.03

SIGNED :

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.V. GEOLOGICAL SERVICES

TTN: H. VELDHUYZEN

1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA,ONTARIO L4W-1A4
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REPORT No. : **M4089**
Page No. : 2 of 2
File No. : M4089
Date : NOV-01-1994

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

W-2594-R01

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
19	49.18	31.40	0.95	15.21	0.32	2.30	0.04	0.04	0.01	0.12	30	220	< 10	< 2	< 1	< 30	< 1	15	155	< 5	15	< 5	< 5	0.29	99.86
20	49.09	31.41	1.30	15.30	0.40	2.48	0.06	0.06	0.02	0.10	30	210	10	< 2	1	< 30	< 1	25	275	< 5	10	< 5	< 5	0.52	100.75
21	47.61	31.34	0.87	15.44	0.36	2.35	0.04	0.04	<0.01	0.10	40	230	< 10	< 2	< 1	< 30	< 1	10	150	< 5	15	< 5	< 5	0.25	98.40
22	47.43	31.06	0.92	14.72	0.41	2.51	0.04	0.04	0.01	0.08	30	210	< 10	< 2	2	< 30	< 1	< 5	145	< 5	10	< 5	< 5	0.55	97.77
23	47.71	31.21	1.04	14.78	0.33	2.54	0.06	0.06	0.02	0.10	40	210	< 10	< 2	2	< 30	< 1	5	255	< 5	5	< 5	< 5	0.57	98.40
24	48.98	30.25	0.99	14.64	0.35	2.46	0.06	0.04	0.01	0.10	40	220	< 10	< 2	< 1	< 30	< 1	< 5	120	< 5	10	< 5	< 5	0.54	98.41
25	47.38	30.37	1.64	14.66	0.75	2.48	0.14	0.11	0.03	0.08	50	250	< 10	2	2	< 30	< 1	15	260	10	35	< 5	< 5	0.71	98.34
26	47.86	30.74	1.53	15.56	0.57	2.34	0.06	0.08	0.02	0.08	40	210	< 10	< 2	2	< 30	< 1	25	260	< 5	25	< 5	< 5	0.25	99.09
27	46.79	30.96	1.48	15.28	0.55	2.32	0.04	0.10	0.02	0.10	30	230	< 10	< 2	3	< 30	< 1	5	130	< 5	20	< 5	< 5	0.38	98.03
28	48.52	31.93	0.94	15.99	0.29	2.30	0.06	0.04	0.01	0.10	40	230	< 10	< 2	< 1	< 30	< 1	20	265	< 5	15	< 5	15	0.46	100.64
29	49.97	30.81	1.14	15.05	0.34	2.31	0.06	0.06	0.02	0.10	30	190	10	< 2	2	< 30	< 1	15	260	< 5	25	< 5	5	0.52	100.36
30	48.86	31.88	0.82	15.74	0.34	2.17	0.04	0.04	<0.01	0.10	30	200	10	2	< 1	< 30	< 1	15	125	< 5	20	< 5	< 5	0.43	100.41
31	49.43	30.96	0.96	15.53	0.32	2.41	0.06	0.04	0.01	0.08	30	210	< 10	< 2	1	< 30	< 1	< 5	190	< 5	25	< 5	5	0.34	100.14
32	49.30	30.85	1.07	15.61	0.39	2.24	0.10	0.06	0.01	0.10	30	200	10	< 2	1	< 30	< 1	10	260	< 5	20	< 5	5	0.33	100.05
33	49.48	31.00	1.47	15.19	0.59	2.41	0.08	0.08	0.01	0.10	30	200	10	< 2	3	< 30	< 1	< 5	180	< 5	20	< 5	5	0.42	100.84
34	48.54	30.20	1.05	14.66	0.43	2.46	0.08	0.06	0.01	0.10	50	220	< 10	< 2	2	< 30	< 1	15	220	< 5	30	< 5	< 5	3.36	100.94
35	48.59	30.09	2.99	14.88	0.50	2.34	0.08	0.07	0.06	0.10	30	210	10	2	3	< 30	< 1	< 5	270	< 5	25	< 5	5	0.62	100.32
36	49.76	30.58	1.03	15.21	0.30	2.41	0.04	0.06	0.02	0.12	30	220	< 10	< 2	2	< 30	< 1	< 5	205	< 5	20	< 5	< 5	0.70	100.24
37	49.25	29.96	1.54	15.49	0.23	2.26	0.10	0.07	0.03	0.10	20	200	< 10	< 2	< 1	< 30	< 1	< 5	305	< 5	20	< 5	< 5	1.63	100.65
38	48.85	31.38	1.30	15.46	0.32	2.30	0.04	0.05	0.02	0.10	20	180	< 10	< 2	2	< 30	< 1	< 5	405	10	20	< 5	< 5	0.33	100.16
39	49.33	31.39	1.18	15.28	0.33	2.22	0.04	0.06	0.01	0.08	30	190	< 10	< 2	2	< 30	< 1	< 5	180	10	10	< 5	5	0.48	100.39
40	48.67	30.73	1.86	14.21	0.60	2.35	0.06	0.05	0.04	0.10	30	200	< 10	< 2	2	< 30	< 1	< 5	260	10	15	< 5	10	1.20	99.86
41	48.97	31.42	1.03	15.07	0.24	2.36	0.06	0.05	0.01	0.08	30	190	< 10	< 2	< 1	< 30	< 1	15	295	< 5	15	< 5	< 5	0.85	100.16
42	49.83	30.78	1.27	14.93	0.28	2.43	0.04	0.13	0.01	0.10	20	210	10	< 2	1	< 30	< 1	< 5	225	< 5	30	< 5	< 5	0.65	100.43
43	49.19	30.74	1.56	15.24	0.47	2.34	0.06	0.09	0.02	0.10	30	200	< 10	< 2	3	< 30	< 1	< 5	280	< 5	30	< 5	< 5	0.56	100.36
44	49.50	30.39	1.09	15.65	0.25	2.37	0.04	0.12	0.01	0.10	40	200	< 10	2	< 1	< 30	< 1	10	240	< 5	25	< 5	< 5	0.29	99.82
45	49.00	31.03	0.35	14.67	0.03	2.63	0.14	0.05	<0.01	0.10	30	230	< 10	< 2	< 1	< 30	< 1	< 5	215	< 5	< 5	< 5	< 5	0.53	98.52
46	48.57	31.46	1.25	15.30	0.35	2.26	0.06	0.07	0.01	0.10	20	190	< 10	< 2	2	< 30	< 1	< 5	235	< 5	20	< 5	10	0.60	100.01
47	47.92	28.23	3.20	15.43	0.70	2.00	0.10	0.10	0.03	0.10	40	250	10	2	2	< 30	< 1	30	240	20	50	< 5	15	0.66	98.46
48	49.44	31.14	0.99	15.17	0.25	2.51	0.04	0.05	0.01	0.08	30	210	< 10	2	2	< 30	< 1	5	190	< 5	15	< 5	< 5	0.52	100.21
49	48.78	31.80	1.43	14.93	0.10	2.41	0.04	0.07	0.02	0.10	20	200	< 10	< 2	2	< 30	< 1	< 5	175	< 5	25	< 5	5	0.59	100.26
50	48.35	31.80	1.33	15.42	0.32	2.40	0.02	0.07	0.01	0.10	20	190	< 10	< 2	2	< 30	< 1	10	280	< 5	15	< 5	< 5	0.34	100.18

SIGNED :

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T ASSAYERS - hor ri

1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA, ONTARIO L4W-1A4
PHONE #: (905)602-8236 FAX #: (905)206-0513

H.V. GEOLOGICAL SERVICES

ATTN: H. VELDHUYZEN

REPORT No. : M4088
Page No. : 1 of 2
File No. : OC28RA
Date : NOV-01-1994

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

4W-2595-RG1

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
951	48.39	31.07	1.12	14.51	0.47	2.52	0.10	0.05	0.02	0.12	50	220	10	2	2	< 30	< 1	20	85	< 5	10	< 5	10	0.40	98.75
952	47.90	31.71	1.16	15.10	0.43	2.30	0.14	0.06	0.01	0.10	50	220	10	2	< 1	< 30	< 1	< 5	140	< 5	15	< 5	< 5	0.42	99.32
953	48.21	29.91	2.28	14.33	2.41	2.52	0.08	0.06	0.03	0.10	40	220	10	< 2	3	< 30	< 1	15	105	< 5	15	5	10	0.53	100.47
954	48.06	31.57	1.26	15.02	0.50	2.38	0.06	0.07	0.01	0.10	20	220	10	< 2	2	< 30	< 1	10	75	< 5	15	< 5	< 5	0.44	99.45
955	47.21	32.74	1.28	15.25	0.41	2.26	0.06	0.06	0.03	0.12	30	210	< 10	< 2	2	< 30	< 1	< 5	50	< 5	15	< 5	< 5	0.30	99.71
956	48.15	29.56	2.30	14.44	2.08	2.43	0.10	0.11	0.03	0.10	40	210	< 10	< 2	3	< 30	< 1	10	20	10	15	< 5	< 5	0.71	100.01
957	49.48	30.73	1.36	14.94	0.61	2.60	0.04	0.07	0.02	0.10	30	230	< 10	2	1	< 30	< 1	15	215	10	20	< 5	10	0.41	100.35
958	49.71	30.25	1.08	14.41	0.43	2.63	0.08	0.07	0.01	0.10	30	230	< 10	< 2	2	< 30	< 1	< 5	90	15	10	< 5	< 5	0.92	99.68
959	48.10	31.92	1.12	15.57	0.40	2.27	0.08	0.06	0.01	0.12	30	220	< 10	< 2	1	< 30	< 1	20	70	10	10	< 5	< 5	0.43	100.06
960	47.76	31.94	1.04	15.32	0.35	2.41	0.04	0.05	0.01	0.10	30	230	< 10	< 2	1	< 30	< 1	15	50	< 5	15	< 5	< 5	0.63	99.65
961	48.15	29.50	2.45	14.40	2.08	2.41	0.10	0.11	0.03	0.10	40	200	< 10	< 2	3	< 30	< 1	10	25	10	20	< 5	< 5	0.80	100.11
962	49.04	30.75	1.41	14.85	1.02	2.58	0.06	0.07	0.02	0.10	20	220	< 10	2	2	< 30	< 1	15	20	15	15	< 5	< 5	0.81	100.70
963	47.00	31.57	1.12	15.09	0.39	2.36	0.10	0.06	0.01	0.12	40	220	10	< 2	2	< 30	< 1	< 5	45	10	15	< 5	15	0.60	98.41
964	47.20	31.60	1.00	15.31	0.34	2.22	0.06	0.05	0.01	0.08	40	220	10	2	1	< 30	< 1	5	20	< 5	20	< 5	< 5	1.17	99.04
965	48.12	32.13	1.19	15.59	0.46	2.47	0.10	0.07	0.02	0.10	40	230	10	< 2	1	< 30	< 1	15	45	10	10	< 5	10	0.67	100.91
966	48.32	31.79	0.92	14.93	0.37	2.45	0.10	0.05	0.01	0.10	50	210	< 10	< 2	< 1	< 30	< 1	< 5	45	15	5	< 5	< 5	1.62	100.67
967	46.69	31.50	0.83	15.16	0.29	2.31	0.12	0.04	<0.01	0.10	50	220	< 10	< 2	< 1	< 30	< 1	< 5	40	< 5	10	< 5	< 5	1.17	98.23
968	47.49	30.94	0.97	14.83	0.38	2.18	0.16	0.07	0.02	0.08	60	160	10	2	< 1	< 30	< 1	20	10	< 5	30	< 5	< 5	1.35	98.47
969	39.20	18.15	10.45	13.47	5.10	2.92	1.10	2.70	0.18	0.52	520	760	290	30	16	< 30	4	60	95	30	235	35	20	5.36	99.17
970	39.80	18.50	10.26	13.65	4.73	3.14	0.98	2.50	0.15	0.52	510	730	280	28	16	< 30	3	55	95	30	220	30	20	5.32	99.55
971	49.91	29.66	1.30	15.27	0.53	2.52	0.22	0.07	0.02	0.12	40	210	10	2	< 1	< 30	< 1	15	25	< 5	15	< 5	20	0.98	100.59
972	49.57	30.68	0.94	15.43	0.36	2.40	0.14	0.05	0.01	0.10	40	210	< 10	< 2	< 1	< 30	< 1	10	105	< 5	20	< 5	< 5	0.62	100.29
973	48.64	29.85	0.85	15.45	0.31	2.35	0.04	0.04	<0.01	0.08	40	200	10	< 2	< 1	< 30	< 1	10	105	< 5	15	< 5	20	0.43	98.04
974	48.87	30.33	0.92	15.02	0.35	2.33	0.04	0.04	<0.01	0.10	30	190	< 10	< 2	1	< 30	< 1	< 5	240	15	20	< 5	10	0.71	98.71
975	49.43	31.00	0.90	15.44	0.32	2.38	0.02	0.05	<0.01	0.12	30	200	< 10	< 2	2	< 30	< 1	< 5	180	< 5	15	< 5	10	0.69	100.36
976	49.61	29.67	1.26	15.39	0.48	2.35	0.06	0.06	0.02	0.12	30	210	< 10	2	2	< 30	< 1	15	185	< 5	15	< 5	5	1.22	100.23
977	48.95	29.80	1.12	15.45	0.41	2.37	0.06	0.05	0.01	0.08	40	210	10	2	2	< 30	< 1	10	265	15	15	< 5	< 5	1.17	99.48
978	49.79	30.80	0.85	15.55	0.26	2.41	0.04	0.04	<0.01	0.10	50	210	10	2	< 1	< 30	< 1	5	105	< 5	15	< 5	< 5	0.56	100.40
979	49.60	30.77	0.87	15.72	0.30	2.34	0.04	0.04	<0.01	0.08	30	210	< 10	< 2	< 1	< 30	< 1	< 5	40	< 5	15	< 5	10	0.61	100.39
980	49.20	30.75	0.85	15.74	0.30	2.37	0.02	0.04	0.01	0.08	30	200	10	< 2	< 1	< 30	< 1	15	85	< 5	5	< 5	5	0.75	100.11
981	49.78	29.97	0.70	15.04	0.23	2.40	0.04	0.04	0.02	0.08	30	200	< 10	< 2	2	< 30	< 1	< 5	130	< 5	10	< 5	< 5	1.51	99.81
982	46.73	29.27	0.76	14.88	0.25	2.30	0.06	0.04	<0.01	0.08	30	190	< 10	< 2	1	< 30	< 1	30	135	20	15	< 5	5	5.03	99.42
983	47.24	30.34	1.02	15.82	0.34	2.55	0.06	0.06	0.02	0.12	40	200	10	2	2	< 30	< 1	20	240	10	20	< 5	< 5	0.69	98.26
984	49.11	30.26	0.99	15.46	0.29	2.46	0.04	0.05	0.01	0.10	30	220	< 10	2	2	< 30	< 1	25	335	10	20	< 5	< 5	0.69	99.46
985	48.56	30.57	1.04	15.44	0.30	2.38	0.04	0.05	0.01	0.08	40	200	< 10	< 2	2	< 30	< 1	25	375	< 5	15	< 5	5	0.59	99.08

SIGNED : [signature]

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H.V. GEOLOGICAL SERVICES

ATTN: H. VELDHUYZEN

4W-2595-RG1

|T. SS. S . pr ie

1270 FEWSTER DRIVE, UNIT 3 MISSISSAUGA,ONTARIO L4W-1A4

PHONE #: (905)602-8236 FAX #: (905)206-0513

I.C.A.P. TOTAL OXIDE ANALYSIS

Lithium MetaBorate Fusion

REPORT No. : M4088

File No. : OC28RA

Date : NOV-01-1994

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm	Nb ppm	Be ppm	Ni ppm	Cr ppm	Cu ppm	V ppm	Co ppm	Zn ppm	LOI %	TOTAL %
986	48.67	30.41	0.96	15.50	0.30	2.39	0.04	0.04	0.01	0.08	40	200	< 10	2	2	< 30	< 1	10	335	< 5	15	< 5	< 5	0.85	99.24
987	48.91	30.37	0.96	15.59	0.31	2.47	0.04	0.04	<0.01	0.10	30	210	< 10	2	1	< 30	< 1	< 5	265	< 5	15	< 5	< 5	1.14	99.94
988	49.51	30.73	0.98	15.30	0.28	2.65	0.04	0.05	0.01	0.08	40	230	< 10	< 2	< 1	< 30	< 1	< 5	280	< 5	15	< 5	< 5	0.94	100.56
989	49.53	30.40	0.92	15.60	0.24	2.49	0.04	0.04	0.01	0.10	30	210	< 10	2	< 1	< 30	< 1	10	280	< 5	5	< 5	< 5	0.72	100.07
990	48.45	29.32	1.01	15.38	0.23	2.42	0.06	0.04	0.01	0.06	20	200	< 10	2	< 1	< 30	< 1	15	360	< 5	20	< 5	< 5	0.51	97.50
991	49.91	30.28	1.13	15.37	0.31	2.50	0.16	0.04	0.02	0.10	30	220	< 10	2	1	< 30	< 1	5	265	< 5	20	< 5	< 5	0.41	100.22
992	49.09	31.12	1.04	15.53	0.32	2.35	0.04	0.05	0.01	0.10	30	200	< 10	< 2	2	< 30	< 1	< 5	280	< 5	10	< 5	< 5	0.39	100.01
993	49.20	31.14	1.03	15.41	0.29	2.56	0.04	0.04	0.01	0.08	30	210	< 10	< 2	1	< 30	< 1	< 5	305	5	10	< 5	< 5	0.45	100.25
994	49.40	31.10	0.93	15.28	0.30	2.46	0.08	0.05	0.01	0.08	30	210	< 10	2	< 1	< 30	< 1	< 5	200	< 5	15	< 5	< 5	0.54	100.21
995	48.19	30.59	0.92	15.23	0.26	2.40	0.04	0.04	0.01	0.08	30	200	< 10	2	< 1	< 30	< 1	< 5	195	< 5	10	< 5	< 5	0.42	98.17
996	48.56	31.26	0.97	15.33	0.30	2.36	0.06	0.06	0.01	0.10	30	200	< 10	2	2	< 30	< 1	20	215	< 5	10	< 5	< 5	0.53	99.53
997	47.90	30.81	0.85	15.06	0.33	2.46	0.02	0.04	<0.01	0.08	40	220	< 10	< 2	1	< 30	< 1	< 5	130	< 5	10	< 5	< 5	0.84	98.42
998	49.76	31.05	0.79	15.61	0.21	2.46	0.06	0.03	<0.01	0.06	20	210	< 10	< 2	< 1	< 30	< 1	20	75	5	10	< 5	< 5	0.72	100.77
999	49.20	30.63	0.91	15.71	0.23	2.35	0.04	0.04	<0.01	0.08	20	200	< 10	< 2	1	< 30	< 1	5	170	< 5	10	< 5	< 5	0.66	99.87
000	48.55	31.16	0.81	15.13	0.32	2.54	0.02	0.04	<0.01	0.10	20	220	< 10	2	< 1	< 30	< 1	15	200	< 5	10	< 5	< 5	1.10	99.78
001	49.04	30.05	1.21	14.32	0.41	2.33	0.14	0.09	0.01	0.12	40	190	< 10	< 2	2	< 30	< 1	< 5	150	< 5	15	< 5	< 5	0.39	98.11
002	49.50	30.29	1.25	14.60	0.44	2.60	0.14	0.09	0.01	0.10	40	210	< 10	< 2	2	< 30	< 1	< 5	260	< 5	20	< 5	5	0.76	99.78
003	48.66	30.59	1.62	14.36	0.64	2.70	0.22	0.09	0.01	0.10	40	230	< 10	< 2	3	< 30	< 1	5	185	< 5	25	< 5	< 5	1.40	100.37
004	47.92	30.19	1.23	15.15	0.45	2.37	0.10	0.10	0.02	0.10	30	200	< 10	< 2	2	< 30	< 1	< 5	100	< 5	20	< 5	< 5	1.50	99.12
005	48.27	30.66	1.20	15.12	0.48	2.42	0.04	0.06	0.01	0.10	30	200	< 10	2	2	< 30	< 1	25	205	< 5	15	< 5	5	0.93	99.27

SIGNED :

SL/94

Appendix II - raw XRF geochemical results

- samples prepared and analyzed by Lakefield Research

- drill core samples

H 74 0-10	# =	15874
H 74 10-20		15875
H 74 20-30		15876
H 74 30-40		15877
H 74 40-50		15878
H 75 0-10		15879
H 75 10-20		15880
H 75 20-30		15881
H 75 30-40		15882
H 75 40-50		15883

LAKEFIELD RESEARCH

A Division of Falconbridge Limited

P O. Box 4300, 185 Concession St., Lakefield, Ontario, KOL 2HO

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H. V. Geological Services
P.O. Box 6105, Stat. A
Toronto, Ontario, M5W 1P5

Attn : H. Veldhuyzen
Fax : (416)466-7999

Lakefield, October 27, 1994

Date Rec. : October 21, 1994
LR. Ref. : **OCT9088.C94**
Reference : ---
Project : LR9447650

CERTIFICATE OF ANALYSIS

No.	Sample ID	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	LOI %	SUM %
1	H-34 0-10	47.7	32.0	1.05	0.55	15.6	2.31	0.04	0.08	< 0.01	0.01	< 0.01	0.83	100.2
2	H-34 10-20	48.3	32.2	1.19	0.51	15.9	2.21	0.03	0.08	< 0.01	0.02	< 0.01	0.77	101.2
3	H-34 20-30	47.5	32.0	1.10	0.55	15.6	2.26	0.03	0.08	0.02	0.02	< 0.01	1.02	100.2
4	H-34 30-40	46.1	30.7	1.14	0.47	15.0	2.96	0.31	0.10	0.01	0.02	< 0.01	3.26	100.1
5	H-34 40-50	48.3	32.3	1.05	0.44	15.8	2.35	0.03	0.08	< 0.01	0.02	< 0.01	0.85	101.2
6	H-35 0- 0	47.3	31.5	1.22	0.58	15.4	2.42	0.07	0.08	< 0.01	0.02	< 0.01	1.26	99.9
7	H-35 10-20	47.1	31.6	1.10	0.45	15.4	2.40	0.08	0.08	< 0.01	0.01	< 0.01	1.93	100.2
8	H-35 20-30	47.8	31.2	1.21	0.55	15.3	2.28	0.05	0.07	< 0.01	0.02	< 0.01	0.94	99.4
9	H-35 30-40	47.6	32.0	1.00	0.47	15.6	2.34	0.05	0.07	< 0.01	0.02	< 0.01	1.22	100.4
10	H-35 40-50	47.2	32.0	1.15	0.56	15.8	2.22	0.02	0.08	0.01	0.02	< 0.01	0.79	99.9
-- duplicates --														
11	H-34 40-50	47.8	32.0	1.04	0.48	15.6	2.34	0.03	0.08	< 0.01	0.01	< 0.01	0.81	100.2

J. R. Johnston

A MEMBER OF IAETL CANADA

Accredited by CAEAL for specific tests registered with the Association

[illegible] normalized gap [illegible]
[illegible] sample [illegible]

[illegible] simulations presented [illegible]
[illegible]

NORMALIZED WHOLE ROCK CHEMCIAL DATA · MAJOR ELEMENTS

DH- drill hole cuttings; TR- trench rock sample; X- XRF duplicate; d ICP duplicate

Sample #	location	depth from	depth to	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	MnO	P2O5	LOI	TOTAL	
15751	DH- 11 F	9.09	12.12	48.87	30.93	1.12	15.02	0.35	2.70	0.06	0.03	0.01	0.10	0.8	100	
15752	DH- 11 F	12.12	15.15	48.65	31.29	1.09	15.31	0.37	2.56	0.02	0.04	0.01	0.12	0.55	100	
15753	DH- 18	0.00	3.03	48.28	31.05	1.23	15.41	0.37	2.46	0.06	0.08	0.01	0.10	0.96	100	
15754	DH- 18	3.03	6.06	48.17	30.53	1.44	15.47	0.43	2.52	0.08	0.10	0.02	0.10	1.16	100	
15755	DH- 18	6.06	9.09	47.22	30.97	1.32	14.89	0.41	2.52	0.06	0.08	0.01	0.10	2.42	100	
15756	DH- 18	9.09	12.12	47.96	31.01	1.27	15.15	0.43	2.65	0.08	0.07	0.01	0.12	1.26	100	
15757	DH- 18	12.12	13.64	47.74	31.05	1.65	14.96	0.54	2.56	0.10	0.09	0.02	0.10	1.19	100	b
15758	DH- 12 D	0.00	3.03	48.39	31.23	1.38	15.61	0.44	2.41	0.06	0.07	0.02	0.08	0.3	100	
15759	DH- 12 D	3.03	6.06	48.60	30.98	1.31	15.60	0.37	2.41	0.04	0.08	0.01	0.10	0.49	100	
15760	DH- 12 D	6.06	9.09	48.59	31.22	1.20	15.15	0.32	2.45	0.06	0.08	0.01	0.10	0.83	100	
15761	DH- 12 D	9.09	12.12	48.85	30.34	1.44	14.74	0.24	2.55	0.08	0.07	0.02	0.10	1.58	100	
15762	DH- 12 D	12.12	15.15	48.69	30.69	1.02	15.45	0.26	2.55	0.08	0.06	0.01	0.12	1.08	100	
15763	DH- 13 D	0.00	3.03	48.39	31.25	1.21	15.36	0.35	2.43	0.04	0.07	0.01	0.10	0.8	100	
15764	DH- 13 D	3.03	6.06	48.16	30.81	1.50	15.66	0.50	2.50	< .02	0.09	0.02	0.10	0.67	100	
15765	DH- 13 D	6.06	9.09	47.65	31.06	1.26	15.56	0.37	2.40	0.06	0.06	0.01	0.10	1.45	100	
15766	DH- 13 D	9.09	12.12	47.88	30.67	1.41	15.48	0.44	2.41	0.04	0.06	0.02	0.12	1.47	100	
15767	DH- 13 D	12.12	15.15	48.16	30.26	1.51	15.66	0.48	2.45	0.06	0.09	0.01	0.12	1.2	100	
15768	DH- 14 D	0.00	3.03	48.68	30.84	1.22	15.72	0.39	2.45	0.04	0.08	0.01	0.10	0.46	100	
15769	DH- 14 D	3.03	6.06	48.61	30.64	1.56	15.76	0.48	2.39	0.04	0.07	0.03	0.12	0.3	100	
15770	DH- 14 D	6.06	9.09	47.96	31.25	1.53	15.64	0.58	2.41	0.02	0.08	0.01	0.12	0.39	100	
15771	DH- 14 D	9.09	12.12	48.27	30.91	1.41	15.43	0.51	2.52	0.10	0.07	0.02	0.10	0.67	100	
15772	DH- 14 D	12.12	14.24							no sample collected						
15773	DH- 15 D	0.00	3.03	48.56	31.36	1.06	15.44	0.32	2.53	0.04	0.06	0.01	0.10	0.55	100	
15774	DH- 15 D	3.03	6.06	48.78	30.70	1.38	15.48	0.42	2.46	0.08	0.07	0.02	0.10	0.54	100	
15775	DH- 15 D	6.06	9.09	48.23	30.73	1.34	15.84	0.44	2.49	0.06	0.07	0.02	0.12	0.7	100	
15776	DH- 15 D	9.09	12.12	48.31	30.97	1.28	15.68	0.42	2.38	0.04	0.07	0.01	0.10	0.73	100	
15777	DH- 15 D	12.12	15.15	48.54	30.23	1.48	15.80	0.57	2.35	0.06	0.08	0.02	0.10	0.78	100	
15778	DH- 16 D	0.00	3.03	48.51	30.80	1.21	15.66	0.43	2.42	0.04	0.06	0.01	0.12	0.77	100	
15779	DH- 16 D	3.03	6.06	48.52	30.93	1.21	15.65	0.35	2.39	0.02	0.05	0.01	0.08	0.79	100	
15780	DH- 16 D	6.06	9.09	48.57	30.31	1.35	15.65	0.53	2.40	ERR	0.06	0.01	0.10	1	100	
15781	DH- 16 D	9.09	12.12	49.10	30.18	1.10	15.22	0.34	2.56	0.06	0.06	0.01	0.10	1.27	100	
15782	DH- 16 D	12.12	15.15	46.70	30.10	1.20	15.30	0.35	2.79	0.32	0.08	0.02	0.10	3.06	100	
15783	DH- 17 D	0.00	3.03	48.80	30.56	1.17	15.81	0.43	2.46	0.04	0.06	0.01	0.10	0.56	100	
15784	DH- 17 D	3.03	6.06	48.30	30.85	1.36	15.78	0.44	2.39	0.04	0.08	0.02	0.10	0.65	100	
15785	DH- 17 D	6.06	9.09	48.94	29.94	1.32	15.98	0.39	2.37	0.04	0.06	0.01	0.10	0.84	100	
15786	DH- 17 D	9.09	12.12	48.20	30.84	1.36	15.74	0.40	2.38	0.04	0.07	0.02	0.10	0.86	100	
15787	DH- 17 D	12.12	15.15	48.23	30.87	1.22	15.68	0.35	2.43	ERR	0.06	0.02	0.10	1.05	100	
15788	DH- 19 C	0.00	3.03	48.83	30.73	1.29	15.66	0.42	2.52	0.04	0.06	0.01	0.10	0.36	100	
15789	DH- 19 C	3.03	6.06	49.21	30.56	1.22	15.57	0.36	2.48	0.04	0.06	0.01	0.08	0.4	100	
15790	DH- 19 C	6.06	9.09	48.89	30.60	1.19	15.93	0.35	2.46	0.02	0.05	0.01	0.12	0.37	100	
15791	DH- 19 C	9.09	12.12	48.03	31.48	1.45	14.59	0.44	2.44	0.20	0.07	0.03	0.10	1.18	100	
15792	DH- 19 C	12.12	15.15	48.44	31.47	1.44	14.96	0.42	2.44	0.08	0.08	0.02	0.10	0.55	100	
15793	DH- 20 C	0.00	3.03	49.10	31.64	1.05	14.60	0.34	2.46	0.06	0.06	0.01	0.14	0.57	100	
15794	DH- 20 C	3.03	6.06	48.07	30.56	1.27	14.46	0.37	2.53	0.10	0.07	0.02	0.08	2.47	100	
15795	DH- 20 C	6.06	9.09	47.58	31.00	1.13	14.26	0.34	2.53	0.10	0.06	0.01	0.10	2.89	100	

NORMALIZED WHOLE ROCK CHEMICAL DATA - MAJOR ELEMENTS

DH - drill hole cuttings
TR - trench rock sample

X - XRF duplicate
d - ICP duplicate

Sample #	location	depth from	depth to	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	MnO	P2O5	LOI	TOTAL
15796	DH- 20 C	9.09	12.12	48.83	30.92	1.32	15.04	0.44	2.44	0.10	0.07	0.02	0.10	0.75	100
15797	DH- 20 C	12.12	15.15	48.30	31.26	1.41	15.10	0.47	2.49	0.10	0.07	0.02	0.12	0.66	100
15798	DH- 21 C	0.00	3.03	49.30	31.10	1.16	14.96	0.35	2.51	0.08	0.07	0.01	0.12	0.33	100
15799	DH- 21 C	3.03	6.06	49.19	30.95	1.17	15.26	0.35	2.52	0.04	0.07	0.02	0.10	0.36	100
15800	DH- 21 C	6.06	9.09	48.59	30.97	1.16	15.19	0.34	2.38	0.10	0.07	0.01	0.10	1.08	100
15801	DH- 21 C	9.09	12.12	48.67	30.54	1.29	15.02	0.42	2.35	0.08	0.09	0.02	0.10	1.44	100
15802	DH- 21 C	12.12	15.15	48.97	30.52	1.49	15.30	0.42	2.38	0.06	0.09	0.02	0.08	0.68	100
15803	DH- 22 C	0.00	3.03	49.40	30.68	1.36	15.09	0.36	2.47	0.10	0.07	0.02	0.08	0.36	100
15804	DH- 22 C	3.03	6.06	49.03	31.23	1.26	14.97	0.39	2.49	0.04	0.07	0.02	0.10	0.42	100
15805	DH- 22 C	6.06	9.09	49.30	30.32	1.49	15.40	0.42	2.49	0.06	0.07	0.02	0.10	0.32	100
15806	DH- 22 C	9.09	12.12	48.41	30.92	1.38	15.30	0.42	2.41	0.06	0.08	0.02	0.10	0.9	100
15807	DH- 22 C	12.12	15.15	48.66	30.94	1.34	15.40	0.41	2.38	0.06	0.08	0.01	0.10	0.62	100
15808	DH- 23 C	0.00	3.03	48.18	31.79	1.10	15.62	0.36	2.42	0.06	0.04	0.02	0.08	0.34	100
15809	DH- 23 C	3.03	6.06	49.22	30.94	1.15	15.21	0.36	2.44	0.08	0.06	0.01	0.08	0.45	100
15810	DH- 23 C	6.06	9.09	49.11	31.04	1.20	15.05	0.35	2.53	0.08	0.06	0.01	0.08	0.47	100
15811	DH- 23 C	9.09	12.12	48.25	31.16	1.25	15.45	0.38	2.45	0.08	0.06	0.01	0.12	0.79	100
15812	DH- 23 C	12.12	15.15	47.95	30.97	1.20	15.84	0.34	2.46	0.04	0.06	0.01	0.10	1.03	100
15813	DH- 24 C	0.00	3.03	48.01	31.10	1.17	15.98	0.49	2.31	0.06	0.06	0.02	0.10	0.72	100
15814	DH- 24 C	3.03	6.06	47.99	31.71	1.20	15.68	0.33	2.41	0.04	0.04	0.01	0.10	0.49	100
15815	DH- 24 C	6.06	9.09	48.44	31.42	1.11	15.52	0.33	2.40	0.04	0.04	0.01	0.10	0.57	100
15816	DH- 24 C	9.09	12.12	48.03	30.74	1.28	15.87	0.34	2.35	0.06	0.05	0.01	0.10	1.16	100
15817	DH- 24 C	12.12	15.15	47.80	31.59	1.28	15.30	0.36	2.58	0.04	0.06	0.02	0.12	0.85	100
15818	DH- 25	0.00	3.03	47.81	31.67	1.35	15.44	0.45	2.45	0.10	0.08	0.02	0.10	0.51	100
15819	DH- 25	3.03	6.06	48.04	31.28	1.37	15.71	0.45	2.42	0.06	0.08	0.02	0.12	0.46	100
15820	DH- 25	6.06	9.09	47.40	31.48	1.26	15.93	0.47	2.57	0.12	0.08	0.02	0.10	0.58	100
15821	DH- 25	9.09	12.12	47.31	31.59	1.35	15.47	0.43	2.40	0.04	0.07	0.02	0.10	1.22	100
15822	DH- 25	12.12	15.15	47.15	31.51	1.27	15.77	0.42	2.45	0.06	0.09	0.02	0.10	1.15	100
15823	DH- 30 A	0.00	3.03	46.86	31.87	1.21	16.37	0.49	2.48	0.08	0.06	0.02	0.10	0.49	100
15824	DH- 30 A	3.03	6.06	47.51	31.39	1.28	15.74	0.45	2.51	0.08	0.08	0.02	0.10	0.87	100
15825	DH- 30 A	6.06	9.09	47.19	31.47	1.31	16.09	0.43	2.44	0.06	0.08	0.02	0.10	0.83	100
15826	DH- 30 A	9.09	12.12	47.40	31.22	1.35	16.01	0.50	2.47	0.04	0.08	0.01	0.10	0.83	100
15827	DH- 30 A	12.12	15.15	46.84	31.92	1.39	15.83	0.50	2.55	0.06	0.08	0.02	0.10	0.7	100
15828	DH- 31 A	0.00	3.03	47.29	31.60	1.28	16.19	0.46	2.52	0.06	0.08	0.02	0.10	0.39	100
15829	DH- 31 A	3.03	6.06	47.24	31.74	1.23	16.10	0.47	2.45	0.08	0.09	0.01	0.10	0.5	100
15830	DH- 31 A	6.06	9.09	47.43	31.62	1.53	15.70	0.51	2.45	0.08	0.09	0.02	0.12	0.45	100
15831	DH- 31 A	9.09	12.12	47.35	31.38	1.42	16.12	0.52	2.51	0.08	0.08	0.02	0.10	0.44	100
15832	DH- 31 A	12.12	15.15	46.68	31.89	1.42	15.95	0.52	2.56	0.06	0.07	0.02	0.10	0.74	100
15833	DH- 32 A	0.00	3.03	46.71	31.79	1.23	15.88	0.44	2.51	0.06	0.08	0.02	0.10	1.17	100
15834	DH- 32 A	3.03	6.06	47.18	29.87	1.74	15.74	0.59	2.63	0.20	0.15	0.03	0.12	1.77	100
15835	DH- 32 A	6.06	9.09	46.67	29.51	1.44	15.42	0.60	2.54	0.36	0.10	0.03	0.10	3.22	100
15836	DH- 32 A	9.09	12.12	46.27	29.24	1.33	14.89	0.65	2.95	0.32	0.25	0.02	0.14	3.94	100
15837	DH- 32 A	12.12	15.15	47.00	30.31	1.38	15.39	0.51	2.68	0.18	0.11	0.02	0.12	2.3	100
15838	DH- 33 A	0.00	3.03	47.15	31.88	1.15	16.10	0.45	2.50	0.06	0.04	0.01	0.12	0.55	100
15839	DH- 33 A	3.03	6.06	46.44	32.18	1.05	15.80	0.45	2.51	0.06	0.06	0.01	0.10	1.35	100
15840	DH- 33 A	6.06	9.09	49.18	30.82	1.00	14.99	0.43	2.52	0.06	0.04	0.02	0.10	0.83	100

NORMALIZED WHOLE ROCK CHEMCIAL DATA - MAJOR ELEMENTS

DH - drill hole cuttings
TR - trench rock sample

X - XRF duplicate
d - ICP duplicate

Sample #	location	depth from	depth to	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	MnO	P2O5	LOI	TOTAL
15841	DH- 33 A	9.09	12.12	48.16	30.65	1.37	15.32	0.43	2.46	0.06	0.07	0.02	0.10	1.38	100
15842	DH- 33 A	12.12	15.15	47.16	31.19	1.31	15.36	0.36	2.55	0.12	0.08	0.01	0.10	1.76	100
15843	DH- 26 A	0.00	3.03	48.13	31.60	1.21	15.51	0.38	2.45	< .02	0.06	0.01	0.10	0.53	100
15844	DH- 26 A	3.03	6.06	47.15	31.73	1.26	15.83	0.42	2.40	0.06	0.08	0.01	0.12	0.95	100
15845	DH- 26 A	6.06	7.58	48.23	30.74	1.26	15.68	0.37	2.38	< .02	0.08	0.01	0.10	1.13	100
15846	DH- 26 A	7.58	9.09	49.06	30.20	1.28	15.72	0.37	2.30	0.04	0.07	0.01	0.10	0.85	100
15847	DH- 26 A	9.09	12.12	48.36	31.00	1.37	15.70	0.44	2.32	0.06	0.08	0.02	0.10	0.54	100
15848	DH- 26 A	12.12	15.15	48.86	30.19	1.35	15.53	0.45	2.36	0.02	0.08	0.01	0.10	1.05	100
15849	DH- 27 A	0.00	3.03	48.70	30.51	1.30	15.49	0.43	2.45	0.06	0.06	0.01	0.10	0.91	100
15850	DH- 27 A	3.03	6.06	48.25	30.60	1.41	15.56	0.39	2.32	0.04	0.07	0.02	0.10	1.26	100
15851	DH- 27 A	6.06	9.09	47.91	31.14	1.49	15.86	0.39	2.33	0.04	0.09	0.02	0.12	0.62	100
15852	DH- 27 A	9.09	12.12	48.31	30.79	1.50	15.90	0.42	2.35	0.08	0.09	0.02	0.10	0.45	100
15853	DH- 27 A	12.12	15.15	48.45	30.72	1.67	15.75	0.42	2.32	0.04	0.09	0.02	0.10	0.42	100
15854	DH- 28 A	0.00	3.03	48.86	30.41	1.38	15.82	0.40	2.39	0.04	0.08	0.01	0.10	0.52	100
15855	DH- 28 A	3.03	6.06	48.22	30.80	1.41	15.67	0.41	2.47	0.04	0.07	0.01	0.10	0.8	100
15856	DH- 28 A	6.06	9.09	48.42	29.62	1.29	15.49	0.37	2.41	0.04	0.06	0.01	0.10	2.18	100
15857	DH- 28 A	9.09	12.12	48.50	30.40	1.37	15.69	0.36	2.43	0.04	0.06	0.01	0.10	1.04	100
15858	DH- 28 A	12.12	15.15	48.01	29.98	1.65	16.02	0.55	2.38	0.04	0.10	0.02	0.12	1.12	100
15859	DH- 29 A	0.00	3.03	48.39	30.26	1.33	16.01	0.36	2.41	0.04	0.06	0.01	0.10	1.03	100
15860	DH- 29 A	3.03	6.06	47.78	30.91	1.59	15.54	0.42	2.49	0.10	0.07	0.03	0.10	0.97	100
15861	DH- 29 A	6.06	9.09	48.22	31.09	1.36	15.64	0.42	2.42	0.04	0.08	0.02	0.10	0.63	100
15862	DH- 29 A	9.09	12.12	47.77	31.84	1.31	15.54	0.36	2.40	0.04	0.07	0.01	0.10	0.59	100
15863	DH- 29 A	12.12	15.15	48.27	31.14	1.43	15.19	0.45	2.47	0.08	0.08	0.01	0.10	0.8	100
15864 d	DH- 30 A	12.12	15.15	48.17	31.26	1.31	15.50	0.41	2.43	0.06	0.07	0.01	0.10	0.67	100
15865 d	DH- 26 A	12.12	15.15	47.66	31.91	1.44	15.49	0.39	2.32	0.02	0.08	0.02	0.12	0.56	100
15866 d	DH- 26 A	3.03	6.06	47.84	31.58	1.30	15.49	0.40	2.33	0.04	0.07	0.01	0.10	0.85	100
15867 d	DH- 32 A	6.06	9.09	46.24	31.05	1.46	14.89	0.39	2.30	0.06	0.08	0.02	0.10	3.41	100
15868 d	DH- 30 A	3.03	6.06	48.16	31.37	1.17	15.66	0.34	2.37	0.06	0.08	0.01	0.10	0.7	100
15869 d	DH- 31 A	12.12	15.15	48.34	30.80	1.36	15.61	0.46	2.42	0.06	0.08	0.02	0.10	0.78	100
15870 d	DH- 33 A	12.12	15.15	47.92	30.76	1.29	15.27	0.34	2.46	0.08	0.07	0.01	0.10	1.71	100
15871 d	DH- 29 A	12.12	15.15	48.08	31.50	1.39	15.24	0.40	2.36	0.06	0.07	0.01	0.10	0.77	100
15872 d	DH- 32 A	0.00	3.03	47.69	31.35	1.18	15.66	0.35	2.43	0.06	0.07	0.01	0.12	1.08	100
15873 d	DH- 27 A	6.06	9.09	47.94	31.55	1.20	15.70	0.36	2.39	0.06	0.07	0.02	0.12	0.61	100
15874 X	DH- 30 A	12.12	15.15	47.60	31.94	1.05	15.57	0.55	2.31	0.04	< .01	0.01	< 0.01	0.83	100
15875 X	DH- 26 A	12.12	15.15	47.72	31.82	1.18	15.71	0.50	2.18	0.03	< .01	0.02	< 0.01	0.77	100
15876 X	DH- 26 A	3.03	6.06	47.40	31.94	1.10	15.57	0.55	2.26	0.03	0.02	0.02	< 0.01	1.02	100
15877 X	DH- 32 A	6.06	9.09	46.05	30.67	1.14	14.98	0.47	2.96	0.31	0.01	0.02	< 0.01	3.26	100
15878 X	DH- 30 A	3.03	6.06	47.72	31.91	1.04	15.61	0.43	2.32	0.03	< .01	0.02	< 0.01	0.85	100
15879 X	DH- 31 A	12.12	15.15	47.35	31.53	1.22	15.42	0.58	2.42	0.07	< .01	0.02	< 0.01	1.26	100
15880 X	DH- 33 A	12.12	15.15	47.00	31.54	1.10	15.37	0.45	2.40	0.08	< .01	0.01	< 0.01	1.93	100
15881 X	DH- 29 A	12.12	15.15	48.09	31.39	1.22	15.39	0.55	2.29	0.05	< .01	0.02	< 0.01	0.94	100
15882 X	DH- 32 A	0.00	3.03	47.41	31.87	1.00	15.54	0.57	2.33	0.05	< .01	0.02	< 0.01	1.22	100
15883 X	DH- 27 A	6.06	9.09	47.25	32.03	1.15	15.82	0.56	2.22	0.02	0.01	0.02	< 0.01	0.79	100

NORMALIZED WHOLE ROCK CHEMCIAL DATA - MAJOR ELEMENTS

DH - drill hole cuttings
TR - trench rock sample

X - XRF duplicate
d - ICP duplicate

Sample #	location	distance m	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	MnO	P2O5	LOI	TOTAL
15884	TR - A	76.60	49.80	30.13	1.30	15.08	0.45	2.33	0.08	0.05	0.02	0.10	0.66	100
15885	TR A	51.90	48.77	30.81	1.14	15.18	0.44	2.53	0.08	0.07	0.02	0.10	0.87	100
15886	TR - A	91.40	49.25	30.09	1.21	15.27	0.51	2.44	0.08	0.12	0.02	0.10	0.91	100
15887	TR - A	97.60	49.38	29.64	1.44	15.33	0.53	2.52	0.14	0.10	0.02	0.10	0.78	100
15888	TR - C	2.80	50.06	30.06	1.35	14.54	0.45	2.59	0.12	0.10	0.02	0.12	0.59	100
15889	TR - C	6.40	49.42	29.93	1.48	15.22	0.53	2.45	0.08	0.09	0.02	0.12	0.67	100
15890	TR - C	44.80	48.84	30.75	1.41	15.41	0.55	2.44	0.08	0.08	0.02	0.10	0.33	100
15891	TR - C	50.30	49.15	30.26	1.18	15.89	0.42	2.44	0.06	0.06	0.02	0.12	0.4	100
15892	TR - C	55.90	48.74	30.57	1.21	15.22	0.39	2.63	0.08	0.09	0.01	0.12	0.93	100
15893	TR - C	63.20	49.39	30.13	1.27	15.52	0.41	2.50	0.08	0.05	0.02	0.08	0.53	100
15894	TR - C	68.50	48.81	31.15	1.11	15.20	0.41	2.38	0.10	0.06	0.01	0.10	0.66	100
15895	TR - C	72.90	48.64	30.36	2.09	14.92	0.55	2.36	0.08	0.11	0.02	0.10	0.79	100
15896	TR - D	5.40	48.82	31.13	1.26	15.32	0.43	2.52	0.10	0.06	0.02	0.10	0.25	100
15897	TR - D	9.90	49.85	30.14	0.90	15.16	0.40	2.52	0.12	0.04	0.01	0.08	0.77	100
15898	TR - D	42.00	49.12	30.79	1.09	15.21	0.40	2.64	0.06	0.10	0.01	0.08	0.51	100
15899	TR - D	50.90	49.20	30.26	1.63	14.87	0.37	2.62	0.16	0.07	0.03	0.10	0.67	100
15900	TR - D	77.20	48.80	31.13	1.11	15.15	0.35	2.44	0.08	0.06	0.01	0.10	0.78	100
15901	TR - E	3.2	49.52	30.71	0.82	15.46	0.34	2.51	0.04	0.03	< .01	0.10	0.46	100
15902	TR - E	10.1	48.63	31.59	0.95	15.78	0.31	2.17	0.08	0.04	0.01	0.10	0.34	100
15903	TR - E	15.6	48.07	31.72	1.34	15.66	0.46	2.17	0.06	0.08	0.02	0.10	0.33	100
15904	TR - E	22	48.69	30.82	1.36	15.76	0.48	2.29	0.06	0.07	0.02	0.08	0.37	100
15905	TR - E	33.6	48.42	31.68	0.97	15.72	0.31	2.13	0.08	0.04	0.01	0.10	0.54	100
15906	TR - E	43.7	48.48	30.44	2.14	15.46	0.45	2.38	0.06	0.11	0.03	0.10	0.36	100
15907	TR - F	0.00	49.24	31.13	0.83	14.87	0.41	2.56	0.08	0.04	0.01	0.12	0.72	100
15908	TR - F	5.20	49.22	30.69	1.13	15.64	0.31	2.38	0.04	0.06	0.01	0.12	0.41	100
15909	TR - F	10.20	49.19	31.07	1.23	14.49	0.44	2.68	0.08	0.05	0.02	0.12	0.65	100
15910	TR - F	20.20	49.48	30.58	0.98	14.88	0.27	2.55	0.06	0.06	0.01	0.10	1.02	100
15911	TR - F	37.80	49.13	31.33	1.04	14.96	0.30	2.50	0.08	0.07	0.01	0.10	0.48	100
15912	TR - F	52.20	48.71	31.72	0.89	15.31	0.24	2.32	0.14	0.03	0.02	0.08	0.53	100
		coordinates												
15913	rock	S 3+45 E 7+75	48.60	31.23	1.53	14.94	0.55	2.29	0.08	0.09	0.02	0.10	0.57	100
15914	rock	S 2+87 E 7+36	49.62	30.28	1.32	15.10	0.45	2.61	0.04	0.07	0.02	0.08	0.43	100
15915	rock	S 3+94 E 7+35	49.52	31.37	0.74	14.92	0.33	2.58	0.10	0.03	0.01	0.10	0.29	100
15916	rock	S 3+10 E 3+91	48.96	31.10	1.08	15.18	0.39	2.47	0.06	0.06	0.01	0.08	0.61	100
15917	rock	S 3+50 E 7+13	49.15	31.28	0.91	14.90	0.40	2.59	0.08	0.03	0.01	0.12	0.55	100
15918	rock	S 3+00 E 4+40	48.52	31.88	0.96	15.14	0.28	2.40	0.06	0.06	0.01	0.10	0.6	100
15919	rock	S 3+65 E 7+66	49.25	31.44	0.95	15.23	0.32	2.30	0.04	0.04	0.01	0.12	0.29	100
15920	rock	S 2+34 E 4+89	48.72	31.17	1.29	15.19	0.40	2.46	0.06	0.06	0.02	0.10	0.52	100
15921	rock	S 3+86 E 7+97	48.39	31.85	0.88	15.69	0.37	2.39	0.04	0.04	< .01	0.10	0.25	100
15922	rock	S 3+00 E 3+85	48.52	31.77	0.94	15.06	0.42	2.57	0.04	0.04	0.01	0.08	0.55	100
15923	rock	S 2+24 E 5+00	48.49	31.72	1.06	15.02	0.34	2.58	0.06	0.06	0.02	0.10	0.57	100
15924	rock	S 3+02 E 3+85	49.78	30.74	1.01	14.88	0.36	2.50	0.06	0.04	0.01	0.10	0.54	100
15925	rock	S 3+96 E 6+15	48.19	30.89	1.67	14.91	0.76	2.52	0.14	0.11	0.03	0.08	0.71	100

NORMALIZED WHOLE ROCK CHEMCIAL DATA - MAJOR ELEMENTS

DH - drill hole cuttings
TR - trench rock sample

X - XRF duplicate
d - ICP duplicate

Sample #	location	depth from	depth to	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	MnO	P2O5	LOI	TOTAL
15926	rock	S 3+50	E 7+82	48.30	31.02	1.54	15.70	0.58	2.36	0.06	0.08	0.02	0.08	0.25	100
15927	rock	S 3+52	E 8+00	47.73	31.58	1.51	15.59	0.56	2.37	0.04	0.10	0.02	0.10	0.38	100
15928	rock	S 3+79	E 7+82	48.21	31.73	0.93	15.89	0.29	2.29	0.06	0.04	0.01	0.10	0.46	100
15929	rock	S 3+16	E 4+05	49.79	30.70	1.14	15.00	0.34	2.30	0.06	0.06	0.02	0.10	0.52	100
15930	rock	S 3+75	E 7+50	48.66	31.75	0.82	15.68	0.34	2.16	0.04	0.04	< .01	0.10	0.43	100
15931	rock	N 9+37	E 10+7	49.36	30.92	0.96	15.51	0.32	2.41	0.06	0.04	0.01	0.08	0.34	100
15932	rock	N 10+23E	11+8	49.28	30.83	1.07	15.60	0.39	2.24	0.10	0.06	0.01	0.10	0.33	100
15933	rock	N 11+33E	12+0	49.07	30.74	1.46	15.06	0.59	2.39	0.08	0.08	0.01	0.10	0.42	100
15934	rock	N 10+42E	11+4	48.07	29.91	1.04	14.52	0.43	2.44	0.08	0.06	0.01	0.10	3.36	100
15935	rock	N 9+29	E 10+8	48.43	29.99	2.98	14.83	0.50	2.33	0.08	0.07	0.06	0.10	0.62	100
15936	rock	N 9+48	E 10+8	49.64	30.51	1.03	15.17	0.30	2.40	0.04	0.06	0.02	0.12	0.7	100
15937	rock	N 11+25E	11+7	48.93	29.76	1.53	15.39	0.23	2.25	0.10	0.07	0.03	0.10	1.63	100
15938	rock	N 10+00E	12+0	48.77	31.33	1.30	15.44	0.32	2.30	0.04	0.05	0.02	0.10	0.33	100
15939	rock	N 9+40	E 9+80	49.14	31.27	1.18	15.22	0.33	2.21	0.04	0.06	0.01	0.08	0.48	100
15940	rock	N 10+87E	21+0	48.74	30.77	1.86	14.23	0.60	2.35	0.06	0.05	0.04	0.10	1.2	100
15941	rock	N 8+83	E 7+19	48.89	31.37	1.03	15.05	0.24	2.36	0.06	0.05	0.01	0.08	0.85	100
15942	rock	N 9+40	E 7+35	49.62	30.65	1.26	14.87	0.28	2.42	0.04	0.13	0.01	0.10	0.65	100
15943	rock	N 9+20	E 7+20	49.01	30.63	1.55	15.19	0.47	2.33	0.06	0.09	0.02	0.10	0.56	100
15944	rock	N 11+17E	8+72	49.59	30.44	1.09	15.68	0.25	2.37	0.04	0.12	0.01	0.10	0.29	100
15945	rock	N 9+32	E 7+27	49.74	31.50	0.36	14.89	0.03	2.67	0.14	0.05	< .01	0.10	0.53	100
		distance													
15946	TR - A	0.00		48.57	31.46	1.25	15.30	0.35	2.26	0.06	0.07	0.01	0.10	0.6	100
15947	TR - A	4.00		48.67	28.67	3.25	15.67	0.71	2.03	0.10	0.10	0.03	0.10	0.66	100
15948	TR - A	11.80		49.34	31.07	0.99	15.14	0.25	2.50	0.04	0.05	0.01	0.08	0.52	100
15949	TR - A	20.60		48.65	31.72	1.43	14.89	0.10	2.40	0.04	0.07	0.02	0.10	0.59	100
15950	TR - A	27.10		48.26	31.74	1.33	15.39	0.32	2.40	0.02	0.07	0.01	0.10	0.34	100
		from	to												
15951	DH- 1 E	0.00	3.03	49.01	31.46	1.13	14.69	0.48	2.55	0.10	0.05	0.02	0.12	0.4	100
15952	DH- 1 E	3.03	6.06	48.23	31.93	1.17	15.20	0.43	2.32	0.14	0.06	0.01	0.10	0.42	100
15953	DH- 1 E	6.06	7.88	47.98	29.77	2.27	14.26	2.40	2.51	0.08	0.06	0.03	0.10	0.53	100
15954	DH- 2 E	0.00	3.03	48.33	31.75	1.27	15.10	0.50	2.39	0.06	0.07	0.01	0.10	0.44	100
15955	DH- 2 E	3.03	6.06	47.35	32.84	1.28	15.29	0.41	2.27	0.06	0.06	0.03	0.12	0.3	100
15956	DH- 2 E	6.06	9.09	48.15	29.56	2.30	14.44	2.08	2.43	0.10	0.11	0.03	0.10	0.71	100
15957	DH- 2 E	9.09	12.12	49.31	30.62	1.36	14.89	0.61	2.59	0.04	0.07	0.02	0.10	0.41	100
15958	DH- 2 E	12.12	15.15	49.87	30.35	1.08	14.46	0.43	2.64	0.08	0.07	0.01	0.10	0.92	100
15959	DH- 3 E	0.00	3.03	48.07	31.90	1.12	15.56	0.40	2.27	0.08	0.06	0.01	0.12	0.43	100
15960	DH- 3 E	3.03	6.06	47.93	32.05	1.04	15.37	0.35	2.42	0.04	0.05	0.01	0.10	0.63	100
15961	DH- 3 E	6.06	9.09	48.10	29.47	2.45	14.38	2.08	2.41	0.10	0.11	0.03	0.10	0.8	100
15962	DH- 3 E	9.09	10.61	48.70	30.53	1.40	14.75	1.01	2.56	0.06	0.07	0.02	0.10	0.81	100
15963	DH- 4 E	0.00	3.03	47.76	32.08	1.14	15.34	0.40	2.40	0.10	0.06	0.01	0.12	0.6	100
15964	DH- 4 E	3.03	6.06	47.66	31.91	1.01	15.46	0.34	2.24	0.06	0.05	0.01	0.08	1.17	100
15965	DH- 4 E	6.06	9.09	47.68	31.84	1.18	15.45	0.46	2.45	0.10	0.07	0.02	0.10	0.67	100
15966	DH- 5 E	0.00	3.03	47.99	31.57	0.91	14.83	0.37	2.43	0.10	0.05	0.01	0.10	1.62	100
15967	DH- 5 E	3.03	6.06	47.54	32.07	0.85	15.44	0.30	2.35	0.12	0.04	< .01	0.10	1.17	100
15968	DH- 5 E	6.06	9.09	48.24	31.43	0.99	15.06	0.39	2.21	0.16	0.07	0.02	0.08	1.35	100
15969	DH- 5 E	9.09	10.30	39.55	18.31	10.54	13.59	5.15	2.95	1.11	2.72	0.18	0.52	5.36	100
15970	DH- 5 E	10.30	11.21	39.99	18.59	10.31	13.72	4.75	3.15	0.98	2.51	0.15	0.52	5.32	100

NORMALIZED WHOLE ROCK CHEMCIAL DATA
all samples had < 30 ppm Nb,
Dh- drill hole cuttings, TR - rock sample from trench, X - XRF duplicate, d - ICP duplicate

Sample #	location	distance		SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	TiO2	MnO	P2O5	LOI	TOTAL
15971	DH- 6	0.00	3.03	49.61	29.48	1.29	15.18	0.53	2.51	0.22	0.07	0.02	0.12	0.98	100
15972	DH- 6	0.00	3.03	49.43	30.59	0.94	15.39	0.36	2.39	0.14	0.05	0.01	0.10	0.62	100
15973	DH- 6	3.03	6.06	49.62	30.45	0.87	15.76	0.32	2.40	0.04	0.04	< .01	0.08	0.43	100
15974	DH- 6	6.06	9.09	49.51	30.73	0.93	15.22	0.35	2.36	0.04	0.04	< .01	0.10	0.71	100
15975	DH- 6	9.09	12.12	49.25	30.89	0.90	15.38	0.32	2.37	0.02	0.05	< .01	0.12	0.69	100
15976	DH- 6	12.12	15.15	49.49	29.60	1.26	15.35	0.48	2.34	0.06	0.06	0.02	0.12	1.22	100
15977	DH- 6	12.12	15.15	49.21	29.96	1.13	15.53	0.41	2.38	0.06	0.05	0.01	0.08	1.17	100
15978	DH- 7 F	0.00	3.03	49.59	30.68	0.85	15.49	0.26	2.40	0.04	0.04	< .01	0.10	0.56	100
15979	DH- 7 F	3.03	6.06	49.41	30.65	0.87	15.66	0.30	2.33	0.04	0.04	< .01	0.08	0.61	100
15980	DH- 7 F	6.06	9.09	49.15	30.72	0.85	15.72	0.30	2.37	0.02	0.04	0.01	0.08	0.75	100
15981	DH- 7 F	9.09	12.12	49.88	30.03	0.70	15.07	0.23	2.40	0.04	0.04	0.02	0.08	1.51	100
15982	DH- 7 F	12.12	15.15	47.02	29.45	0.76	14.97	0.25	2.31	0.06	0.04	< .01	0.08	5.03	100
15983	DH- 8 F	0.00	3.03	48.08	30.88	1.04	16.10	0.35	2.60	0.06	0.06	0.02	0.12	0.69	100
15984	DH- 8 F	3.03	6.06	49.38	30.43	1.00	15.54	0.29	2.47	0.04	0.05	0.01	0.10	0.69	100
15985	DH- 8 F	6.06	9.09	49.01	30.86	1.05	15.58	0.30	2.40	0.04	0.05	0.01	0.08	0.59	100
15986	DH- 8 F	9.09	12.12	49.05	30.64	0.97	15.62	0.30	2.41	0.04	0.04	0.01	0.08	0.85	100
15987	DH- 8 F	12.12	15.15	48.94	30.39	0.96	15.60	0.31	2.47	0.04	0.04	< .01	0.10	1.14	100
15988	DH- 9 F	0.00	3.03	49.23	30.56	0.97	15.21	0.28	2.64	0.04	0.05	0.01	0.08	0.94	100
15989	DH- 9 F	3.03	6.06	49.50	30.38	0.92	15.59	0.24	2.49	0.04	0.04	0.01	0.10	0.72	100
15990	DH- 9 F	6.06	9.09	49.70	30.08	1.04	15.78	0.24	2.48	0.06	0.04	0.01	0.06	0.51	100
15991	DH- 9 F	9.09	12.12	49.80	30.21	1.13	15.34	0.31	2.49	0.16	0.04	0.02	0.10	0.41	100
15992	DH- 9 F	12.12	15.15	49.09	31.12	1.04	15.53	0.32	2.35	0.04	0.05	0.01	0.10	0.39	100
15993	DH- 10 F	0.00	3.03	49.08	31.06	1.03	15.37	0.29	2.55	0.04	0.04	0.01	0.08	0.45	100
15994	DH- 10 F	3.03	6.06	49.30	31.03	0.93	15.25	0.30	2.45	0.08	0.05	0.01	0.08	0.54	100
15995	DH- 10 F	6.06	9.09	49.09	31.16	0.94	15.52	0.26	2.44	0.04	0.04	0.01	0.08	0.42	100
15996	DH- 10 F	9.09	12.12	48.79	31.41	0.97	15.40	0.30	2.37	0.06	0.06	0.01	0.10	0.53	100
15997	DH- 10 F	12.12	15.15	48.68	31.31	0.86	15.30	0.34	2.50	0.02	0.04	< .01	0.08	0.84	100
15998	DH- 11 F	0.00	3.03	49.38	30.81	0.78	15.49	0.21	2.44	0.06	0.03	< .01	0.06	0.72	100
15999	DH- 11 F	3.03	6.06	49.26	30.67	0.91	15.73	0.23	2.35	0.04	0.04	< .01	0.08	0.66	100
16000	DH- 11 F	6.06	9.09	48.66	31.23	0.81	15.16	0.32	2.55	0.02	0.04	< .01	0.10	1.1	100
16001 a	TR - D	85.70		49.99	30.63	1.23	14.60	0.42	2.38	0.14	0.09	0.01	0.12	0.39	100
16002 a	TR - D	89.40		49.61	30.36	1.25	14.63	0.44	2.61	0.14	0.09	0.01	0.10	0.76	100
16003 a	TR - D	97.90		48.48	30.48	1.61	14.31	0.64	2.69	0.22	0.09	0.01	0.10	1.4	100
16004 a	TR - D	105.50		48.35	30.46	1.24	15.29	0.45	2.39	0.10	0.10	0.02	0.10	1.5	100
16005 a	TR - D	113.60		48.63	30.89	1.21	15.23	0.45	2.44	0.04	0.06	0.01	0.10	0.93	100

Appendix IV - Statistical treatment of ICP, ICP duplicate, ICP average and XRF results.

- Mean average, Variance and Standard deviation is calculated using functions in LOTUS 123 spreadsheet

DUPLICATE RESULTS - STATISTICAL ANALYSIS

from m	to m	SiO2 orig	SiO2 dup	SiO2 aver	SiO2 XRF	Al2O3 orig	Al2O3 dup	Al2O3 aver	Al2O3 XRF	Fe2O3 orig	Fe2O3 dup	Fe2O3 aver	Fe2O3 XRF	CaO orig	CaO dup	CaO aver	CaO XRF
DH 26 3.03	- 6.06	47.15	47.84	47.49	47.40	31.73	31.58	31.65	31.94	1.26	1.30	1.28	1.10	15.83	15.49	15.66	15.57
DH 26 12.12	-15.15	48.86	47.66	48.26	47.72	30.19	31.91	31.05	31.82	1.35	1.44	1.39	1.18	15.53	15.49	15.51	15.71
DH 27 6.06	- 9.09	47.91	47.94	47.93	47.25	31.14	31.55	31.34	32.03	1.49	1.20	1.34	1.15	15.86	15.70	15.78	15.82
DH 29 12.12	-15.15	48.27	48.08	48.18	48.09	31.14	31.50	31.32	31.39	1.43	1.39	1.41	1.22	15.19	15.24	15.22	15.39
DH 30 3.03	- 6.06	47.51	48.16	47.83	47.72	31.39	31.37	31.38	31.91	1.28	1.17	1.23	1.04	15.74	15.66	15.70	15.61
DH 30 12.12	-15.15	46.84	48.17	47.51	47.60	31.92	31.26	31.59	31.94	1.39	1.31	1.35	1.05	15.83	15.50	15.67	15.57
DH 31 12.12	-15.15	46.68	48.34	47.51	47.35	31.89	30.80	31.35	31.53	1.42	1.36	1.39	1.22	15.95	15.61	15.78	15.42
DH 32 0.00	- 3.03	46.71	47.69	47.20	47.41	31.79	31.35	31.57	31.87	1.23	1.18	1.21	1.00	15.88	15.66	15.77	15.54
DH 32 6.06	- 9.09	46.67	46.24	46.45	46.05	29.51	31.05	30.28	30.67	1.44	1.46	1.45	1.14	15.42	14.89	15.16	14.98
DH 33 12.12	-15.15	47.16	47.92	47.54	47.00	31.19	30.76	30.97	31.54	1.31	1.29	1.30	1.10	15.36	15.27	15.32	15.37

Error		SiO2 ICP to ICP	SiO2 ICP or XRF	SiO2 ICP dup XRF	SiO2 ICP av XRF	Al2O3 ICP to ICP	Al2O3 ICP or XRF	Al2O3 ICP dup XRF	Al2O3 ICP av XRF	Fe2O3 ICP to ICP	Fe2O3 ICP or XRF	Fe2O3 ICP du XRF	Fe2O3 ICP av XRF	CaO ICP to ICP	CaO ICP or XRF	CaO ICP dup XRF	CaO ICP av XRF
DH 26 3.03	- 6.06	0.69	0.26	0.43	0.09	0.16	0.20	0.36	0.28	0.04	0.16	0.20	0.18	0.34	0.26	0.08	0.09
DH 26 12.12	-15.15	1.20	1.14	0.06	0.54	1.73	1.63	0.10	0.77	0.09	0.18	0.26	0.22	0.04	0.18	0.22	0.20
DH 27 6.06	- 9.09	0.03	0.66	0.69	0.68	0.40	0.89	0.49	0.69	0.30	0.34	0.04	0.19	0.16	0.04	0.12	0.04
DH 29 12.12	-15.15	0.19	0.18	0.01	0.09	0.36	0.25	0.11	0.07	0.03	0.21	0.18	0.19	0.05	0.20	0.15	0.18
DH 30 3.03	- 6.06	0.65	0.21	0.44	0.11	0.01	0.53	0.54	0.53	0.10	0.24	0.14	0.19	0.08	0.13	0.05	0.09
DH 30 12.12	-15.15	1.33	0.76	0.57	0.10	0.66	0.02	0.68	0.35	0.08	0.34	0.26	0.30	0.33	0.26	0.07	0.10
DH 31 12.12	-15.15	1.66	0.67	0.99	0.16	1.10	0.36	0.73	0.19	0.05	0.20	0.14	0.17	0.34	0.53	0.19	0.36
DH 32 0.00	- 3.03	0.99	0.70	0.29	0.21	0.44	0.08	0.52	0.30	0.05	0.24	0.19	0.21	0.22	0.34	0.13	0.24
DH 32 6.06	- 9.09	0.43	0.62	0.19	0.40	1.53	1.16	0.38	0.39	0.02	0.30	0.32	0.31	0.53	0.44	0.09	0.17
DH 33 12.12	-15.15	0.75	0.16	0.91	0.54	0.43	0.35	0.78	0.56	0.02	0.21	0.19	0.20	0.09	0.01	0.10	0.05

population statistics	SiO2 ICP to ICP	SiO2 ICP or XRF	SiO2 ICP dup XRF	SiO2 ICP av XRF	Al2O3 ICP to ICP	Al2O3 ICP or XRF	Al2O3 ICP dup XRF	Al2O3 ICP av XRF	Fe2O3 ICP to ICP	Fe2O3 ICP or XRF	Fe2O3 ICP du XRF	Fe2O3 ICP av XRF	CaO ICP to ICP	CaO ICP or XRF	CaO ICP dup XRF	CaO ICP av XRF
mean error	0.79	0.54	0.46	0.29	0.68	0.55	0.47	0.41	0.08	0.24	0.19	0.22	0.22	0.24	0.12	0.15
variance	0.23	0.09	0.10	0.05	0.30	0.24	0.05	0.04	0.01	0.00	0.01	0.00	0.02	0.02	0.00	0.01
Standard deviation	0.48	0.31	0.32	0.21	0.55	0.49	0.22	0.21	0.08	0.06	0.07	0.05	0.15	0.16	0.05	0.09

DUPLICATE RESULTS - STATISTICAL ANALYSIS

	from	to	MgO				Na2O				K2O				TiO2			
	m	m	orig	dup	aver	XRF	orig	dup	aver	XRF	orig	dup	aver	XRF	orig	dup	aver	XRF
DH 26	3.03	- 6.06	0.42	0.40	0.41	0.55	2.40	2.33	2.37	2.26	0.06	0.04	0.05	0.03	0.08	0.07	0.08	0.02
DH 26	12.12	-15.15	0.45	0.39	0.42	0.50	2.36	2.32	2.34	2.18	0.02	0.02	0.02	0.03	0.08	0.08	0.08	< .01
DH 27	6.06	- 9.09	0.39	0.36	0.37	0.56	2.33	2.39	2.36	2.22	0.04	0.06	0.05	0.02	0.09	0.07	0.08	0.01
DH 29	12.12	-15.15	0.45	0.40	0.42	0.55	2.47	2.36	2.41	2.29	0.08	0.06	0.07	0.05	0.08	0.07	0.07	< .01
DH 30	3.03	- 6.06	0.45	0.34	0.40	0.43	2.51	2.37	2.44	2.32	0.08	0.06	0.07	0.03	0.08	0.08	0.08	< .01
DH 30	12.12	-15.15	0.50	0.41	0.45	0.55	2.55	2.43	2.49	2.31	0.06	0.06	0.06	0.04	0.08	0.07	0.07	< .01
DH 31	12.12	-15.15	0.52	0.46	0.49	0.58	2.56	2.42	2.49	2.42	0.06	0.06	0.06	0.07	0.07	0.08	0.07	< .01
DH 32	0.00	- 3.03	0.44	0.35	0.40	0.57	2.51	2.43	2.47	2.33	0.06	0.06	0.06	0.05	0.08	0.07	0.08	< .01
DH 32	6.06	- 9.09	0.60	0.39	0.49	0.47	2.54	2.30	2.42	2.96	0.36	0.06	0.21	0.31	0.10	0.08	0.09	0.01
DH 33	12.12	-15.15	0.36	0.34	0.35	0.45	2.55	2.46	2.51	2.40	0.12	0.08	0.10	0.08	0.08	0.07	0.07	< .01

Error			MgO				Na2O				K2O				TiO2			
			ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF
DH 26	3.03	- 6.06	0.02	0.13	0.15	0.14	0.07	0.15	0.07	0.11	0.02	0.03	0.01	0.02	0.01	0.06	0.05	0.06
DH 26	12.12	-15.15	0.06	0.05	0.11	0.08	0.05	0.18	0.13	0.16	0.00	0.01	0.01	0.01	0.00	ERR	ERR	ERR
DH 27	6.06	- 9.09	0.03	0.17	0.20	0.19	0.06	0.11	0.17	0.14	0.02	0.02	0.04	0.03	0.02	0.08	0.06	0.07
DH 29	12.12	-15.15	0.05	0.11	0.16	0.13	0.11	0.17	0.07	0.12	0.02	0.03	0.01	0.02	0.01	ERR	ERR	ERR
DH 30	3.03	- 6.06	0.11	0.02	0.10	0.04	0.14	0.18	0.05	0.12	0.02	0.05	0.03	0.04	0.00	ERR	ERR	ERR
DH 30	12.12	-15.15	0.09	0.05	0.14	0.10	0.12	0.25	0.13	0.19	0.00	0.02	0.02	0.02	0.01	ERR	ERR	ERR
DH 31	12.12	-15.15	0.06	0.06	0.12	0.09	0.14	0.14	0.00	0.07	0.00	0.01	0.01	0.01	0.01	ERR	ERR	ERR
DH 32	0.00	- 3.03	0.10	0.12	0.22	0.17	0.08	0.18	0.10	0.14	0.00	0.01	0.01	0.01	0.01	ERR	ERR	ERR
DH 32	6.06	- 9.09	0.21	0.13	0.08	0.03	0.24	0.42	0.66	0.54	0.30	0.05	0.25	0.10	0.02	0.09	0.07	0.08
DH 33	12.12	-15.15	0.02	0.09	0.11	0.10	0.09	0.16	0.07	0.11	0.04	0.04	0.00	0.02	0.01	ERR	ERR	ERR

	MgO				Na2O				K2O				TiO2			
	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF
population statistics																
mean error	0.07	0.09	0.14	0.11	0.11	0.19	0.14	0.17	0.04	0.03	0.04	0.03	0.01	ERR	ERR	ERR
variance	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.01	0.00	0.01	0.00	0.00	ERR	ERR	ERR
Standard deviation	0.05	0.04	0.04	0.05	0.05	0.08	0.18	0.13	0.09	0.01	0.07	0.03	0.01	ERR	ERR	ERR

DUPLICATE RESULTS - STATISTICAL ANALYSIS

	from	to	MnO				P2O5				Ba			Sr			Sc		
	m	m	orig	dup	aver	XRF	orig	dup	aver	XRF	orig	dup	aver	orig	dup	aver	orig	dup	aver
DH 26	3.03	- 6.06	0.01	0.01	0.01	0.02	0.12	0.10	0.11	0.02	20	20	20	220	200	210	1	1	1
DH 26	12.12	-15.15	0.01	0.02	0.02	0.02	0.10	0.12	0.11	< 0.01	20	20	20	200	200	200	1	2	2
DH 27	6.06	- 9.09	0.02	0.02	0.02	0.02	0.12	0.12	0.12	0.01	20	20	20	210	190	200	2	1	2
DH 29	12.12	-15.15	0.01	0.01	0.01	0.02	0.10	0.10	0.10	< 0.01	40	40	40	210	190	200	2	2	2
DH 30	3.03	- 6.06	0.02	0.01	0.02	0.02	0.10	0.10	0.10	< 0.01	30	20	25	200	190	195	2	1	2
DH 30	12.12	-15.15	0.02	0.01	0.01	0.01	0.10	0.10	0.10	< 0.01	20	20	20	220	200	210	2	1	2
DH 31	12.12	-15.15	0.02	0.02	0.02	0.02	0.10	0.10	0.10	< 0.01	30	20	25	220	200	210	3	2	3
DH 32	0.00	- 3.03	0.02	0.01	0.02	0.02	0.10	0.12	0.11	< 0.01	30	20	25	200	190	195	2	2	2
DH 32	6.06	- 9.09	0.03	0.02	0.02	0.02	0.10	0.10	0.10	0.01	30	30	30	220	290	255	2	2	2
DH 33	12.12	-15.15	0.01	0.01	0.01	0.01	0.10	0.10	0.10	< 0.01	20	40	30	200	190	195	2	2	2

Error			MnO				P2O5				Ba	Sr	Sc
			ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP to ICP	ICP to ICP
DH 26	3.03	- 6.06	0.00	0.01	0.01	0.01	0.02	0.10	0.08	0.09	0	10	0
DH 26	12.12	-15.15	0.01	0.01	0.00	0.00	0.02	ERR	ERR	ERR	0	0	1
DH 27	6.06	- 9.09	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.11	0	10	1
DH 29	12.12	-15.15	0.00	0.01	0.01	0.01	0.00	ERR	ERR	ERR	0	10	0
DH 30	3.03	- 6.06	0.01	0.00	0.01	0.00	0.00	ERR	ERR	ERR	5	5	1
DH 30	12.12	-15.15	0.01	0.01	0.00	0.00	0.00	ERR	ERR	ERR	0	10	1
DH 31	12.12	-15.15	0.00	0.00	0.00	0.00	0.00	ERR	ERR	ERR	5	10	1
DH 32	0.00	- 3.03	0.01	0.00	0.01	0.00	0.02	ERR	ERR	ERR	5	5	0
DH 32	6.06	- 9.09	0.01	0.01	0.00	0.01	0.00	0.09	0.09	0.09	0	35	0
DH 33	12.12	-15.15	0.00	0.00	0.00	0.00	0.00	ERR	ERR	ERR	10	5	0

	MnO				P2O5				Ba	Sr	Sc
	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF	ICP to ICP	ICP to ICP	ICP to ICP
population statistics											
mean error	0.01	0.01	0.00	0.00	0.01	ERR	ERR	ERR	2.5	10.0	0.3
variance	0.00	0.00	0.00	0.00	0.00	ERR	ERR	ERR	****	80.0	0.1
Standard deviation	0.00	0.00	0.00	0.00	0.01	ERR	ERR	ERR	3.4	8.9	0.3

DUPLICATE RESULTS - STATISTICAL ANALYSIS

	from	to	Ni			Cr			Cu			V			Zn			LOI			
	m	m	orig	dup	aver	orig	dup	aver	orig	dup	aver	orig	dup	aver	orig	dup		orig	dup	aver	XRF
DH 26	3.03	- 6.06	< 5	5	ERR	145	205	175	5	< 5	ERR	25	15	20	< 5	< 5	ERR	0.95	0.85	0.90	1.02
DH 26	12.12	-15.15	5	< 5	ERR	240	340	290	10	< 5	ERR	15	35	25	5	5	5	1.05	0.56	0.81	0.77
DH 27	6.06	- 9.09	< 5	10	ERR	290	240	265	10	< 5	ERR	25	20	23	5	5	5	0.62	0.61	0.62	0.79
DH 29	12.12	-15.15	< 5	5	ERR	300	330	315	< 5	< 5	ERR	20	25	23	5	5	5	0.8	0.77	0.79	0.94
DH 30	3.03	- 6.06	5	10	8	150	225	188	5	< 5	ERR	15	35	25	< 5	< 5	ERR	0.87	0.7	0.79	0.85
DH 30	12.12	-15.15	10	< 5	ERR	365	395	380	5	5	5	20	20	20	10	10	10	0.7	0.67	0.69	0.83
DH 31	12.12	-15.15	20	15	18	270	250	260	< 5	< 5	ERR	25	25	25	5	5	5	0.74	0.78	0.76	1.26
DH 32	0.00	- 3.03	15	10	13	265	240	253	5	< 5	ERR	15	20	18	5	5	5	1.17	1.08	1.13	1.22
DH 32	6.06	- 9.09	20	5	13	230	260	245	10	< 5	ERR	25	20	23	5	5	5	3.22	3.41	3.32	3.26
DH 33	12.12	-15.15	20	10	15	290	250	270	< 5	5	ERR	15	25	20	5	5	5	1.76	1.71	1.74	1.93

Error		Ni	Cr	Cu	V	Zn	LOI			
		ICP to ICP	ICP to ICP	ICP to ICP	ICP to ICP	ICP to ICP	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF
DH 26	3.03 - 6.06	ERR	30	ERR	5	ERR	0.10	0.07	0.17	0.12
DH 26	12.12 -15.15	ERR	50	ERR	10	0	0.49	0.28	0.21	0.04
DH 27	6.06 - 9.09	ERR	25	ERR	3	0	0.01	0.17	0.18	0.18
DH 29	12.12 -15.15	ERR	15	ERR	3	0	0.03	0.14	0.17	0.15
DH 30	3.03 - 6.06	3	38	ERR	10	ERR	0.17	0.02	0.15	0.06
DH 30	12.12 -15.15	ERR	15	0	0	0	0.03	0.13	0.16	0.14
DH 31	12.12 -15.15	3	10	ERR	0	0	0.04	0.52	0.48	0.50
DH 32	0.00 - 3.03	3	13	ERR	3	0	0.09	0.05	0.14	0.09
DH 32	6.06 - 9.09	8	15	ERR	3	0	0.19	0.04	0.15	0.06
DH 33	12.12 -15.15	5	20	ERR	5	0	0.05	0.17	0.22	0.19

population statistics	Ni	Cr	Cu	V	Zn	LOI			
	ICP to ICP	ICP to ICP	ICP to ICP	ICP to ICP	ICP to ICP	ICP to ICP	ICP or XRF	ICP du XRF	ICP av XRF
mean error	ERR	23.0	ERR	4.0	ERR	0.12	0.16	0.20	0.15
variance	ERR	147.3	ERR	11.5	ERR	0.02	0.02	0.01	0.02
Standard deviation	ERR	12.1	ERR	3.4	ERR	0.14	0.14	0.10	0.13

Appendix V - Letter summary of crushing and screening of bulk sample material

- completed by Lakefield Research

LAKEFIELD RESEARCH

A Division of Falconbridge Limited
185 Concession Street, Postal Bag 4300
Lakefield, Ontario, Canada K0L 2H0
Tel: (705) 652-2000 Fax: (705) 652-6365

November 25, 1994

Mr. Hendrik Veldhuyzen
P.O. Box 6105
Station A
Toronto, Ontario
M5W 1P5

Dear Mr. Veldhuyzen:

Re: LR4651

This summary letter includes the results of the crushing and screening program conducted at your request. Two bulk samples were crushed, screened, bagged and then shipped on October 12, 1994, to Poland.

The two anorthosite samples "A" (16 tonnes) and "B" (10 tonnes) were received on September 27, 1994. The crushing plant was thoroughly cleaned and set-up to accommodate the crushing and screening of the two separate samples. Figure 1 shows the crushing and screening circuit used. The two samples were crushed on October 3rd and 4th, with shipment on October 12th, via CAN-AM Trucking. The loaded bulk shipping bags were stored under cover of a tarp until they were loaded in the container.

Mr. Don Hains of Hains Technology Associates attended the the crushing of Sample "B" on October 4th, and took with him a 10 kg grab sample recovered from each of the anorthosite samples.

The bulk bags of -4 mm +48 mesh anorthosite were weighed and moved to storage. The -48 mesh fines were weighed and disposed. Table 1 summarizes the weights of each crushed sample including the fines.

If you have any questions with regard to this project or require additional testwork, please do not hesitate to call.

Yours truly

Dean Rollwagen
Project Leader

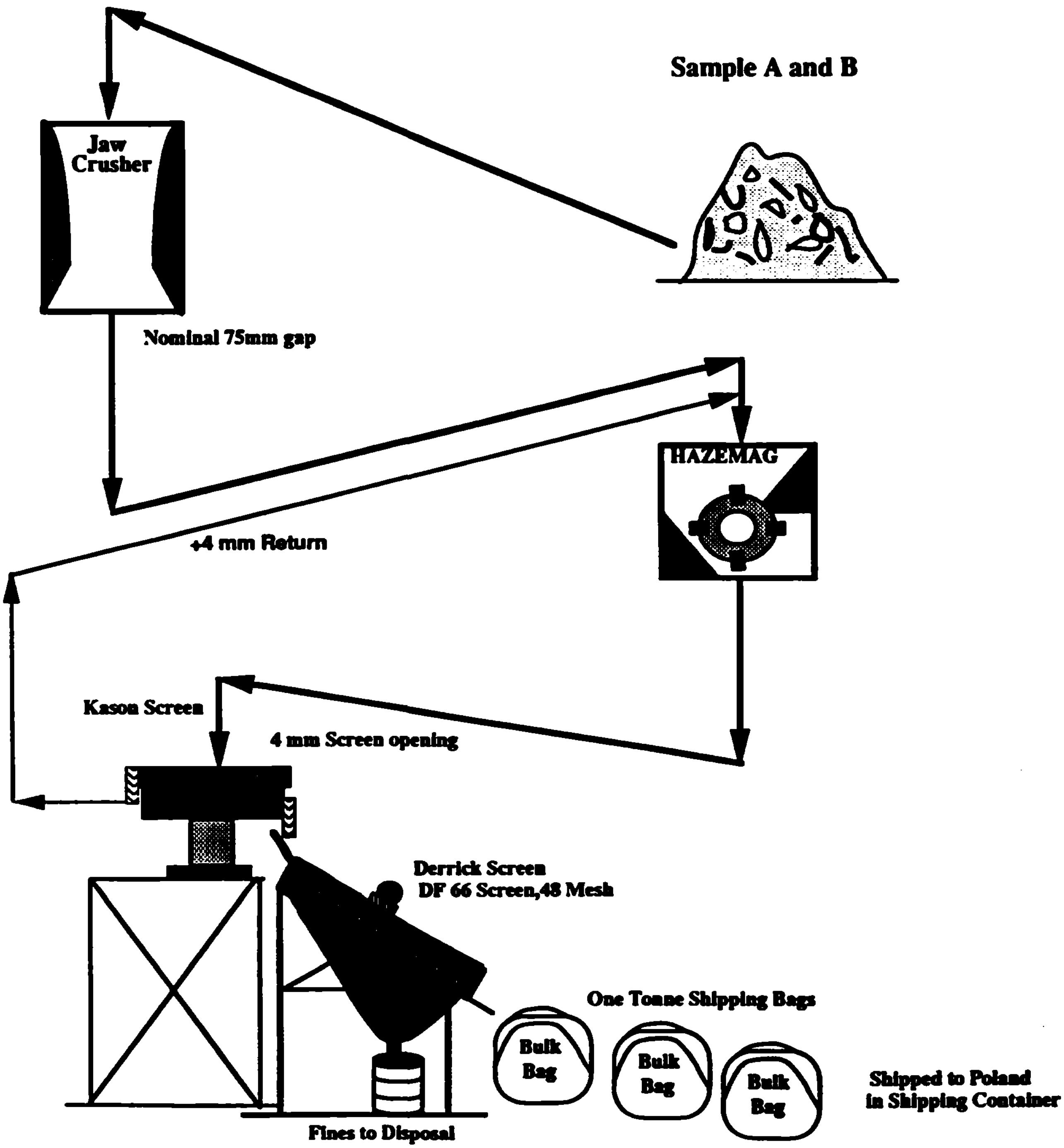
DWR:bjs
Enclosures - 2
pc: T. Bigg, LR

TABLE 1 : SUMMARY OF ANORTHOSITE CRUSHING AND BAGGING

Inventory of Gross Bag Weight of Crushed Anorthosite (-4mm +48 mesh)
BAG TARE =5.5lb.

SAMPLE A				SAMPLE B			
BAG No.	GROSS WEIGHT lb.	NET WEIGHT lb.		BAG No.	GROSS WEIGHT lb.	NET WEIGHT lb.	
1	1750	1744.5		1	2100	2094.5	
2	2035	2029.5		2	2250	2244.5	
3	1550	1544.5		3	2550	2544.5	
4	2400	2394.5		4	2350	2344.5	
5	1850	1844.5		5	2340	2334.5	
6	2400	2394.5		6	2310	2304.5	
7	2150	2144.5					
8	1900	1894.5					
9	1975	1969.5					
10	2150	2144.5					
-4mm+48 Mesh	20160	20105	lb.	-4mm+48 Mesh	13900	13867	lb.
	Wt. kg.	Wt. kg.	Wt %		Wt. kg.	Wt. kg.	Wt %
Sample A Product				**Sample B Product**			
-4mm+48 Mesh	9148	9123	94.1	**-4mm+48 Mesh**	6308	6293	94.7
Fines		575	5.9	**Fines**		350	5.3
- 48 Mesh				**- 48 Mesh**			
Original Feed (Calc)		9698	100.0	**Original Feed (Calc)**		6643	100.0

FIGURE 1 : ANORTHOSITE CRUSHING, SCREENING AND BAGGING FLOWSHEET



Reserve Calculation

and

Quarry Plan Report

Purechem Limted

Anorthosite Claims

Warren Township, Ont.

Anorthosite Reserves.

Initially it was considered that production would start from Area A. However mineralogical testwork has revealed that Area B will be a more suitable place to begin. Apparently the composition of the anorthosite in Area B is considered to be more favorable than that of Area A, and there are no dykes present unlike Area A. Area B requires a minimum amount of work on an access road (probably just putting down some gravel over a length of approximately 150m.) Whereas Area A straddles the main haulage road for lumber trucks and a by-pass route for these vehicles will have to be constructed before production from Area A can be considered. This is of course several years "down the road" so to speak.

Mapping and shallow rotary air track drilling have revealed the approximate dimensions of the two areas A and B. The drilling was carried out to 15m. depths but for the purposes of this report, reserves have been extended to 20m.

Reserves for Area B.

1st bench:	average length	133m.
	average width	24m.
	height	10m.
	specific gravity	2.765*

tonnes = length x width x height x sp.gr. = 139,743

2nd bench:	average length	119m.
	average width	24m.
	height	10m.
	specific gravity	2.765

tonnes = 78,968

* Specific Gravity of Anorthosite (An.90) is 2.765

Reference:(Rutley's Mineralogy).

Total immediate tonnage for Area B = 218,711

Assume 10% losses for overburden removal and shear zones, then the net reserves are 196,840 tonnes or approximately 20 years mine life with a production rate of 10,000 tonnes per year.

Potential for Area B could lie at depth as well as to the southwest. Further trenching, mapping and drilling would reveal just how much.

Reserves for Area A

1st bench:	average length	273m.
	average width	63m.
	height	10m.
	specific gravity	2.765

tonnes = 273 x 63 x 10 x 2.765 = 475,552

If a second bench is required:

average length	259m.
average width	49m.
height	10m.
specific gravity	2.765
tonnes =	350,906

for a combined total of 826,458 tonnes or over 80 years of reserves. However, 20% should be deducted for overburden plus leveling of bedrock contact, shear zones and dykes. This would leave a net tonnage of 661,000 or enough for well over 60 years. Again, potential for this zone lies in depth, and for strike extension to the southwest beneath till cover possibly displaced by faults.

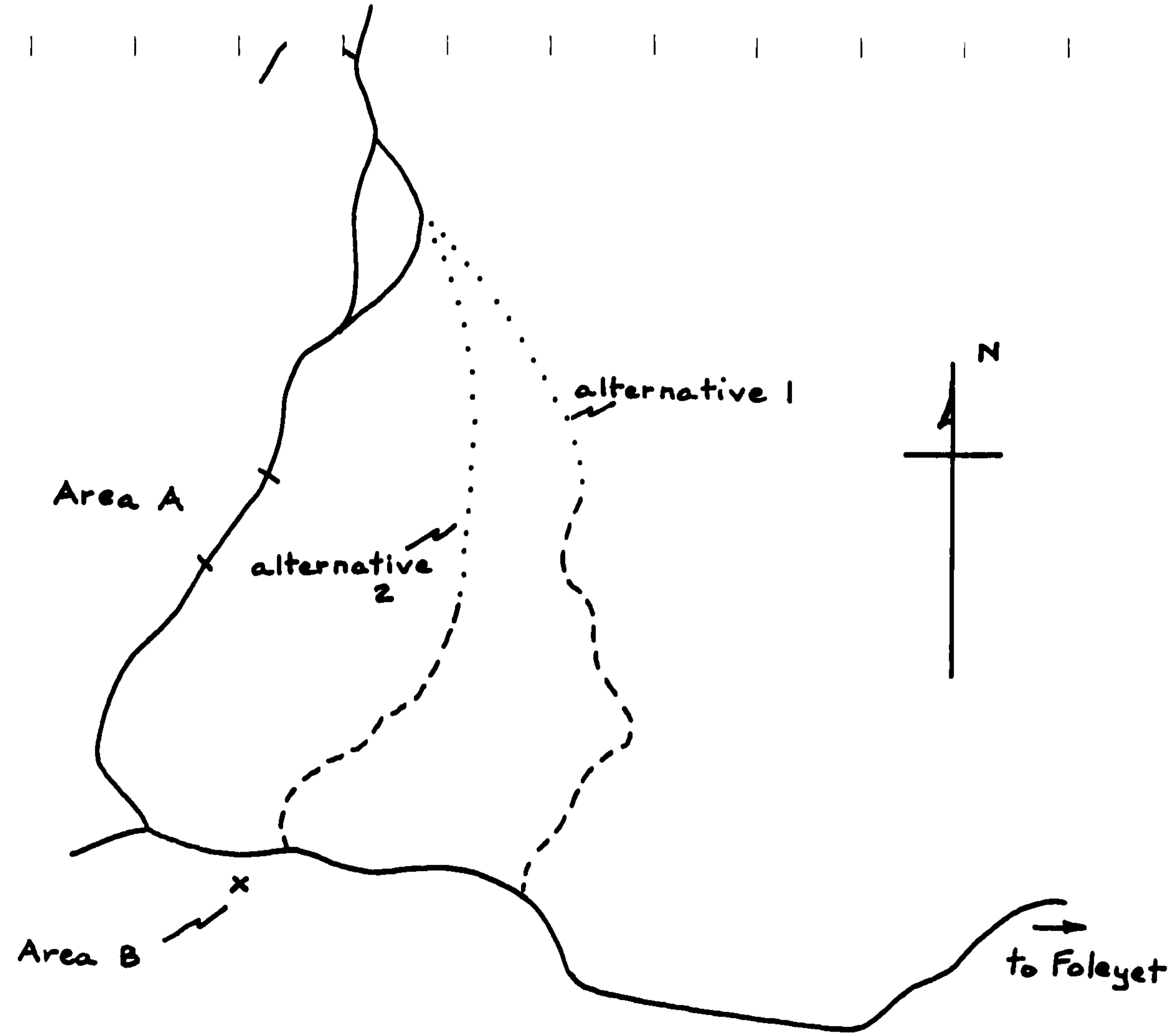
By-Pass Road for Area A

Two possible routes are shown on Fig.1, either of which would entail approximately two kilometres of preparation and road building. Alternative route 1 is probably better than route 2 that passes close to but to the east of a swampy area. This road would not be required for about 20 years by which time conditions and requirements could change. Under today's regulations we could expect to receive some government assistance, perhaps as much as 50% of the costs, for putting in a new road. The McChesney Lumber Company might also be amenable to pay for part of the cost. They have been considering taking out the bend in the road which would result in the selection of one of the two alternatives shown on Fig.1

Mining

Introduction

The excavation of anorthosite from the designated area will be accomplished in a series of benches of approximately 10m. in vertical height. The operation will be scheduled or phased according to bench intervals and based on a reduced rate in the initial production year (5000 tonnes) and increasing to a maximum rate of 10,000 tonnes per year in the third year of production.



Scale : 1 to 20,000

Fig. 1.

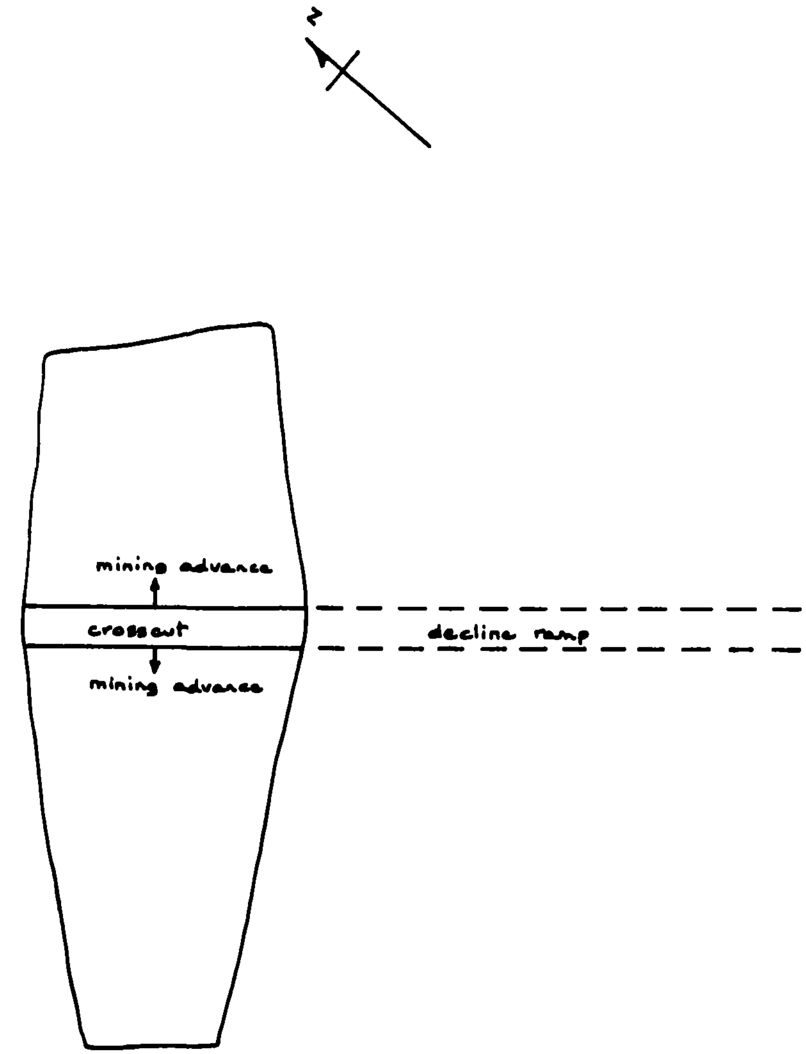
Sketch of 2 Anorthosite areas

and possible by-pass alternatives.

Reserves for Area B	197,000 tonnes		
Production rate:		1st year	5,000 tonnes
		2nd year	7,500 tonnes
		3rd and succeeding years	10,000 tonnes
		Duration:	20 years mine life.

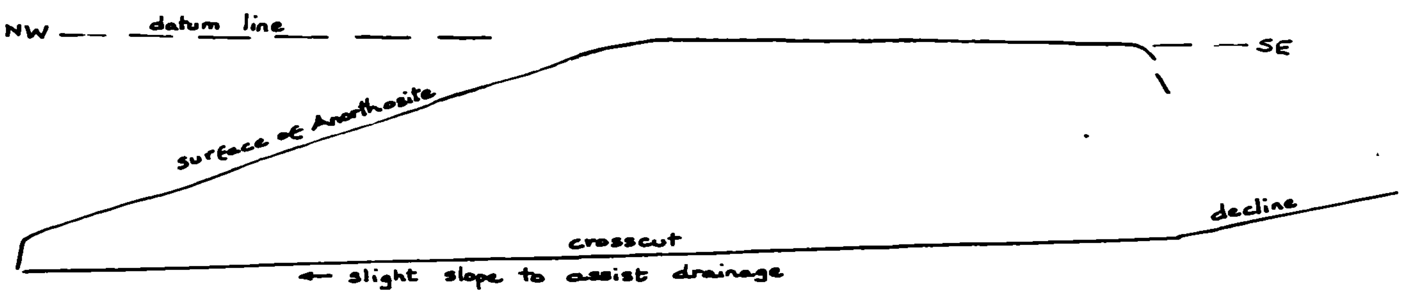
The preparation of Area B as planned will require the use of tractors and/or backhoes to remove the overburden material and assist in laying down the gravel capping for the access road. The production schedule will utilize a loader-truck operation and a portable crusher.

Before production commences in earnest, a 500 ton bulk sample is required to be mined in 1995 from Area B. After this has been taken, it is recommended to put a decline from the access road to about the middle of the anorthosite body. If the decline starts about 100m. away, by the time the decline reaches the anorthosite the depth will be 10m. or the bottom of the first bench. From here a crosscut can be driven across the anorthosite for approximately 55m which will give access to "ore" material in two directions - northeast and southwest (see figures 2 and 3). The initial crosscut, if driven at a width of 8m, will give sufficient tonnage for the first 2 years of production, i.e.about 12,000 tonnes.



Scale 1:1000

Fig. 2.
Sketch of Area B - Operational Plan



Scale 1: 2500

Fig. 3.
Sketch of decline/crosscut into Area B.

Operational Plan

The proposed operational plan for Area B will involve the mining of two 10 metre benches which gives sufficient tonnage for a 20 year life. Once the decline has been put in and the initial crosscut is driven, production can continue at a uniform rate to the ends of the anorthosite body. Mining will consist of drilling 4 inch diameter holes with a burden of 3 metres. The initial 55 metre width tapers down to 45m. to the northeast and 25m. to the southeast.

After blasting, the anorthosite will be crushed on site to 1-2 inches, then loaded onto trucks for delivery to Foleyet rail station for storage on a concrete pad. This crushed material will be loaded into hopper cars or gondolas for shipment by rail to Cornwall, S.Ontario. It is anticipated that mining at top production (10,000 tonnes) will not require longer than 4 weeks annually.

Mining at Area A, though slated for 20 years in the future, is foreseen to be carried out in a series of terraces at perhaps different heights, advancing south to north, the benches being self-draining, at least initially (see fig.4). Area A will be more difficult to mine than Area B due to the undulating bedrock surface and the presence of included dykes. This latter will have to be removed during the mining process even if it means losing a fair amount of good anorthosite in the process. If the dykes have a vertical attitude, provision could be made to blast the dykes first and remove them as waste.

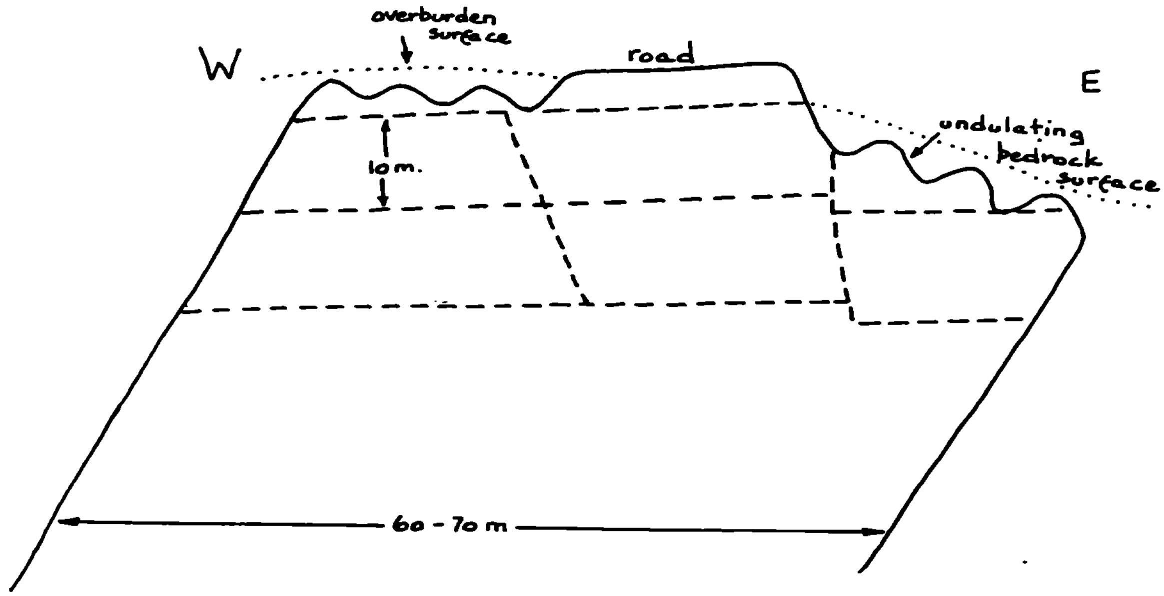


Fig. 4.

Sketch along trench showing overburden (1- 3 m.), undulating bedrock surface and benches for mining at Area A.

Scale 1 : 500 (approx)

Contract Mining

Details of the project were sent to 9 contract mining companies which were requested for a quotation on a price and delivery basis for the 500 tonne bulk sample and for the annual production of 10,000 tonnes. The contractors were informed that they should recognize the long-term nature of the project (at least 10 years) and that their prices should reflect this. Four of the 9 companies sent representatives to visit the site in early November. Of the four who made the visit only three submitted quotations and only one of these should be taken seriously. This quotation is the one submitted by Leo Alarie and Sons Limited. The 500 tonne bulk sample was priced at $37,176.00 or $74.35/tonne and annual production of 7,500 tonnes (average?) was costed at $148,235.00 or $19.76/tonne. It is recommended that this contractor be used at least for the 500 tonne bulk sample after which perhaps more accurate costs might be ascertained for mining and handling. Presumably, too, his costs for 10,000 tonnes annually could be expected to be a little lower than those quoted for 7,500 tonnes.

One further company was contacted for a quotation but would only supply crushing costs ($5.00/tonne). They would be interested in quoting on the project after a property visit in May of next year.

Equipment Required

1 Front End Loader

4 x 35 tonne trucks

1 two inch portable crusher

Air-track drilling equipment for 4 inch holes

Explosives

Pump

Back-hoe and/or tractor for overburden removal.

CERTIFICATE OF QUALIFICATIONS

Peter A.Bevan,residing at 6033 Dunford Drive, Mississauga,Ontario, do certify that:

(1) I am a mining geologist and have been in consulting work serving the mining industry for more than Twelve years.

(2) I am graduate of the Royal School of Mines in London, England, with a B.Sc.degree in Mining Geology in 1960, and have been practising my profession since graduation.

(3) I am registered Professional Engineer in the Province of Ontario.

(4) I have no interest in, nor do I expect to receive any interest, direct or indirect in Purechem Ltd.

(5) The statements contained in this report and the conclusions and recommendations made are based on my review of the data available.I visited the property during the period September 20th-21st,1994.

REGISTERED PROFESSIONAL ENGINEER P. A. BEVAN PROVINCE OF ONTARIO

Mississauga

January 6th,1994

Peter A.Bevan,P.Eng

Consulting Mining Geologist

ANORTHOSITE PROJECT
FOLEYET
N(THERN ONTARIO

INTERNATIONAL MINING CO & ASSOC. LTD.
500 TONNE BULK SAMPLING(1995)
BID EVALUATION

DATE: NOVEMBER 10th 1994

SUB CONTRACTOR NAME	HEAD OFFICE ADDRESS	PHONE # FAX # CONTACT	DATE BID RECEIVED	MOBE AND DEMOBE	O/BURDEN STRIPPING	ROCK SURFACE CLEANING	MINING TRANSPORT CRUSHING SITE	CRUSHING BULK SAMPLE - 4"	BAGGING LOADING TRANSPORT	TOTAL BASE BID
LEO ALARIE &))N'S LTD	P.O BOX 912 TIMMINS ONTARIO P4N 1N0	PH.705-268-2106 FAX.268-3571 PAUL KOMULAINW	NOV 9TH FAX	5,651	2,000 UNIT PRICE ($4.00.M3)	1,300 UNIT PRICE ($13.00.M2)	17,500 UNIT PRICE ($35.00.TONNE)	1,800 UNIT PRICE ($3.60.TONNE)	8,925 UNIT PRICE ($17.85.TONNE)	37,176
D BOURGEOIS	1633 RUE LAWLIS VAL D'OR QUEBEC J9P-5YF	PH.819-824-5681 FAX.824-5588 DON BOURGEOIS	NOV 14TH FAX	32,000	0 UNIT PRICE ($0.00.M3)	0 UNIT PRICE ($0.00.M2)	0 UNIT PRICE ($0.00.TONNE)	0 UNIT PRICE ($0.00.TONNE)	0 UNIT PRICE ($0.00.TONNE)	87,500
GEORF C TRACTORS	P.O BOX 852 SCHUMACHER ONTARIO P0N 1G0	PH.705-235-3278 FAX.268-3571 STEVE MAKUCH	NOT BIDDING -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
L CHEX INC	P.O BOX 1394 TIMMINS ONTARIO P4N 7C2	PH.705-235-3278 FAX.268-3571 DAVE LARCH	NOT BIDDING -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
ALEX M INTYRE	P.O BOX 517 35 STATION RD KIKLAND LAKE ONT P2N 3J5	PH.705-567-6663 FAX.567-4925 GLEN WHYTE	NOV 14TH FAX	11,600	5,800 UNIT PRICE ($11.60.M3)	2,500 UNIT PRICE ($5.00.M2)	11,500 UNIT PRICE ($23.00.TONNE)	7,300 UNIT PRICE ($14.60.TONNE	14,365 UNIT PRICE ($28.73.TONNE)	53,065
SANGIVLIANO DEVELOPMENT	222 HUOT SOUTH PORCUPINE ONT P4M 7C2	PH.705-235-5171 FAX.268-3571 JOE SANGIVLIANO	NOT BIDDING -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B EBIRD C STRUCTION	P.O BOX 284 PORCUPINE ONTARIO P0N 1C0	PH.705-235-3363 FAX.	NOT BIDDING -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
RON RASING DEVELOPMENT	2090 RIVERSIDE TIMMINS ONT P4M 7C2	PH.705-268-7103 FAX. RON RASING	NOT BIDDING -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
T ANGLE [LLING	106 FIELDING RD LIVELY ONT P3Y 1L5	PH.705-682-0649 FAX. DON DUPUIS	NOT BIDDING -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -

ANORTHOSITE PROJECT
FOLEYET
N THERN ONTARIO

INTERNATIONAL MINING CO & ASSOC. LTD.
500 TONNE BULK SAMPLING(1995)
BID EVALUATION

DATE: NOVEMBER 10th 1994

SUB CONTRACTOR NAME	HEAD OFFICE ADDRESS	PHONE # FAX # CONTACT	DATE BID RECEIVED	MOBE AND DEMOBE	O/BURDEN STRIPPING	ROCK SURFACE CLEANING	MINING TRANSPORT CRUSHING SITE	CRUSHING BULK SAMPLE - 4"	BAGGING LOADING TRANSPORT	TOTAL BASE BID

N E:NOT INCL IN BASE BIDS

FED AND PROV TAXES

PERMITS AND APPROVALS

ROYALTIES

ACCESS ROAD MAINTENANCE

WATER WASHING OF BEDROCK SURFACE

BONDING

OF THE PROPOSED NINE BIDDERS SIX DECLINED AND THREE SUBMITTED FIRM QUOTES
W HAVE EXAMINED THE THREE BASE BIDS AND RECOMEND LEO ALARIE & SONS
B ED ON THE COMPLETENESS OF THE QUOTATION AND THE COMPETITIVE PRICE.

Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

Transaction Number: W9560.00227

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for Recorder.
- A separate copy of this form must be compl
- Technical reports and maps must accompany this form in
- A sketch, showing the claims the work is assigned to, must accompany this form.

42B02NW0001 2.16041 WARREN

900

Recorded Holder(s)		Client No.
Purechem Limited		300653
Address: 517 Wellington St. West, Suite 405 Toronto, Ont. M5V 1G1		Telephone No.: (416) 971-9783
Mining Division: Porcupine	Township/Area: Warren Twp.	M or G Plan No.: G1228
Dates Work Performed	From: Sept. 2, 1994	To: Sept. 29, 1994

Work Performed (Check One Work Group Only)

	Work Group	Type
	Geotechnical Survey	
X	Physical Work, Including Drilling	Line cutting, trenching, drilling, blasting & extraction ~~of bulk sample~~
	Rehabilitation	
	Other Authorized Work	
	Assays	
	Assignment from Reserve	

RECEIVED SEP 13 1995 MINING LANDS BRANCH

RECORDED MAR 27 1995 Receipt

Total Assessment Work Claimed on the Attached Statement of Costs $ ~~26,972.01~~ $16,406

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Service Exploration	765 Blvd. Quebec, C.P. 428, Rouyn-Noranda, Quebec J9X 5C4
Alex MacIntyre & Assoc. Ltd.	35 Station Rd., P.O. Box 517, Kirkland Lake, Ont. P2N 3J5

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.		

Certification of Work Report

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

Name and Address of Person Certifying: Donald H. Hains 517 Wellington St. West, Suite 405, Toronto, Ont. M5V 1G1

Telepone No.	Date	Certified By (Signature)
(416) 971-9783	March 22, 1995	[signature]

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
$16,406	Deemed Approval Date: June 25/95	Gary White; Date Approved: Sept. 12/95	RECEIVED MAR 27 1995 PORCUPINE MINING DIVISION
	Date Notice for Amendments Sent		

0241 (03/91)

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1197441	16	~~$13,486.01~~ 8203			~~$13,486.01~~ 8203
	1197442	16	~~$13,486.00~~ 8203			~~$13,486.00~~ 8203
	Total Number of Claims: 2		Total Value Work Done: ~~$26,972.01~~ 16,406	Total Value Work Applied:	Total Assigned From:	Total Reserve: ~~$26,972.01~~ 16406

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.	Signature	Date

Ministry of Northern Development and Mines
Ontario
Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction W9560.00227

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain		
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Line cutting	10566.25	
	Trenching, drilling ~~blasting~~	11625.00	
			22191.25
Supplies Used Fournitures utilisées	Type Explosives	428.00	
			428.00
Equipment Rental Location de matériel	Type		
		Total Direct Costs Total des coûts directs	22619.25

2. Indirect Costs/Coûts indirects

** **Note:** When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement	Field crew room & board	1078.56	1078.56
Mobilization and Demobilization Mobilisation et démobilisation	Equip. mob & demob demob.	3274.20	3274.20
		Sub Total of Indirect Costs Total partiel des coûts indirects	4352.76
		Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)	4352.76
		Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)	26972.01

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit		Total Assessment Claimed
	× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation		
	× 0,50 =	

RECEIVED
MAR 27 1995
PORCUPINE MINING DIVISION

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as Secretary-Treasurer (Recorded Holder, Agent, Position in Company) I am authorized

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ________ (titulaire enregistré, représentant, poste occupé dans la compagnie) je suis autorisé

à faire cette attestation.

Signature	Date
[signature]	March 22/95

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

se Complete Sketch in Ink

Part D

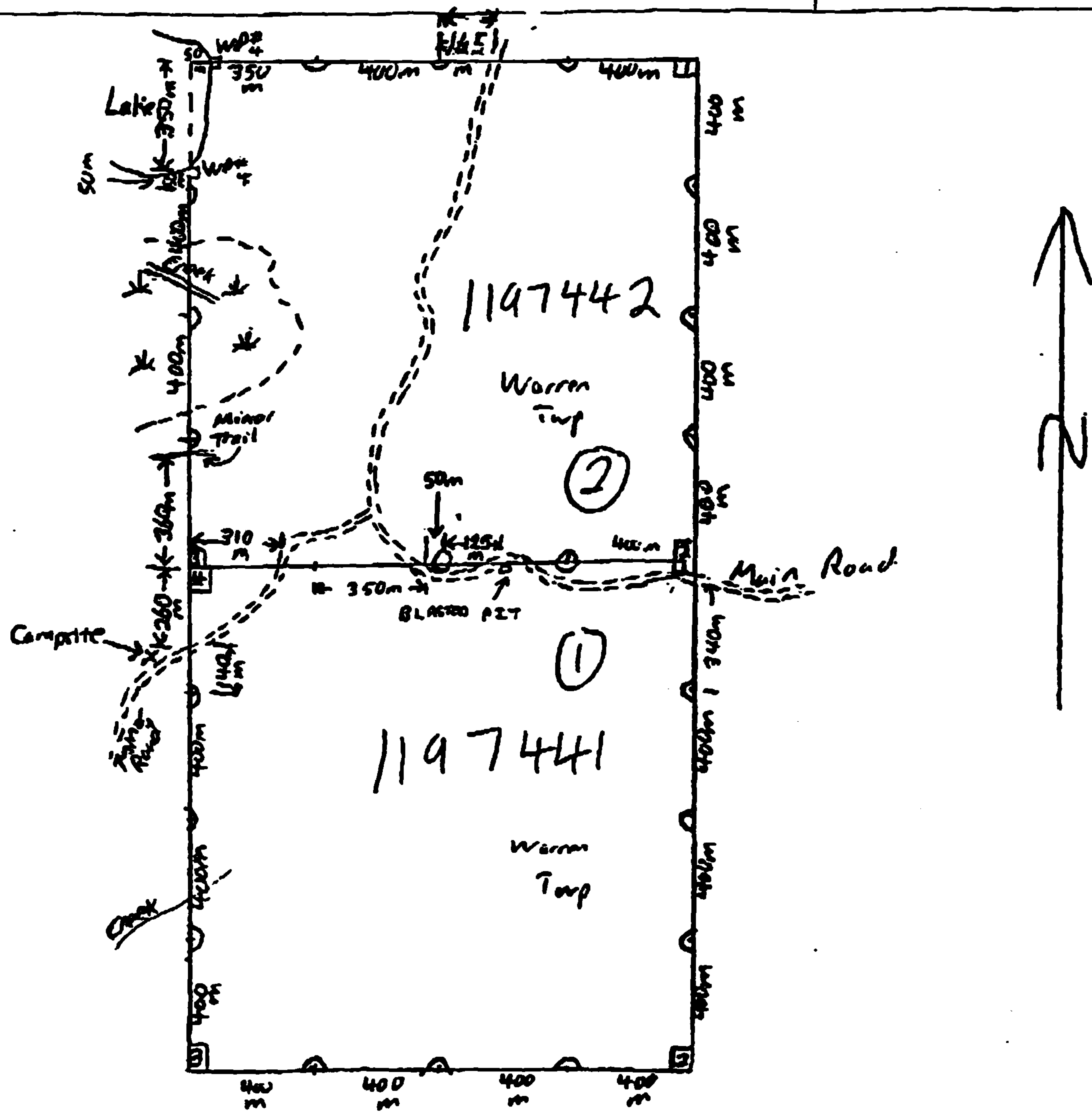
Magnetic Declination Used. 5° W

Scale: 1:200

ip Sketch of claims listed on Part A.
ch or plan of the mining claim(s) must show the corner posts, witness posts, and
posts and the distances between the posts in metres.

de topographic features such as lakes, rivers, creeks, ponds, etc. and
lopments such as hydro lines, highways, railways, pipelines, buildings, etc.

r to sample sketch on Part C.



Ministry of Northern Development and Mines

Report of Work Conducted After Recording Claim

Transaction Number: W9560.00227

Mining Act

...ormation collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about ...on should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, ...ntario, P3E 6A5, telephone (705) 670-7264.

...ons:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Holder(s)		Client No.
...chem Limited		300853
... Wellington St. West, Suite 405 Toronto, Ont. M5V 1G1		Telephone No. (416) 971-9783
...ision: ...upine	Township/Area: Warren Twp.	M or G Plan No. G1228
...ed	From: Sept. 2, 1994	To: Sept. 29, 1994

...erformed (Check One Work Group Only)

Work Group	Type
...otechnical Survey	
...ysical Work, ...luding Drilling	~~Line cutting~~, trenching, drilling, blasting & extraction of bulk sample
...habilitation	
...her Authorized ...rk	
...ssays	
...signment from ...serve	

Assessment Work Claimed on the Attached Statement of Costs $ ~~28,072.01~~ 11,406

The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

...ns and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
...vice Exploration	765 Blvd. Quebec, C.P. 428, Rouyn-Noranda, Quebec J9X 5C4
...x MacIntyre & Assoc. Ltd.	35 Station Rd., P.O. Box 517, Kirkland Lake, Ont. P2N 3J5

(...h a schedule if necessary)

...fication of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
...rtify that at the time the work was performed, the claims covered in this work ...ort were recorded in the current holder's name or held under a beneficial interest ...the current recorded holder.	Jan 6/95	[signature]

...tification of Work Report

...rtify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after ...completion and annexed report is true.

...e and Address of Person Certifying
...onald H. Haims 517 Wellington St. West, Suite 405, Toronto, Ont. M5V 1G1

...phone No.	Date	Certified By (Signature)
(416) 971-9783	March 22, 1995	[signature]

...r Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
16,406	Deemed Approval Date: June 25/95	Date Approved	RECEIVED MAR 27 1995 PORCUPINE MINING DIVISION
	Date Notice for Amendments Sent		

...(...)

1995-06-06 14:25 PAGE = 04

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Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

Transaction Number: W9560.00228

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

2.16041

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s)		Client No.
Purechem Limited		300653
Address: 517 Wellington St. West, Suite 405, Toronto, Ont. M5V 1G1		Telephone No.: (416) 971-9783
Mining Division: Porcupine	Township/Area: Warren Twp.	M or G Plan No.: G1228
Dates Work Performed From: Sept. 2, 1994	To: Nov. 29, 1994	

Work Performed (Check One Work Group Only)

	Work Group	Type
X	Geotechnical Survey	Geological mapping & survey, reserve determinations, quarry design & plan & reports
	Physical Work, Including Drilling	
	Rehabilitation	
	Other Authorized Work	
	Assays	
	Assignment from Reserve	

RECEIVED
JUN 7 1995
MINING LANDS BRANCH

Total Assessment Work Claimed on the Attached Statement of Costs ~~$28,854.82~~ 39,420

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Hendrik Veldhuyzen, P. Geol.	P.O. Box 6105, Station A, Toronto, Ont. M5W 1P5
Peter A. Bevan, P. Eng.	6033 Duford Dr., Mississauga, Ont. L5V 1A8

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.		

Certification of Work Report

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

Name and Address of Person Certifying: Donald H. Hains 517 Wellington St. West, Suite 405, Toronto, Ont. M5V 1G1

Telephone No.	Date	Certified By (Signature)
(416) 971-9783	March 22, 1995	[signature]

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
$39,420.		A/ T. Birkley NOT DATED	RECEIVED MAR 27 1995 PORCUPINE MINING DIVISION
	Deemed Approval Date: June 25 95	Date Approved	
	Date Notice for Amendments Sent		

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1197441	16	$14,427.41	$14,427.41		
	1197442	16	$14,427.41	$14,427.41		
	2		$28,854.82	$28,854.82		
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

0241 (03/91)

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.	Signature	Date

Ministry of Northern Development and Mines
Ministère du Développement du Nord et des mines
Ontario

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction W9560.00228

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain		
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Geologist fees	$13321.50	
	Engineer's fees	$8,480.00	
			21801.50
Supplies Used Fournitures utilisées	Type Air photos, maps & drafting	267.50	
			267.50
Equipment Rental Location de matériel	Type Truck & field trailer	3456.10	
			3456.10
		Total Direct Costs Total des coûts directs	25525.10

2. Indirect Costs/Coûts indirects

** Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement	Field camp exp.	3329.72	3329.72
Mobilization and Demobilization Mobilisation et démobilisation			
		Sub Total of Indirect Costs Total partiel des coûts indirects	3329.72
		Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)	3329.72
		Total Value of Assessment Credit (Total of Direct and Allowable indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)	28854.82

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit		Total Assessment Claimed
	× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation		Évaluation totale demandée
	× 0,50 =	

RECEIVED
MAR 27 1995
PORCUPINE MINING DIVISION

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as Secretary-Treasurer I am authorized
(Recorded Holder, Agent, Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ____________ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
[signature]	[illegible]

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre

Complete Sketch in Ink

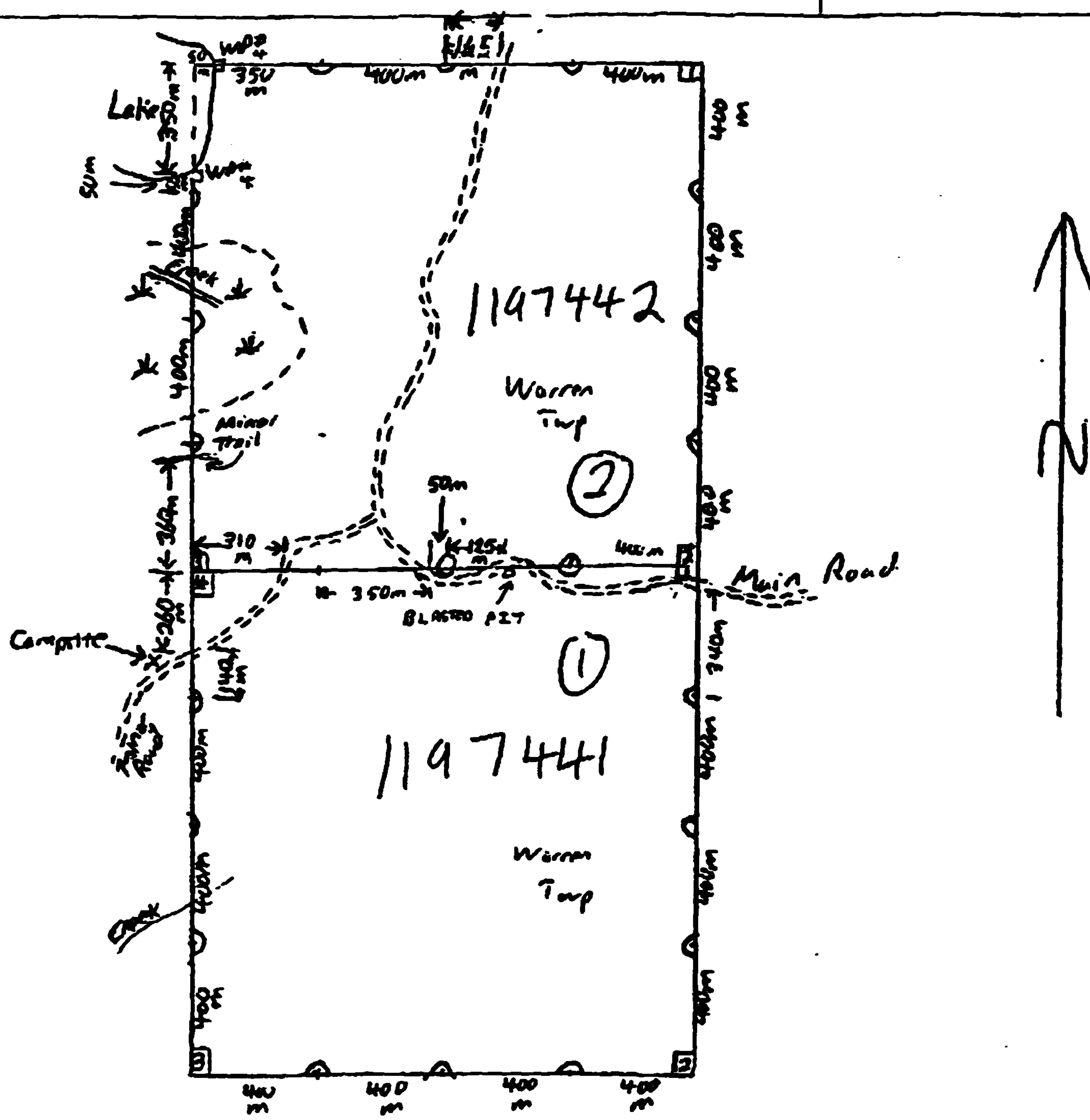
Sketch of claims listed on Part A.
or plan of the mining claim(s) must show the corner posts, witness posts, and
.ts and the distances between the posts in metres.

topographic features such as lakes, rivers, creeks, ponds, etc. and
›ments such as hydro lines, highways, railways, pipelines, buildings, etc.

› sample sketch on Part C.

Magnetic Declination Used. 5° W

Scale: 1:200



Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

Transaction Number: W9560.00229

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

2.16041

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s): Purechem Limited		Client No.: 300653
Address: 517 Wellington St. West, Suite 405, Toronto, Ont. M5V 1G1		Telephone No.: (416) 971-9783
Mining Division: Porcupine	Township/Area: Warren Twp.	M or G Plan No.: G1228
Dates Work Performed From: Sept. 26, 1994	To: Oct. 10, 1994	

Work Performed (Check One Work Group Only)

	Work Group	Type
	Geotechnical Survey	
	Physical Work, Including Drilling	
	Rehabilitation	
	Other Authorized Work	SECTION 18 ONLY
X	Assays	Crushing & screening of bulk sample, ICP and XRF analyses of samples
	Assignment from Reserve	

RECEIVED
JUN 7 1995
MINING LANDS BRANCH

Total Assessment Work Claimed on the Attached Statement of Costs $18926.59

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Lakefield Research	P.O. Box 4300, Lakefield, Ont. K0L 2H0
Xral Labs.	1885 Leslie St., Scarborough, ont.

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	Date	Recorded Holder or Agent (Signature)

Certification of Work Report

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

Name and Address of Person Certifying: Donald H. Hains 517 Wellington St. West, Suite 405, Toronto, Ont. M5V 1G1

Telepone No.	Date	Certified By (Signature)
(416) 971-9783	March 22, 1995	

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
$18926	A	T. Birkley NOT DATED.	
	Deemed Approval Date: June 25/95	Date Approved	
	Date Notice for Amendments Sent		

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1197441	16	$9463.29	$9463.29		
	1197442	16	$9,463.30			$9,463.30
	Total Number of Claims: 2		Total Value Work Done: $18,926.59	Total Value Work Applied: $9,463.29	Total Assigned From:	Total Reserve: $9,463.30

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: **Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.**

Note 2: **If work has been performed on patented or leased land, please complete the following:**

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.	Signature	Date

Ministry of Northern Development and Mines
Ontario
Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

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1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain		
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Sample crushing	8950.55	
	ICP & XRD anal.	6598.05	
			15538.60
Supplies Used Fournitures utilisées	Type Bulk bags	898.80	
			898.80
Equipment Rental Location de matériel	Type		
		Total Direct Costs Total des coûts directs	16437.40

2. Indirect Costs/Coûts indirects

** Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type Trucking to Lakefield	2479.19	
			2479.19
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			
		Sub Total of Indirect Costs Total partiel des coûts indirects	2479.19
		Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)	2479.19
		Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)	18926.59

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit × 0.50 = Total Assessment Claimed

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation × 0,50 = Évaluation totale demandée

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as Secretary-Treasurer I am authorized
(Recorded Holder, Agent, Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ______ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature Date

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre

se Complete Sketch in Ink **Part D**

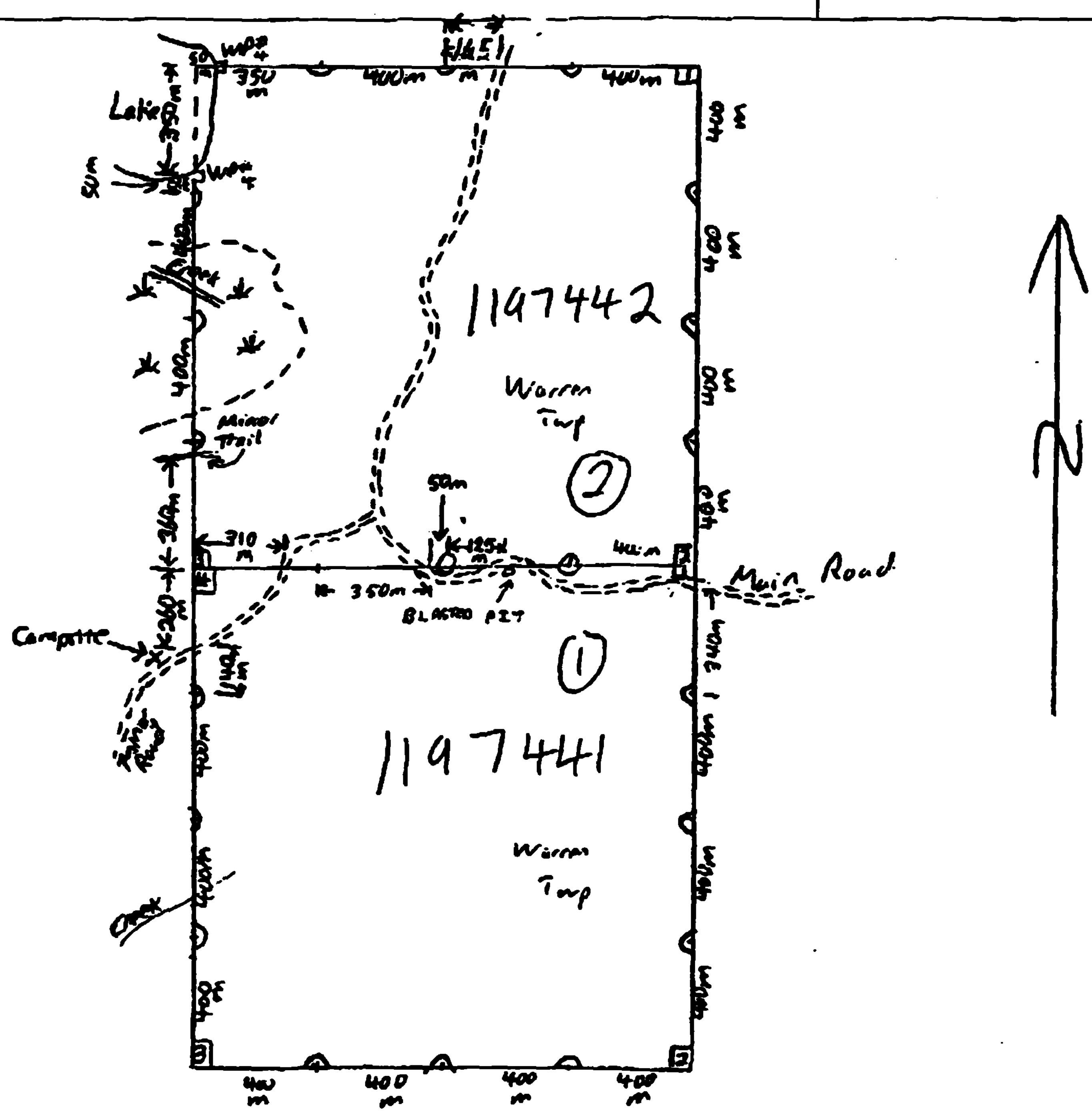
:p Sketch of claims listed on Part A.
ch or plan of the mining claim(s) must show the corner posts, witness posts, and
posts and the distances between the posts in metres.

de topographic features such as lakes, rivers, creeks, ponds, etc. and
lopments such as hydro lines, highways, railways, pipelines, buildings, etc.

r to sample sketch on Part C.

Magnetic Declination Used. 5° W

Scale: 1:200



Ontario

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

Geoscience Approvals Section
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (705) 670-5853
Fax: (705) 670-5863

Our File: 2.16041
Transaction #: W9560.00228
W9560.00229

June 21, 1995

Mining Recorder
Ministry of Northern Development & Mines
60 Wilson Avenue
1st floor
Timmins, Ontario
P4N 2S7

Dear Mr. White:

Subject: APPROVAL OF ASSESSMENT WORK CREDITS ON MINING CLAIMS 1197441 & 1197442 IN WARREN TOWNSHIP

Assessment credits have been approved as outlined on the attached report of work form. Please note that the associated costs of line-cutting has been removed from the physical work submission and credited to the geological work report W9560.00228. The credits have been approved under Section 12 (Geology) and Section 17 (Assays) of the Mining Act Regulations.

The approval date is June 20, 1995.

If you have any questions regarding this correspondence, please contact Steven Beneteau at (705) 670-5858.

Yours sincerely,

Ron C Gashinski

Ron C. Gashinski
Senior Manager, Mining Lands Section
Mining and Land Management Branch
Mines and Minerals Division

SBB SBB/jn

cc: Resident Geologist
Timmins, Ontario

✓Assessment Files Library
Sudbury, Ontario

DISTRIBUTION OF ASSESSMENT WORK CREDITS

June 20, 1995
File: 2.16041
Transaction No.: W9560.00228

Claim		Value of Assessment Work Done on this Claim
1197441		$19,710.00
1197442		$19,710.00

	TOTAL	**$39,420.00**

June 20, 1995
File: 2.16041
Transaction No.: W9560.00229

Claim		Value of Assessment Work Done on this Claim
1197441		$ 9,463.00
1197442		$ 9,463.00

	TOTAL	**$18,926.00**

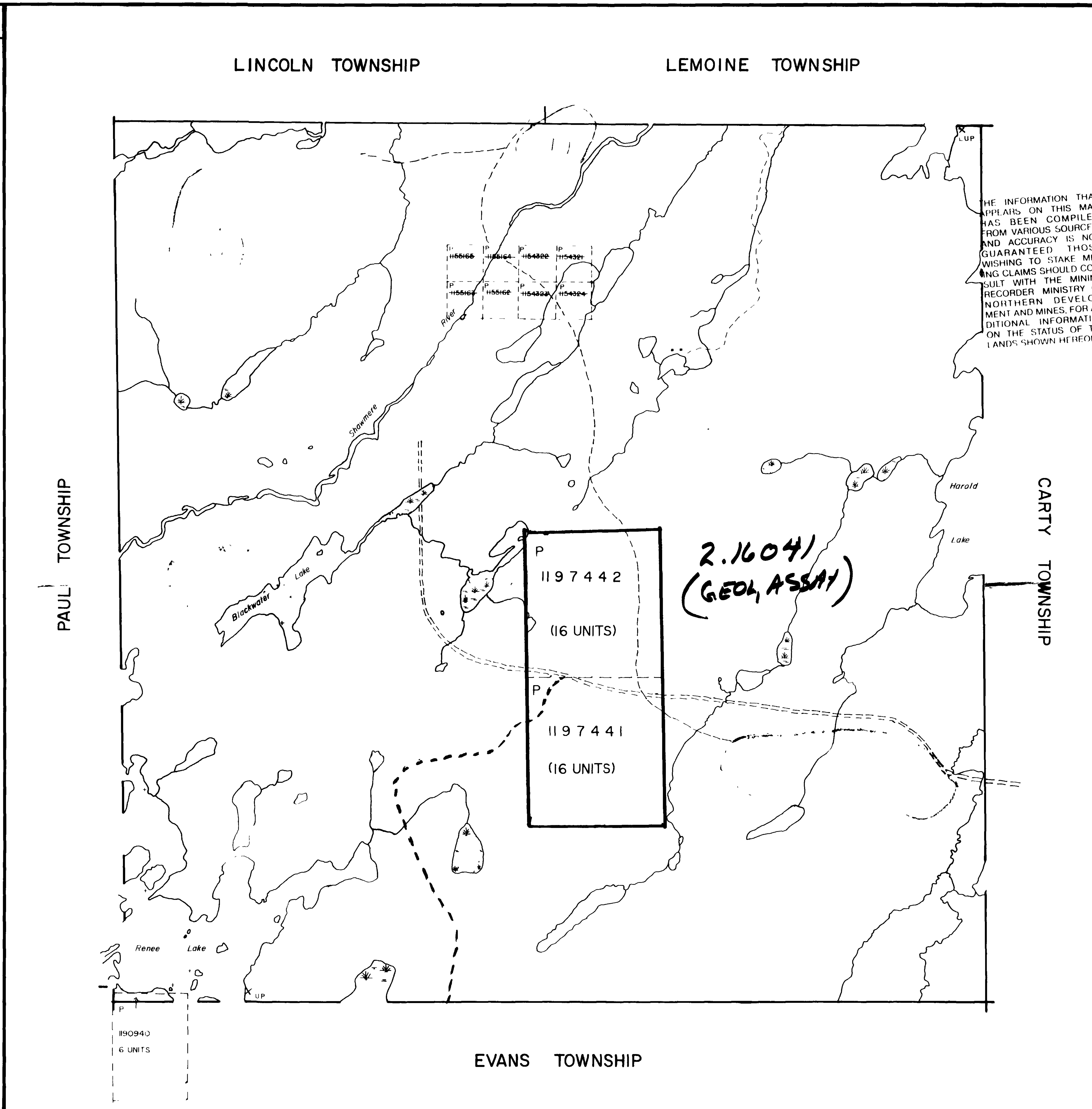
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No	Date	Disposition	File

(F) THIS TWP IS SUBJECT TO FOREST ACTIVITY IN 1995/96
FURTHER INFORMATION AVAILABLE ON FILE



LEGEND

HIGHWAY AND ROUTE No
OTHER ROADS
TRAILS
SURVEYED LINES
TOWNSHIPS, BASE LINES, ETC
LOTS, MINING CLAIMS PARCELS, ETC
UNSURVEYED LINES
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES
TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◓
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	⬒
" , MINING RIGHTS ONLY	⬓
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	®
CANCELLED	⊗
SAND & GRAVEL	Ⓢ

SCALE 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 (1 KM) 2000 (2 KM)

— — — PROPOSED ROAD 1992/93

TOWNSHIP

WARREN

M.N.R. ADMINISTRATIVE DISTRICT
CHAPLEAU
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
SUDBURY

2.16041

Ontario
Ministry of Natural Resources
Ministry of Northern Development and Mines

Date JUNE 1990
ACTIVATED 90-JUL-19

Number G-1228

42B02NW0001 2.16041 WARREN

200

LEGEND

An-m	Massive Anorthosite >90% feldspar	sug	sugary texture		Outcrop: solid line : observed; broken line : inferred
bAn	Gabbroic anorthosite 80-90% feldspar	carb	carbonate mineral		Primary layering banding (oblique, vertical)
Gb	Anorthositic gabbro 60-80% feldspar	f,m,c · g	fine, medium, coarse · grained (feldspar only)		Structural, lithological element (oblique, vertical)
ib	Gabbro <60% feldspar	lt, md, dk · gy	light, medium, dark · grey (feldspar only)		Fault: {(observed, oblique) (inferred, vertical)}
o-b	Banded gabbro	H	hornblende		Grid line (system of cut survey lines)
-Db	Olivine diabase	px	pyroxene		Road
Db	Diabase	bi	biotite		Swamp
ph	Lamprophyre	mf	mafic minerals		Scarp (hatchures on downslope side)
ph	Aphanitic, siliceous phase (opaque, white)	gt	garnet		
dy	Dyke	cz	clinozoisite-scapolite		
BZ	Banded Boundary Zone	$\frac{31.00}{1.00}$	Analyses: $\frac{Al_2O_3\%}{Fe_2O_3\%}$		

FIGURE 8.4

Locations of Field Samples

Warren Township Anorthosite Project
by
HV Geological Services
for
Purechem, Limited

Geology by: Hendrik Veldhuyzen   Sept-Oct, 1994.

LEGEND

An-m	Massive anorthosite > 90% feldspar	sug	sugary texture
GbAn	Gabbroic anorthosite 80-90% feldspar	carb	carbonate mineral
AnGb	Anorthositic gabbro 60-80% feldspar	f, m, c-g	fine, medium, coarse-grained (feldspar only)
Gb	Gabbro < 60% feldspar	lt, md, dk-gy	Light, medium, dark-grey (feldspar only)
Gb-b	Banded gabbro	H	Hornblende
O-Db	Olivine diabase	px	pyroxene
Db	Diabase	bi	biotite
Lph	Lamprophyre	mf	mafic minerals
Aph	Aphanitic siliceous phase (opaque, white)	gt	garnet
dy	Dyke	cz	clinozoisite-scapolite
BBZ	Banded Boundary Zone		

	Outcrop: solid line: observed; broken line: inferred
	Primary layering, banding (oblique, vertical)
	Structural, lithological element (oblique, vertical)
	Fault: (observed, oblique) (inferred, vertical)
	Grid line (system of cut survey lines)
	Road
	Swamp
	Scarp (hatchures on downslope side)

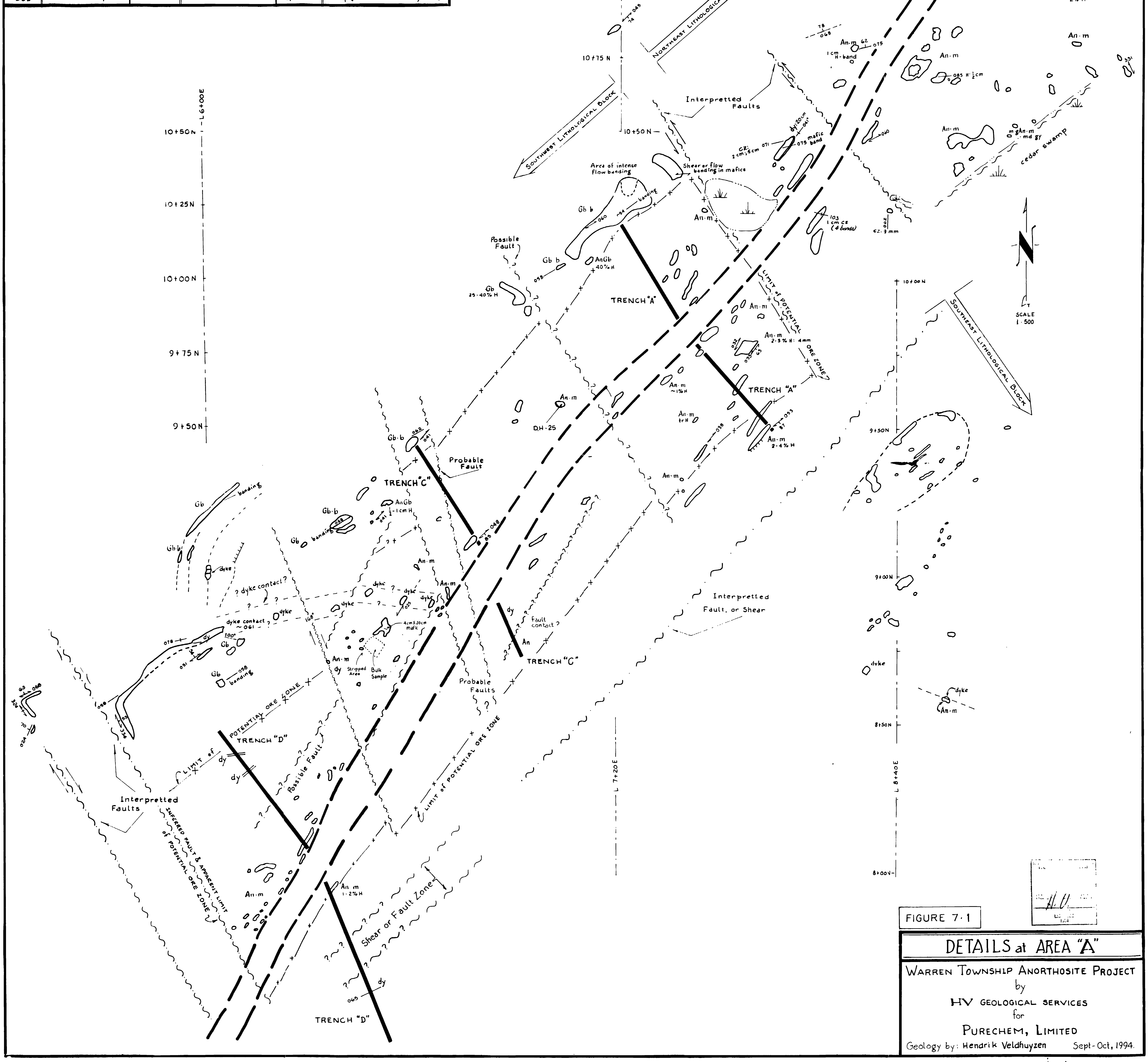


FIGURE 7·1

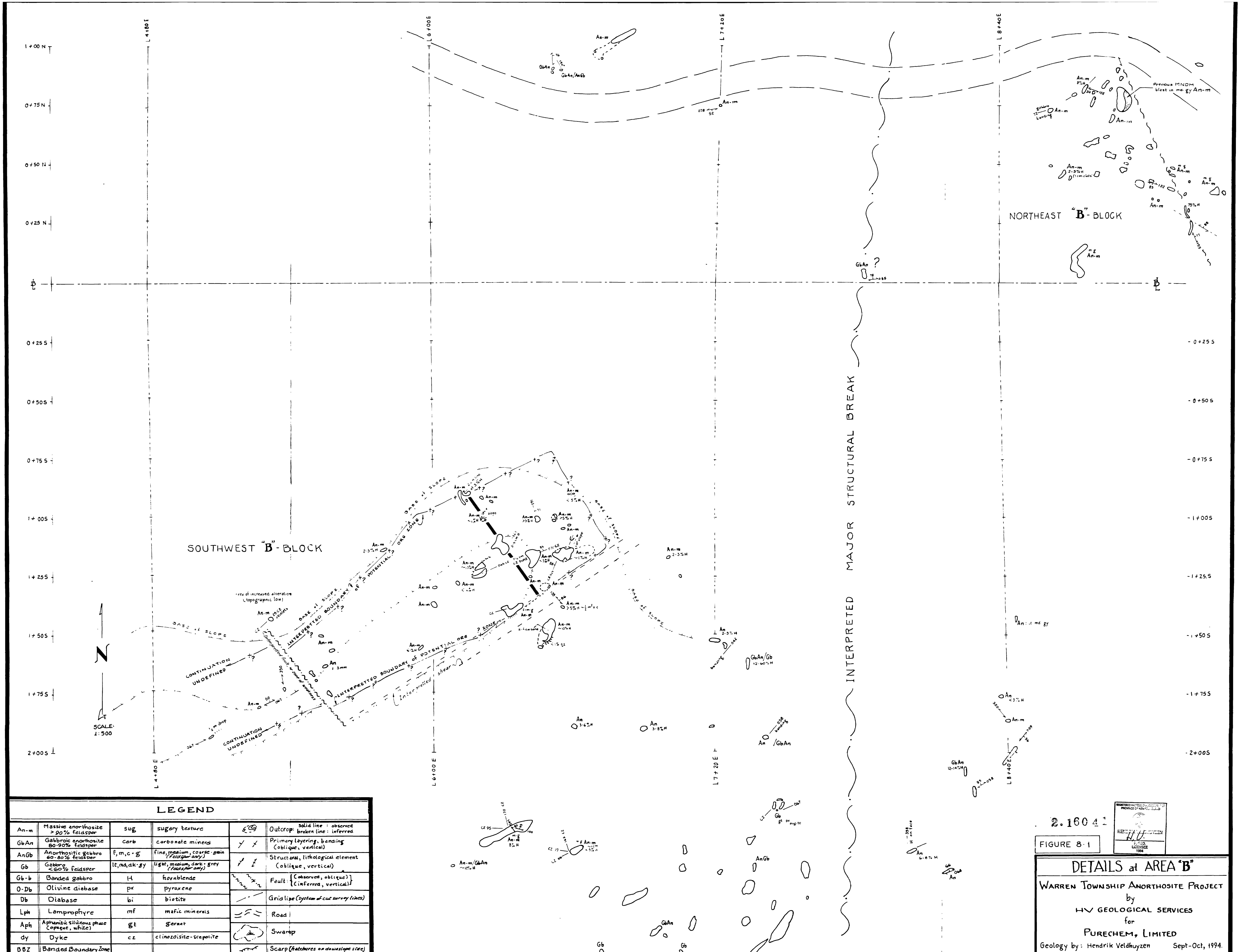
DETAILS at AREA "A"

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
HV GEOLOGICAL SERVICES
for
PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

2.16041

220



LEGEND

An-m	Massive anorthosite >90% feldspar	sug	sugary texture	(symbol)	Outcrop: solid line : observed; broken line : inferred
GbAn	Gabbroic anorthosite 80-90% feldspar	carb	carbonate mineral	(symbol)	Primary layering, banding (oblique, vertical)
AnGb	Anorthositic gabbro 60-80% feldspar	f, m, c · g	fine, medium, coarse · grain (feldspar only)	(symbol)	Structural, lithological element (oblique, vertical)
Gb	Gabbro <60% feldspar	lt, md, dk · gy	light, medium, dark · grey (feldspar only)		
Gb-b	Banded gabbro	H	hornblende	(symbol)	Fault: (observed, oblique) (inferred, vertical)
O-Db	Olivine diabase	px	pyroxene		
Db	Diabase	bi	biotite	(symbol)	Grid line (system of cut survey lines)
Lph	Lamprophyre	mf	mafic minerals	(symbol)	Road
Aph	Aphanitic siliceous phase (opaque, white)	gt	garnet	(symbol)	Swamp
dy	Dyke	cz	clinozoisite-scapolite		
BBZ	Banded Boundary Zone			(symbol)	Scarp (hatchures on downslope side)

2.16041

FIGURE 8·1

DETAILS at AREA "B"

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
HV GEOLOGICAL SERVICES
for
PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

LEGEND

An-m	Massive anorthosite > 90% feldspar	sug	sugary texture		Outcrop: solid line: observed; broken line: inferred
Gb An	Gabbroic anorthosite 80-90% feldspar	carb	carbonate mineral		Primary layering, banding (oblique, vertical)
An Gb	Anorthositic gabbro 60-80% feldspar	f, m, c·g	fine, medium, coarse grained: feldspar only		Structural, lithological element (oblique, vertical)
Gb	Gabbro < 60% feldspar	lt, md, dk·gy	light, medium, dark grey: feldspar only		Fault: (observed, oblique) (inferred, vertical)
Gb-b	Banded gabbro	H	hornblende		Grid line (system of cut survey lines)
O·Db	Olivine diabase	px	pyroxene		Road
Db	Diabase	bi	biotite		Swamp
Lph	Lamprophyre	mf	mafic minerals		Scarp (hatchures on downslope side)
Aph	Aphanitic-siliceous phase (opaque, white)	gt	garnet		
dy	Dyke	cz	clinozoisite-scapolite		
BBZ	Banded Boundary Zone				

FIGURE 6·1

GEOLOGICAL MAP

WARREN TOWNSHIP ANORTHOSITE PROJECT

by

HV GEOLOGICAL SERVICES

for

PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen. Sept-Oct, 1994.

2.16041

2.16041

FIGURE 4·1

LEGEND

(symbol)	Cut grid-lines
(symbol)	Northeast Trending Structures: (D_6) &/or (D_7)
(symbol)	North-South Structures
(symbol)	Northwest Structure (D_8)
(symbol)	East-West Lineations
(symbol)	Superimposed, glacial-derived topography
(symbol)	Road

42B02NW0001 2.16041 WARREN

250

AIR PHOTO INTERPRETATION

Warren Township Anorthosite Project

by

HV Geological Services

for

Purechem, Limited

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

REGISTERED PROFESSIONAL GEOSCIENTIST PROVINCE OF NEWFOUNDLAND

HENDRIK VELDHUYZEN

P. GEO.
LICENSEE
1534

FIGURE 7·3

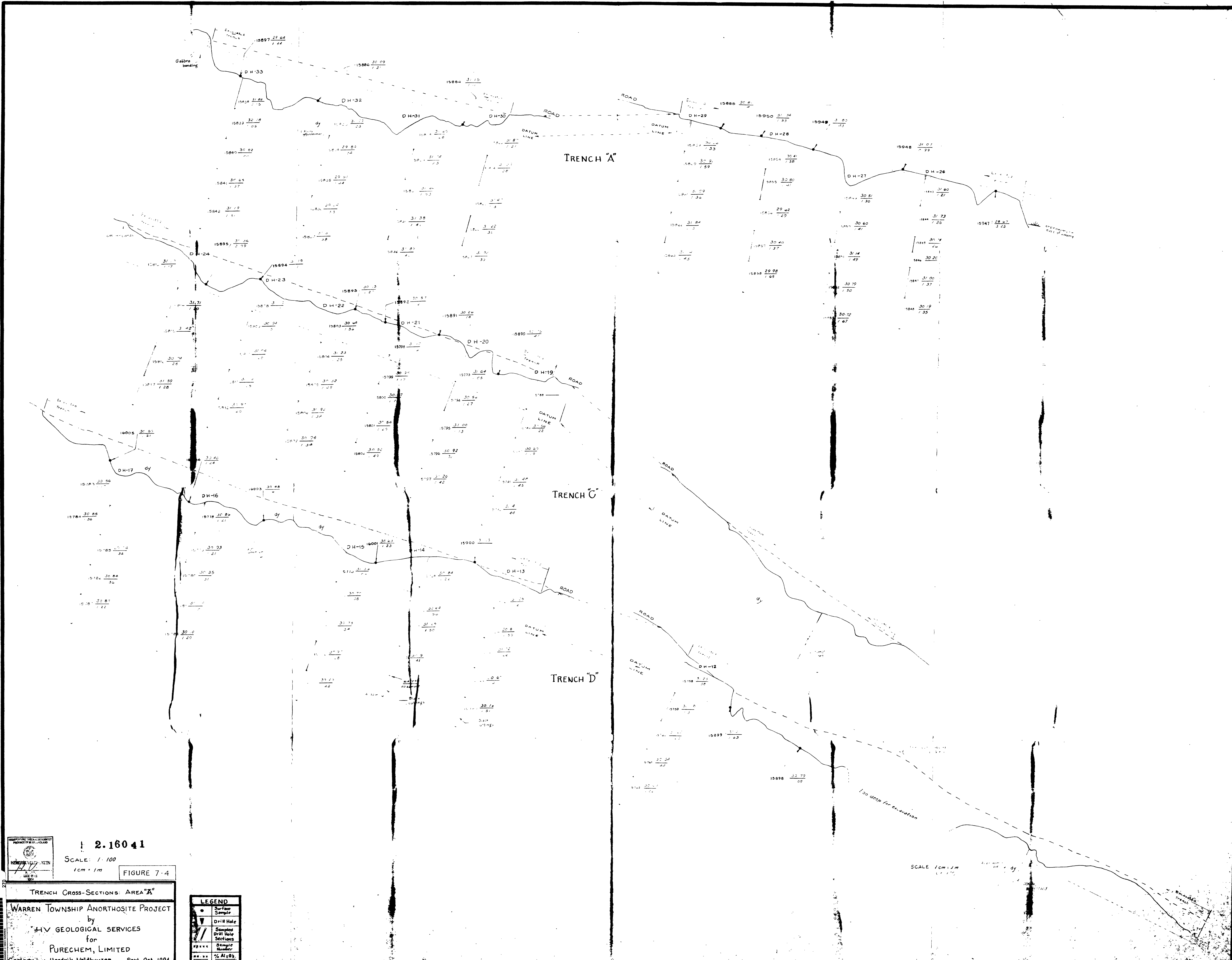
2.16041

TRENCH-PLAN: AREA "A"

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
HV GEOLOGICAL SERVICES
for
PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

LEGEND				
•	Surface Sample	sug	sugary texture	feldspar only
		lt, md, dk · gy	light, medium, dark · grey	
▼	Drill Hole	mnl	mineral	
//	Sampled Drill Hole Sections	H	hornblende	
		CZ	clinozoisite - scapolite	
xxxxx	Sample Number	(a) (b)	Primary layering; banding	(a) oblique (b) vertical
xx.xx / u.uu	% Al_2O_3 / % Fe_2O_3	(a) (b)	Structural, lithological element	
←	Evidence of glacial movement			



2.16041

SCALE: 1:100
1cm = 1m

FIGURE 7·4

TRENCH CROSS-SECTIONS: AREA "A"

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
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LEGEND	
●	Surface Sample
▼	Drill Hole
//	Sampled Drill Hole Sections
xxxxx	Sample Number
xx.xx / xx.xx	% Al_2O_3 / % Fe_2O_3

2.16041

FIGURE 7·5

LEGEND

D.H.-xx	Drill Hole
15xxx	Sample number for drill section
xx.xx	Percent Al_2O_3
u.uu	Percent Fe_2O_3

LONGITUDINAL SECTION: AREA "A" with ASSAY RESULTS

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
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for
PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

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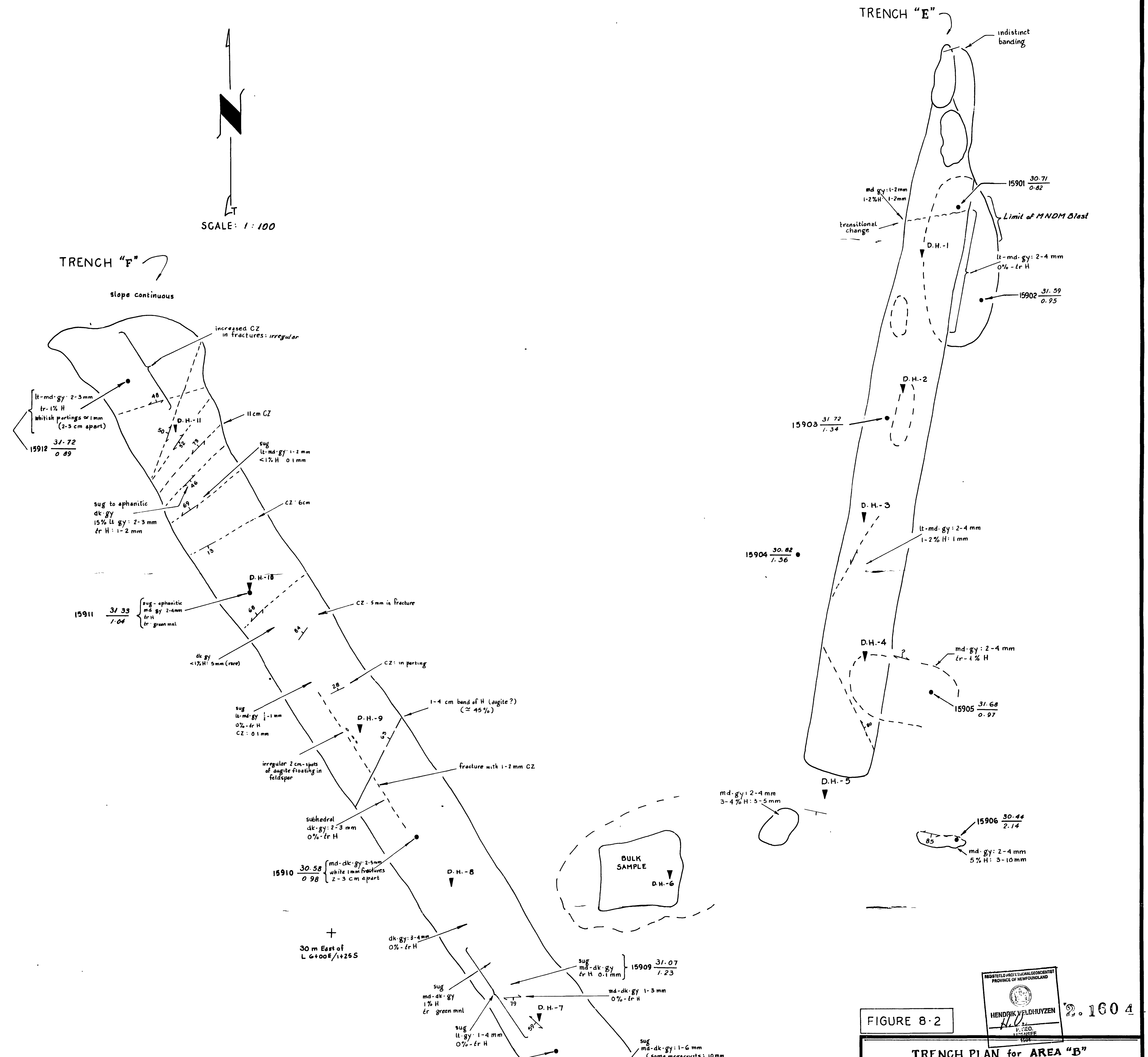

LEGEND

•	Surface Sample	sug	sugary texture (feldspar only)
		lt, md, dk ·gy	light, medium, dark·grey
▼	Drill Hole	mnl	mineral
//	Sampled Drill Hole Sections	H	hornblende
		CZ	clinozoisite-scapolite
xxxxx	Sample Number	(a) (b)	Primary banding, layering ((a) oblique (b) vertical)
xx·xx	% Al_2O_3	(a) (b)	Structural, lithological element
u·uu	% Fe_2O_3		

FIGURE 8·2

REGISTERED PROFESSIONAL GEOSCIENTIST PROVINCE OF NEWFOUNDLAND HENDRIK VELDHUYZEN P.GEO. 1994

2.1604

TRENCH PLAN for AREA "B"

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
HV GEOLOGICAL SERVICES
for
PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

42B02NW0001 2.16041 WARREN

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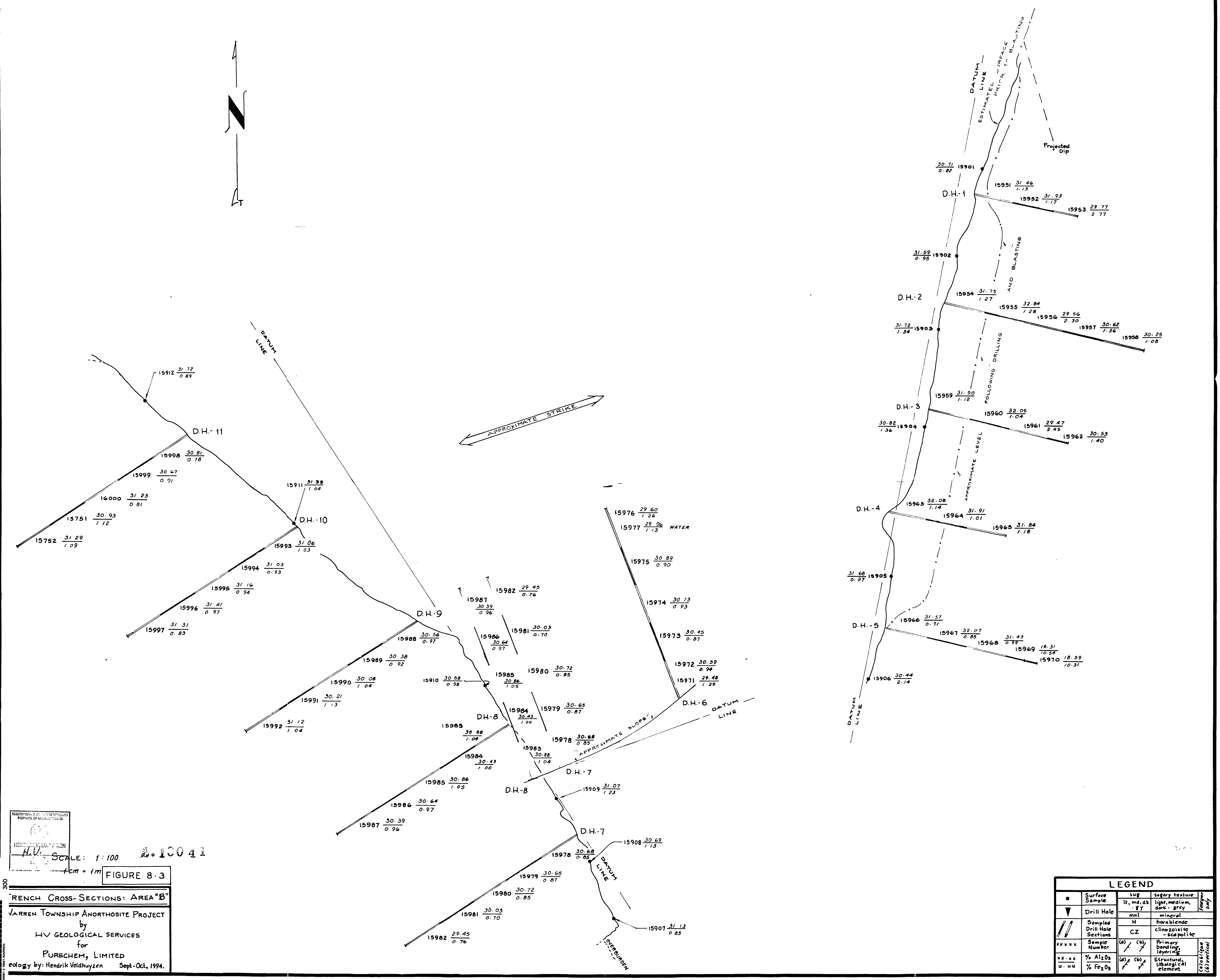

SCALE: 1:100
1cm = 1m

2.10041

FIGURE 8.3

TRENCH CROSS-SECTIONS: AREA "B"

WARREN TOWNSHIP ANORTHOSITE PROJECT
by
HV GEOLOGICAL SERVICES
for
PURECHEM, LIMITED

Geology by: Hendrik Veldhuyzen Sept-Oct, 1994.

LEGEND

•	Surface Sample	sug	sugary texture
▼	Drill Hole	lt, md, dk · gy	light, medium, dark · grey
//	Sampled Drill Hole Sections	mnl	mineral
		H	hornblende
		CZ	clinozoisite - scapolite
xxxxx	Sample Number	(a) (b)	Primary banding, layering
xx.xx / u.uu	% Al_2O_3 / % Fe_2O_3	(a) (b)	Structural, lithological element

Feldspar only

(a) oblique (b) vertical