63.4355

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REPORT ON

TRENCHING, LATERAL WORK AND SHAFT SINKING

FOR

ASSESSMENT WORK CREDIT

ON

WICKS LAKE PROPERTY
Wensley and Millree Options
Kenora Mining Division
NTS 52 F/5

FOR

Frances Resources Ltd.
904-675 West Hastings St.
Vancouver, B.C. V6B 1N2

Prepared by:

R.M. BLAIS & ASSOCIATES LTD.
1425 Pinegrove Cres.
North Bay, Ontario P1B 4P9

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R.M. Blais, P.Eng.
February 10, 1984

OM 83-3-C-179

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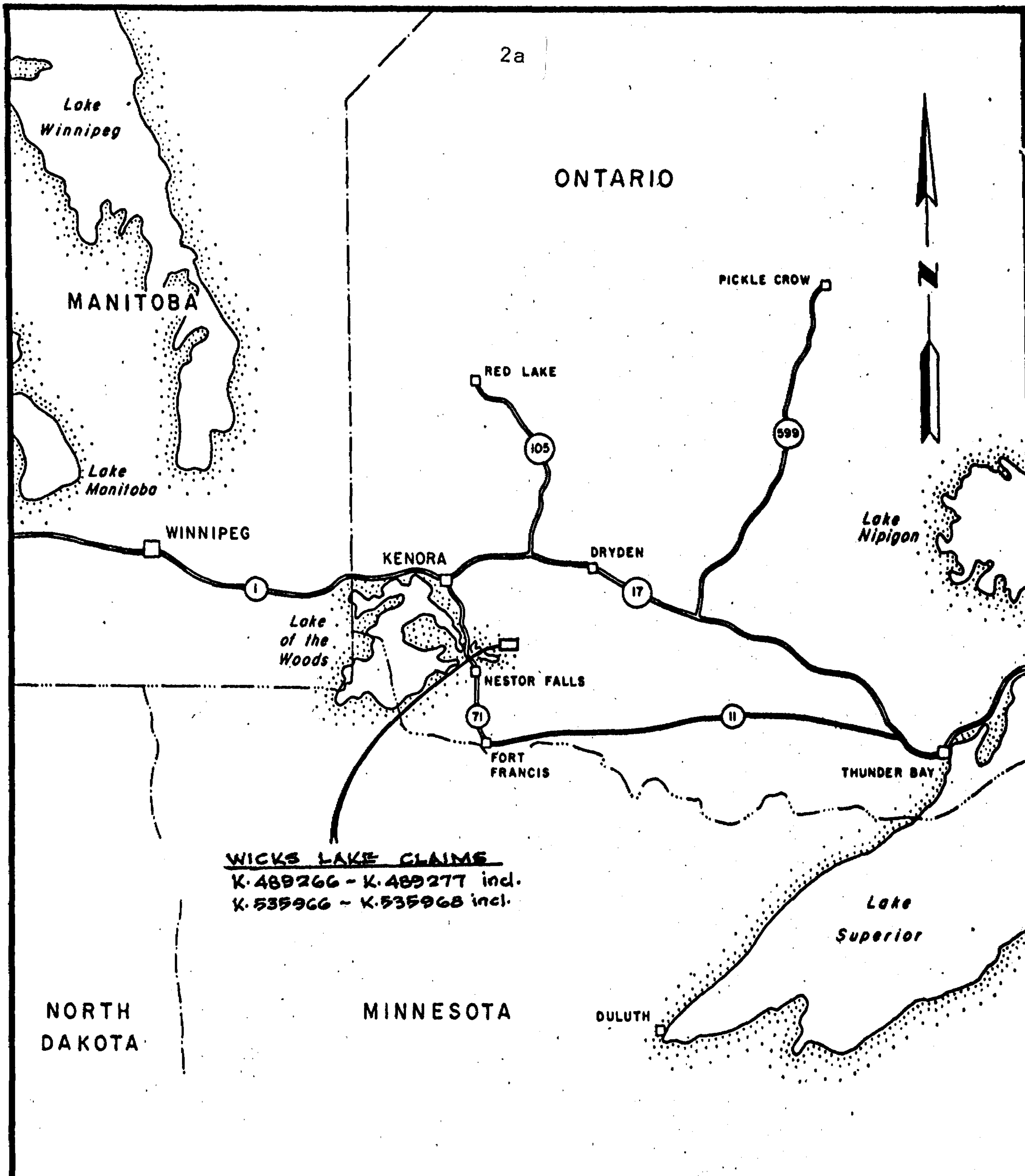
INTRODUCTION

This report has been prepared on behalf of Frances Resources Ltd. of Vancouver, B.C.

Previous work on property consisted of trenching, sampling, assaying, diamond drilling, geological mapping, magnetometer survey and I.P. survey.

The 1983 exploration program was primarily concentrated on Wensley No. 3 Vein, immediately west of Wicks Lake. Work performed included survey control, stripping, trenching, preparation of Portal Site by lateral work and shaft sinking. Any mineralization or quartz veins encountered or discovered were sampled, assayed and documented.

A series of plans and longitudinal sections displaying all pertinent data was compiled from available existing plans and reports, along with new information which is appended to this report.



LOCATION MAP
WICKS LAKE PROPERTY
GOLD PROSPECT
KENORA MINING DIVISION, ONTARIO.

Tech. Work by: R.M. Blois	Scale: 1 inch = 64 miles
Date: FEB 10, 1983	Figure No. 1

LOCATION AND ACCESS

The property is located on Wicks Lake just north of Peninsula Bay of Kakagi (Crow Lake) Lake. Claims are shown on claim staking plan M. 2585, Dogpaw Lake Sheet. Approximate geographic center of property is 49°15'30" North and 93°50' West. Claim group consists of 15 contiguous unpatented mining claims K. 535966 - K. 535968 inclusive, K. 489266 - K. 489277 inclusive, recorded at Kenora mining recorder's office in name of Roy A. Martin.

Property may be reached by motor boat from Lakeview Lodge or other tourist camps located at west end of Crow Lake on Highway 71. Lakeview Lodge is located approximately six miles north of Nestor Falls. Nestor Falls is approximately 70 miles south of Kenora by way of Highway 71.

The distance from Lakeview Lodge to east shore of Peninsula Bay is seven miles by water. Boat ride is 20 - 25 minutes with 20 hp. motor and sixteen foot boat; then half mile by foot along old drill road to Wensley prospect on west side of Wicks Lake.

Alternate route to claim group is from extreme east end of Peninsula Bay along a 1/4 mile portage to Wicks Lake; then by boat to north-west end of Wicks Lake. This was the most frequently used route during 1983 program.

This area is also serviced by float equipped aircraft from Northwestern Flying Service located at Nestor Falls.

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PROPERTY AND ASSESSMENT WORK STATUS

The Wicks Lake property consists of 15 contiguous unpatented mining claims in the Kenora Mining Division, Province of Ontario. Claim locations are shown on claim staking plan M. 2585, Dogpaw Lake Sheet available at mining recorder's office in Kenora, Ontario. The following chart outlines claim group and shows expiry date:

Claim No.	Date Recorded	Expiry Date
K. 489266	October 16/1978	*October 16/1984
K. 489267	November 16/1978	*November 16/1984
K. 489268	November 16/1978	*November 16/1984
K. 489269	November 16/1978	*November 16/1984
K. 489270	November 16/1978	*November 16/1984
K. 489271	November 16/1978	*November 16/1984
K. 489272	November 16/1978	*November 16/1984
K. 489273	November 16/1978	*November 16/1984
K. 489274	November 16/1978	*November 16/1984
K. 489275	November 16/1978	*November 16/1984
K. 489276	November 16/1978	*November 16/1984
K. 489277	November 16/1978	*November 16/1984
K. 535966	August 18/1980	August 18/1985
K. 535967	August 18/1980	August 18/1985
K. 535968	August 18/1980	August 18/1985

This total of 15 claims is registered in the name of Roy A. Martin, P.O. Box 867, 313 Main Street, Sturgeon Falls, Ontario. Mr. Martins's prospector's licence Number is E - 8275.

* SEE NEXT PAGE FOR IMPORTANT NOTICE.

ASSESSMENT WORK STATUS

Copies of abstracts showing assessment work credits for each claim are attached to this report as Appendix No. 2.

To date, claims K. 489266 - K. 489277 (inclusive) have 200 assessment work credit days. This complies with total number of days required to bring claims to lease under Ontario Mining Act.

Maximum life of an unpatented mining claim is eleven years (11).

IMPORTANT NOTE

Following steps required to bring claim to lease:

1. 200 work day credits.
2. Legal survey plan by O.L.S.
3. Submission and approval of plan by Ministry of Natural Resources at Toronto.
4. Registration of Surveyor's plan in Land Titles Office at Kenora.
5. Submission of Application for Lease, following notification of registration of plan.
6. All these steps must be completed before expiry date in the 11th year.

Note: To keep claim in good standing until above requirements are fulfilled, an Application for Extension of time must be made each year within 30 days of the expiry date or claim will lapse.

This is now the status of claims K. 489266 - K. 489277 inclusive.

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EXPLORATION AND DEVELOPMENT HISTORY

The two showings of importance discussed in this report and previous reports are referred to as the Wensley Option and the Millree occurrence.

Wensley Option

In December of 1944, Noranda Mines Limited optioned fourteen claims from E. Wensley and his partners. These, along with two additional claims in the northwest corner, covered the east half of the present block down to Kakagi Lake. The west half of the property was staked about this time by a second group and was optioned to Sylvanite Gold Mines Limited, becoming known as the Millree property or occurrence.

Noranda conducted a program of extensive trenching and diamond drilling along three mineralized, narrow quartz veins which have strike lengths up to 2,000 feet. These veins were in, and were parallel to, a long, narrow, gabbro-diorite body. Trenching, especially on the No. 3 Vein, gave average grades of about 0.40 oz/ton Au over widths of two to three feet.

Drilling, which totalled 6,534 feet, gave less impressive results; typically 20 percent of surface sampling. Widths were 60 percent of surface width. A.M. Bell notes that grades in excess of 10-inch ounces were necessary for a profitable operation, and that although some sections of the veins were sufficiently high in grade, sufficient tonnage to justify a mill could not be proven.

Millree Occurrence

In 1945, Sylvanite Gold Mines acquired 31 claims adjacent to the west and north of the Noranda Wensley Option. They undertook the exploration of a number of showings in the extention of the gabbro-diorite body which hosted the Wensley

EXPLORATION AND DEVELOPMENT HISTORY (Cont'd)

mineralization. This mineralization is associated with carbonatized, pyritized siliceous transverse fractures and quartz veins. Widths are five to fourteen feet over a length of 300 feet. Grades were generally low with only the No. 5 vein returning grades in excess of 0.1 oz/ton. A short program of drilling was recommended for this vein but was not followed up. Vein 5 is in the vicinity of L105 on the present grid.

Wicks Lake

In the summer of 1974, Noranda Exploration Company Limited mapped a block of 22 claims which included the Wensley Option ground and much of the adjacent Millree occurrence. Eight of these claims which covered the Wensley vein system were held by Roy A. Martin. Samples from trenches in the carbonate pyrite mineralized zone of the Millree gave some gold values. No further work was undertaken on this ground.

Noranda Exploration Ltd. optioned 15 contiguous unpatented mining claims from Roy A. Martin. An exploration program was carried out between March 11, 1980 and October 1981 when the option agreement was terminated. During this period, a cut grid consisting of 20.2 kilometers of picket lines, spaced 100 meters apart with stations at 25 meter intervals, controlled by a 1.9 kilometer baseline was completed. The grid covered all claims with the exception of K. 535968, K. 489274 and K. 489275.

Geological mapping was completed over claim area and plotted on plan at scale of 1:2,500.

A soil geochemistry survey was run over the property in the 1980 season. Samples were analyzed for Cu, Zn and Ag. Magnetometer and induced polarization (IP) surveys were carried out in July and August of 1980. A detailed follow-up I.P. survey was run in October 1980.

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EXPLORATION AND DEVELOPMENT HISTORY (Cont'd)

A limited drill program to test interesting IP and geological targets were undertaken. Seven X-ray drill holes were started, two of these did not reach bedrock. Altered and mineralized sections of drill hole were assayed for gold and silver. Several good assays were obtained from old pits; the best being 0.11 oz/ton gold grab sample. Best drill core assay was from Hole MO-3-81 assaying 0.176 oz/ton Au and 0.082 oz/ton Ag over 20 inches.

The following results were concluded from 1980-1981 exploration program:

1. Assays obtained from Wensley veins confirm the results obtained in the previous 1944-1945 Noranda program.

2. Detailed IP appears to be capable of locating narrow mineralized quartz veins, but not able to pinpoint them closely enough to permit drilling without detailed geological mapping.

3. The vein systems previously delineated on the Wensley and Millree prospects may be genetically related, but are not extensions of each other.

4. Although the grade is reasonable, the mineralization is too narrow to permit profitable development.

5. There is some chance that geophysical surveys oriented east-west might find more mineralization paralleling the Millree veins. However, the consistently low grade of these showings does not make this an attractive proposition.

6. Geophysics gave no indication of a wider zone which might be more economically feasible. Due to results, Noranda terminated option with Roy A. Martin.

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EXPLORATION AND DEVELOPMENT HISTORY (Cont'd)

Eleven trenches from 1944-1945 Noranda program were re-blasted and sampled by Jack Martin in summer of 1982. Assay results are plotted on drawing 01-83.

In August and September 1983, Frances Resources Ltd. of Vancouver, B.C., completed field work of trenching, stripping, portal preparation by lateral work and shaft sinking. Assay data is plotted on accompanying plans.

REGIONAL GEOLOGY

The Kakagi Lake area is situated on the flank of a centre of intermediate-felsic volcanism in the Wabigoon Belt of metavolcanic metasedimentary supracrustal rocks. The regional trend of these rocks is to the northwest, parallel to a major structural break which truncates the intermediate-felsic rocks to the northeast of Kakagi Lake. The other major structural feature of the volcanic centre is a set of strong, northwest trending folds, dominated by the Emm Bay and South Narrow Lake synclines. Flexure of the axes of these major folds in the area of northwest trending fault suggests movement on the fault was predominantly right lateral.

The Kakagi Lake area is underlain chiefly by intermediate pyroclastic rocks with minor chemical sediments and a series of extensive, thick mafic and ultramafic sills, all of Archean age. This package has been folded into an open syncline plunging 80° to 90° northeast and enfolding a late felsic pluton, the Stephen Lake granite. A number of strong north-trending lineaments are mappable; these may be related to a strong north-trending fault system which passes through Wicks Lake disrupting the geologic sequence with displacements of greater than 300 meters.

Mineralization of several types in a variety of host rocks is known: Gold is found in pyritized, carbonatized shear and fracture zones associated with faulting and folding in intermediate pyroclastic and mafic-ultramafic intrusions. Gold and molybdenum are associated with shears in granitic rocks such as the Stephen Lake pluton. Sphalerite-galena occurrences are associated with well banded cherts and cherty sediments.

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PROPERTY GEOLOGY

General

Mapping on the Martin Option property revealed a southeast trending sequence of intermediate pyroclastic rocks and cherty sediments intruded by gabbro-diorite and pyroxenite sills with thicknesses on the order of 350 meters and by a small (altered) granodiorite body. These rocks are regionally metamorphosed to greenschist facies rank and are quite well preserved. Few structural data are available.

Bedding was mapped in some small exposures of chert and cherty tuff but tops could not be determined; from O.G.S. regional mapping, tops are north. Strike of bedding proved to be parallel to the general strike of the gabbro and pyroxenite sills.

Foliation and shearing is not well developed, but where measured is consistently parallel to the strike of the units.

Rock Descriptions

(1) Intermediate Tuffs (2LT, 2AT)

These rocks underlie about one third of the property, mainly in the southwest and northeast corners. They are uniform, generally featureless, fine to medium grained, massive, medium grey-green coloured, fairly siliceous rocks which are locally plagioclase porphyritic. They are composed mainly of plagioclase which may be epidotized, chlorite and quartz and occasional traces of pyrite.

The tuffaceous texture of these rocks is due to small fragments of plagioclase and quartz, and rarely, lithic fragments in a somewhat finer plagioclase-quartz-chlorite matrix. Plagioclase phenocrysts, where found, are generally less than 1 mm maximum dimension and likely represent a crystal tuff.

Rock Descriptions

(2) Chert, Cherty Sediment (5CH, 4F-5CH)

The cherts are finely bedded (1 to 2 mm), pale to dark grey, very fine-grained to aphanitic rocks which occur in a narrow, discontinuous band between the cherty sediments to the north and the gabbro sill to the south. The variation in colour defines the bedding and probably represents graded bedding. However, this was not definite enough to permit determination of tops.

The cherty sediments are closely associated with the cherts and may be lateral and/or vertical equivalents. They are located immediately under the pyroxenite sill. These are fine-grained to almost aphanitic, massive, grey to green-grey, siliceous to flinty rocks with some tuffaceous-looking sections. Coarse bedding with bed thicknesses of up to two feet is apparent in some exposure, e.g. L113 and L114.

They appear to be the result of simultaneous deposition of fine clastic or tuffaceous sediments and siliceous chemical sediments.

(3) Gabbro-Diorite (6G, 6D)

This unit is probably a thick sill intruded into the volcanic pile. It trends southeast across the property and because of its resistance to weathering forms a prominent ridge.

This is typically a medium to coarse-grained rock with some local fine-grained sections; there is no apparent pattern to changes in grain size. It is massive to weakly foliated locally and green and white mottled in colour. It consists of approximately equal amounts of plagioclase and completely chloritized amphibole/pyroxene with up to five percent quartz as 1 mm 'eyes' locally. Carbonate is ubiquitous at about two percent.

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Rock Descriptions

(3) Gabbro-Diorite (Cont'd)

Locally, in the coarser grained sections, dendritic aggregations of a amphibole/pyroxene up to six inches in length can be found.

Diamond drilling in the west part of the property recovered some very coarse, almost pegmatitic gabbro which contained up to 65 percent plagioclase and which is best described as anorthositic gabbro.

(4) Pyroxenite (6Px)

This unit is also a sill and, like the gabbro, forms a high, broad ridge. The rock is black, coarse-grained, massive, very strongly magnetic and exhibits the ochre weathering and polygonal jointing which are virtually diagnostic of ultramafic rocks. It appears to consist only of pyroxene and about five percent magnetite; no plagioclase or olivine were seen. The unit is locally carbonatized along a north-trending fault at about L114/204.

(5) Granodiorite (7GD)

This unit, which occurs as a small body just northeast of Wicks Lake, is somewhat altered with apparent secondary quartz and potassium-feldspar being prominent. Locally it resembles both the diorite and the intermediate tuff. It is a generally medium-grained, massive rock, grey to pink to tan in colour. It is composed mainly of plagioclase with variable amounts of quartz, k-feldspar, chlorite, actinolite and carbonate.

Rock Descriptions

(6) Quartz Veins

The veins consist of a white to somewhat clear quartz with coarse to medium-grained pyrite scattered through it in local concentrations. There are some slivers and blocks of chlorite schist incorporated into the vein material. The vein walls are also schistose, generally for about two to six inches into the country rock. This schist is also weakly mineralized with pyrite. There is no other noticeable alteration.

SURVEY CONTROL AND GRID LAYOUT

Noranda Exploration Ltd. 1980-1981 grid was still visible, but all baseline and cross lines were over-grown with brush. This grid consisted of 20.2 kilometers of picket lines, spaced at 100 meters apart with stations at 25 meter intervals, controlled by a 1.9 kilometer baseline. Baseline was re-brushed from approximately L117E to L105E. Cross lines L115E, L114E, L113E and L112E from station 201N to south end of lines were re-brushed. Noranda grid was used only for reference in field. Most pickets found on grid were still legible, especially where pencil was used for marking.

All 1983 trenching, stripping, shaft sinking, assay locations and lateral work at portal site were surveyed by Stadia survey. This was accomplished with Wild T16 theodolite and Stadia rod. Stadia traverse was run along length of work. Survey traverse is plotted on drawings 01-83 and 02-83. Starting point of traverse being tied into old 1944-1945 Noranda grid.

An assumed elevation datum was used, the origin being high water mark of west shore of Wicks Lake. All elevations shown on plans and longitudinal sections relate to elevation of Wicks Lake.

Grids

The following three grids are referred to in this report:

1. Northing and Easting co-ordinate grid.
   Co-ordinate lines are shown on all plans and longitudinal sections of this report.

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SURVEY CONTROL AND GRID LAYOUT (Cont'd)

Grids

2. Geological grid of 1980-1981 completed by Noranda. Shown on Geology Plan 06-83.

3. No. 3 Baseline (1944). Zero point is noted on Plan 01-83. (Zero point and co-ordinates 10,000 North and 10,000 East are common point).

MAPS AND PLANS

Appended to this report are six plans numbering DWG. 01-83, 02-83, 03-83, 04-83, 05-83, and 06-83.

Plan drawings No. 01-83 and 02-83 show location of new trenches, shaft, stripping and lateral work at portal site. Also shown on plans are 1983 assay results. Samples were assayed for gold, silver, copper and molybdenum, but only gold values are indicated on plans. Diamond drill hole collars, intersection results, and drill hole numbers are shown on drawings 01-83 and 02-83. These drill holes were copied from 1945 plans by A.M. Bell at scales 1" = 30' and 1" = 50'. Copies were in poor condition and information and location was transferred as accurately as possible. Old trenches and gold assay data is also shown. Gold values were copied from A.M. Bell plans.

Drawings 03-83, 04-83, and 05-83 are longitudinal sections showing drill hole intersections with gold values, trenching, shaft, portal preparation and proposed drifting. New 1983 assays and old assay data are plotted. Also outlined on longitudinal sections are proposed ore blocks showing average grade for block and number of ounces of gold available.

Drawing 06-83 is geology map of claim group. Geology for this map was traced from geology print mapped by M. Grant of Noranda Exploration Co. Ltd., dated August 1980. Scale of geology map is 1:2,500. Up-to-date information has been added to plan.

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EXPLORATION PROGRAM - 1983

Dates Work Performed

Field work of 1983 program commenced on August 1, 1983 and was completed by September 30, 1983. Report, drafting and office related work was completed during the months of November 1983 to February 1984.

Personnel

Program was carried out under supervision of Ron Blais, along with two-man crew, consisting of Maurice Burke and Don Woito. Plugger and mucking duties were shared by all three crew members. Maurice Burke was responsible for loading and blasting. Surveying and sampling was done by Ron Blais. Name and addresses of crew members as follows:

Ron Blais
1425 Pinegrove Crescent
North Bay, Ontario
P1B 4P9
Telephone: (705) 474-4793

Maurice Burke
300 Dunbeath Ave.
Winnipeg, Manitoba
R2K 0H1
Telephone: (204) 661-1950

Don Woito
P.O. Box 434
North Bay, Ontario
P1B 8H5

EXPLORATION PROGRAM - 1983 (Cont'd)

Equipment and Materials

The following equipment was used on 1983 program:

1. Atlas Copco gas plugger Model 148, along with 7/8" Hexagon drill steel and 1 1/4" cross bits.
2. Wajax Mark 3 fire pump and accessories.
3. Wheel barrow.
4. 2-Ton chain fall.
5. Mucking bucket - 4 cu. ft.
6. 20 H.P. motor and 16 foot aluminum boat - Crow Lake.
7. 5 H.P. motor and 14 foot aluminum boat - Wicks Lake.
8. Survey equipment.
9. Dynamite and blasting caps.
10. Assorted small tools: shovel, picks, etc.
11. Sampling tools.
12. 500 feet - 2" plastic water line.

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STRIPPING AND TRENCHING

WENSLEY OPTION - No. 3 Vein.

The following three trenches were completed on No. 3 Vein.

1. Trench 83-1
Trench location is 97 + 00 East and 99 + 75 North. No. 3 Baseline (1944) chainage is 3 + 00 West. Trench dimension is approximately 18 feet long by 5 feet wide by 4 feet deep. Approximately 13 cubic yards of overburden and blasted rock excavated. Three inch quartz vein was exposed in north end of trench. Best assay was 4.05 oz. Au/ton over 3 inch width.

2. Trench 83-2
Trench location is 95 + 90 East and 99 + 74 North. No. 3 Baseline chainage is 4 + 10 West. Dimension of trench is 16 feet by 4 feet by 3 1/2 feet deep. Approximately 8 cubic yards of blasted rock excavated. Five inch quartz vein was bared and assayed 0.294 oz. Au/ton over 5 inches. Visible gold was noted in the trench.

3. Trench 83-3
Trench location is 96 + 00 East and 99 + 55 North. Small trench 7 feet by 3 feet by 2 1/2 feet deep. Approximately 2 cubic yards of gabbro-diorite unit was excavated. No mineralization or quartz was found.

All old existing trenches on Wensley No. 3 Vein and No. 5 Vein were located and brushed out. Trench locations are marked by flagging tape for future reference.

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STRIPPING AND TRENCHING

WENSLEY OPTION - No. 3 Vein (Cont'd)

Stripping, along with blasting was carried out between 95 + 50 East and 94 + 75 East adjacent to plan grid line 100 + 00 North. No. 3 Baseline (1944) chainage for this area is approximately 4 + 60 West. Area of stripping is along rock ridge on west side of overburden filled gulley. A.M. Bell, in 1945 report, implies a 30 foot fault throw exists in vicinity of gulley.

Shaft excavation on east side and stripping on west side of gulley suggests that No. 3 Vein is not faulted, but curves and is continuous through gulley. Further trenching work is recommended in this area.

A vertical 12-inch quartz vein in gabbro-diorite unit, was uncovered and sampled. Best assay was 0.213 oz. Au/ton over 1.0 foot width. Visible gold was also noted in vein. Wajax Mark 3 fire pump was used to remove overburden and debris from outcrop. Stripping is shown on photograph section of this report.

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STRIPPING AND TRENCHING (Cont'd)

MILLREE OPTION

No. 1 Vein

Eight channel samples were taken from re-blasted north trench. No encouraging assay results were obtained from samples. North trench of No. 1 Vein is located approximately at co-ordinates L101 + 20 East and station 199 + 20 North on geological grid.

No. 5 Vein

Nine channel samples from re-blasted trench had only one assay of any significance. Assay was 0.068 oz. Au/ton over 2 foot width. Co-ordinates of trench on geological grid are L105 + 35 East and station 198 + 04 North.

Assay results and locations of trenches are recorded on Sample Record Sheets and assessment work sketches (Appendix No. 5).

LATERAL WORK - PORTAL PREPARATION

The Wensley No. 3 Vein is exposed on the hill facing easterly towards Wicks Lake. No. 3 Vein strikes in a east-west direction, and has been followed westerly for approximately 2,000 feet by trenching and diamond drilling. The east drill hole was drilled from an island in Wicks Lake and cuts the vein about 400 feet east of the west shore. Approximately 200 feet west of the west shore of Wicks Lake at toe of hill, the first of a number of trenches has been cut across the vein for a strike length of 2,000 feet. A series of 36 shallow drill holes, spaced from 100 feet to 50 feet apart and averaging 125 feet in length, have been drilled under trenches. Drill holes intersected vein approximately 80 to 100 feet below profile of trenches.

From toe of hill for a distance of 200 feet, several trenches have been cut across No. 3 Vein. Toe of hill is located at co-ordinates 10,000 North and 10,000 East on drawing 01-83. The slope is an 80 foot rise over a 200 foot run. Previous surface sampling gave 200 feet long by 2.1 feet wide at 0.62 oz. Au/ton. A bulk sample of 275 pounds taken representatively gave 1.4 feet at 0.95 oz. Au/ton over length of 200 feet.

The zero point for No. 3 Baseline, established in 1944, is co-ordinates 10,000 North and 10,000 East. Shown on drawing 01-83 as noted above, this point is located at toe of hill rising to west, on which No. 3 Vein is exposed. All older plans and reports are tied to this grid. Chainage is taken east and west from this zero point.

The 1983 exploration program was primarily concerned with section of No. 3 Vein from 0 + 25 west to 4 + 60 west.

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LATERAL WORK - PORTAL PREPARATION (Cont'd)

The objective of lateral work was twofold. First, to expose No. 3 Vein with a vertical face, and secondly, to prepare a portal entrance if further underground work was contemplated following 1983 program.

An open cut starting at toe of hill (0 + 00 on No. 3 Baseline = 10,000 North, 10,000 East) was advanced for 36 feet. A vertical face of approximate height of 20 feet was established. Total of 300 - 350 cubic yards of roots, overburden and blasted rock was excavated.

Underground advance was seven feet from portal face, with an opening of 7 feet by 5 feet, and approximately 10 cubic yards of rock was removed.

Open cut and underground advance was accomplished by hand work, using gas plugger for drilling, blasted rock mucked by shovel and hauled by wheel barrow. Photographs of this work are found in this report.

Grab and chip samples of vein material and wall rock were taken at various locations. Results of assays and location are plotted on drawing 01-83. Best assay result on vein was 3.960 oz. Au/ton over a 6" width. Quartz vein varied in width from 3 - 6 inches. Dip of vein is 70 - 80 degrees north.

A 45 gallon drum of hand-cobbed vein material was collected from lateral workings. Vein material was packed out and stored at warehouse owned by Mel's Marine in Nestor Falls. This vein material was crushed to $\pm$ 1/8" size using portable 4" x 6" jaw crusher. A 120 pound sample was sent to Lakefield Research in Lakefield, Ontario for metallurgical testing. Remainder of crushed material is stored in warehouse. Metallurgical report is attached to this report as Appendix No. 3.

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SHAFT SINKING

Shaft was sunk on rock ridge at east edge of overburden filled gulley. Co-ordinates of shaft are 95 + 70 east and 99 + 75 north. No. 3 baseline (1944) chainage is 4 + 30 west.

Dimension of shaft is 8' x 6' x 17' deep. Depth was measured from top of mucking deck. Approximately 30 cubic yards of material was hoisted using man-operated chain fall and mucking bucket.

A contact between a gabbro-diorite unit and felsic unit was exposed in shaft. Bottom of shaft ends in felsic unit. Felsic unit is light grey in colour, siliceous with disseminated pyrite. Numerous flat-lying quartz stringers cut felsic unit. This felsic unit has not been recorded by previous 1944-1945 work or mapping in 1980-1981.

Excavation has exposed No. 3 Vein in east wall and bottom of shaft. Details of above, along with assay results, are shown on drawing 01-83. Photograph section of report shows shaft area.

SAMPLING AND ASSAY RESULTS

A total of 63 samples were taken from Wensley and Millree options. Sample types were as follows: nine grab, thirty-seven chip, and seventeen channel.

Twenty samples were assayed for gold and silver, and one sample for gold, silver and molybdenum. Remaining forty-two samples were assayed for gold, silver, copper and molybdenum.

Attached to this section in tabulated form are Sample and Assay Record Sheets showing sample number, sample type, width of sample, description and location of sample along with assay values. Signed assay certificates are included in this section.

Only assay results for gold are plotted on plans and longitudinal sections.

Assaying was carried out by Acme Analytical Laboratories Ltd., 852 E. Hastings St., Vancouver, B.C. Samples were delivered from job site by pick-up to Kenora and from Kenora to Vancouver by Reimer Transport Ltd.

Assay Methods

Gold and silver samples were assayed by fire assaying method. Silver checked by atomic absorption method.

Atomic absorption method was used to obtain assay results for copper and molybdenum.

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ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED AUG 30 1983
DATE REPORTS MAILED Sept 3/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.
AG & AU BY FIRE ASSAY

ASSAYER ______ DEAN TOYE, CERTIFIED B.C. ASSAYER

FRANCES RESOURCES LTD FILE # 83-1899 PAGE# 1

SAMPLE	AG OZ/TON	AU OZ/TON
88101	1.15	.630
88102	.03	.007
88103	.09	.033
88104	5.41	4.050
88105	.11	.054
88106	.01	.005
88107	.09	.004
88108	.92	.660
88109	.03	.008
88110	.04	.003
88111	.09	.150
88112	.05	.002
88113	1.69	1.610
88114	.09	.075
88115	5.88	3.960
88116	.05	.039
88117	.12	.124
88118	.07	.074
88119	.54	.410
88120	.22	.088

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ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED SEPT 19 1983
DATE REPORTS MAILED Sept 24/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

BARRIER REEF RES. LTD FILE # 83-2212 PAGE# 1

SAMPLE	MO %	AG OZ/TON	AU OZ/TON
88121	.001	.01	.001

CHERT ZONE & "BEDDED" QUARTZ VEIN.

.../28

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH:253-3158 TELEX:04-53124

ASSAY CERTIFICATE

A 1.00 GRAM SAMPLE IS DIGESTED WITH 50 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 100 MLS WITH WATER.
AU BY FIRE ASSAY SAMPLE TYPE - ROCK CHIPS

DATE RECEIVED OCT 11 1983 DATE REPORTS MAILED Oct 17/83 ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

FRANCES RESOURCES FILE # 83-2504 PAGE# 1

SAMPLE #	MO %	CU %	AG oz/t	Au o/t
88122	.001	.01	.02	.001
88123	.001	.01	.01	.001
88124	.001	.01	.01	.001
88125	.001	.01	.01	.001
88126	.001	.01	.01	.001
88127	.001	.01	.01	.001
88128	.001	.01	.01	.001
88129	.001	.01	.01	.001
88130	.001	.01	.01	.001
88131	.001	.01	.01	.001
88132	.001	.01	.14	.294
88133	.001	.01	.01	.073
88134	.001	.01	.05	.209
88135	.001	.01	.01	.008
88136	.001	.01	.01	.005
88137	.001	.01	.01	.001
88138	.001	.01	.01	.007
88139	.001	.01	.01	.001
88140	.001	.01	.01	.001
88141	.001	.01	.01	.068
88142	.001	.01	.01	.028
88143	.001	.01	.01	.011
88144	.001	.01	.01	.001
88145	.001	.01	.01	.001
88146	.001	.01	.01	.001
88147	.001	.01	.12	.048
88148	.001	.02	.01	.014
88149	.001	.01	.01	.008
88150	.001	.01	.42	1.291
88276	.001	.01	.16	.072
88277	.001	.01	.08	.552
88278	.001	.01	.34	1.302
88279	.001	.01	.59	.194
88280	.001	.01	.59	.526
88281	.001	.01	.01	.014
88282	.001	.01	.01	.002
88283	.001	.01	.01	.098

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FRANCES RESOURCES FILE # 83-2504

SAMPLE #	MO %	CU %	AG oz/t	Au o/t
88284	.001	.01	.12	.213
88285	.001	.01	.05	.006
88286	.001	.02	.03	.004
88287	.001	.01	.13	.154
88288	.001	.01	.10	.359

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SAMPLE AND ASSAY RECORD SHEET

PROPERTY WICKS LAKE   DATE FEB. 14/84   PAGE NO. 1

SAMPLE NO.	T	WIDTH OF SAMPLE	DESCRIPTION		ASSAY Au oz./TON	Ag oz./TON	Mo	Cu
88101	△	0.20 FT.	1945 TRENCH #9 - WENSLEY N°3 VEIN	QTZ. VEIN	0.630	1.15		
88102	△	2.0 FT.	1945 TRENCH #9 - WENSLEY N°3 VEIN	FOOT WALL QTZ. VEIN	0.007	0.03		
88103	△	0.8 FT.	1945 TRENCH #9 - WENSLEY N°3 VEIN	HANGING WALL QTZ. VEIN	0.033	0.09		
88104	△	0.25 FT.	1983 TRENCH 83-1 - WENSLEY N°3 VEIN	QTZ. VEIN	4.050	5.41		
88105	△	1.0 FT.	1983 TRENCH 83-1 WENSLEY N°3 VEIN	HANGING WALL	0.054	0.11		
88106	△	1.3 FT.	1983 TRENCH 83-1 WENSLEY N°3 VEIN	WALL ROCK	0.005	0.01		
88107	△	1.2 FT.	1983 TRENCH 83-1 WENSLEY N°3 VEIN	WALL ROCK	0.004	0.09		
88108	△	0.5 FT.	DRIFT FACE #3 WENSLEY N°3 VEIN	QTZ. VEIN	0.660	0.92		
88109	△	1.5 FT.	DRIFT FACE #3 WENSLEY N°3 VEIN	HANGING WALL OF VEIN	0.008	0.03		
88110	△	2.3 FT.	DRIFT FACE #3 WENSLEY N°3 VEIN	FOOT WALL OF VEIN	0.003	0.04		
88111	△	0.03 FT.	DRIFT FACE #3 WENSLEY N°3 VEIN	QTZ. STRINGER	0.150	0.09		
88112	△	2.0 FT.	DRIFT FACE #3 WENSLEY N°3 VEIN	WALL ROCK	0.002	0.05		
88113	*		DRIFT FACE COBBED VEIN WENSLEY N°3 VEIN	QTZ. VEIN	1.610	1.69		
88114	*		DRIFT FACE WENSLEY N°3 VEIN	FOOT WALL QTZ. VEIN	0.075	0.09		
88115	△	0.5 FT.	DRIFT FACE #2 WENSLEY N°3 VEIN	QTZ. VEIN	3.960	5.88		
88116	△	3.0 FT.	DRIFT FACE #2 WENSLEY N°3 VEIN	FOOT WALL OF VEIN	0.039	0.05		
88117	△	0.04 FT.	DRIFT FACE #2 WENSLEY N°3 VEIN	QTZ. STRINGER	0.124	0.12		
88118	△	0.50 FT.	DRIFT FACE #2 WENSLEY N°3 VEIN	HANGING WALL	0.074	0.07		
88119	△	0.55 FT.	DRIFT FACE #2 WENSLEY N°3 VEIN	QTZ. VEIN	0.410	0.54		
88120	*		SHAFT	SILICEOUS FELSIC UNIT	0.088	0.22		

SAMPLE AND ASSAY RECORD SHEET

PROPERTY WICKS LAKE DATE FEB. 14/84 PAGE NO. 2

SAMPLE NO.	T	WIDTH OF SAMPLE	DESCRIPTION			ASSAY Au oz./TON	Ag oz./TON	Mo %	Cu %
88121	*		NORTH TRENCH	MILLREE Nº1 VEIN	CHERT ZONE OR BEDDED QTZ. VEIN	0.001	0.01	0.001	
88122	=	0.67 FT.	NORTH TRENCH	MILLREE Nº1 VEIN	"	0.001	0.02	0.001	0.01
88123	=	1.0 FT.	" "	"	"	0.001	0.01	0.001	0.01
88124	=	2.0 FT.	" "	"	"	0.001	0.01	0.001	0.01
88125	=	0.5 FT.	" "	"	"	0.001	0.01	0.001	0.01
88126	=	1.9 FT.	" "	"	"	0.001	0.01	0.001	0.01
88127	=	1.7 FT.	" "	"	"	0.001	0.01	0.001	0.01
88128	=	2.0 FT.	" "	"	"	0.001	0.01	0.001	0.01
88129	=	0.5 FT.	NORTH TRENCH	MILLREE Nº1 VEIN	CHERT ZONE OR BEDDED QTZ. VEIN	0.001	0.01	0.001	0.01
88130	*	0.7 FT.	EDGE BEAVER POND	MILLREE	MILKY QTZ. VEIN	0.001	0.01	0.001	0.01
88131	*		SOUTH TRENCH	MILLREE		0.001	0.01	0.001	0.01
88132	△	0.4 FT.	BOTTOM 1983 TRENCH 83-2	WENSLEY Nº3 VEIN	QTZ. VEIN	0.294	0.14	0.001	0.01
88133	△	0.8 FT.	BOTTOM 1983 TRENCH 83-2	WENSLEY Nº3 VEIN	FOOT WALL QTZ. VEIN	0.073	0.01	0.001	0.01
88134	△	0.8 FT.	WEST FACE 1983 TRENCH 83-2	WENSLEY Nº3 VEIN	QTZ. VEIN	0.209	0.05	0.001	0.01
88135	=	2.0 FT.	TRENCH	MILLREE Nº5 VEIN	QTZ. STRINGERS CARBONATE ALTERATION	0.008	0.01	0.001	0.01
88136	=	2.0 FT.	"	"	QTZ. STRINGERS CARBONATE ALTERATION IN DIORITE	0.005	0.01	0.001	0.01
88137	=	2.0 FT.	"	"	"	0.001	0.01	0.001	0.01
88138	=	2.0 FT.	"	"	"	0.007	0.01	0.001	0.01
88139	=	2.0 FT.	"	"	"	0.001	0.01	0.001	0.01
88140	=	2.0 FT.	"	"	"	0.001	0.01	0.001	0.01
88141	=	2.0 FT.	TRENCH	MILLREE Nº5 VEIN	QTZ. STRINGERS CARBONATE ALTERED DIORITE	0.068	0.01	0.001	0.01

SAMPLE AND ASSAY RECORD SHEET

PROPERTY WICKS LAKE　　　　DATE FEB. 14/84　　PAGE NO. 3

SAMPLE NO.	T	WIDTH OF SAMPLE	DESCRIPTION		ASSAY Au oz./TON	Ag oz./TON	Mo %	Cu %
88142	=	2.0 FT.	TRENCH MILLREE N°5 VEIN	QTZ. STRINGERS ALTERED DIORITE	0.028	0.01	0.001	0.01
88143	=	2.0 FT.	TRENCH MILLREE N°5 VEIN	"	0.011	0.01	0.001	0.01
88144	Δ	1.1 FT.	NORTH WALL SHAFT WENSLEY	FELSIC UNIT DISS. PYRITE	0.001	0.01	0.001	0.01
88145	Δ	1.3 FT.	NORTH WALL SHAFT WENSLEY	FELSIC UNIT DISS. PYRITE	0.001	0.01	0.001	0.01
88146	Δ	1.0 FT.	" "	"	0.001	0.01	0.001	0.01
88147	Δ	0.8 FT.	" "	"	0.048	0.12	0.001	0.01
88148	Δ	1.0 FT.	" "	"	0.014	0.01	0.001	0.02
88149	Δ	1.5 FT.	NORTH WALL " SHAFT WENSLEY "	QTZ. STRINGERS FELIC UNIT DISS. PYRITE	0.008	0.01	0.001	0.01
88150	Δ	0.30 FT.	EAST WALL SHAFT WENSLEY N°3 VEIN	QTZ. VEIN	1.291	0.42	0.001	0.01
88276	Δ	2.7 FT.	EAST WALL SHAFT WENSLEY	QTZ. STRINGER FELSIC, PYRITE.	0.072	0.16	0.001	0.01
88277	Δ	0.35 FT.	EAST WALL SHAFT WENSLEY N°3 VEIN	QTZ. VEIN	0.552	0.08	0.001	0.01
88278	Δ	0.15 FT.	EAST WALL SHAFT WENSLEY N°3 VEIN	QTZ. VEIN	1.302	0.34	0.001	0.01
88279	Δ	3.0 FT.	EAST WALL SHAFT WENSLEY	QTZ. STRINGERS FELSIC UNIT DISS. PYRITE	0.194	0.59	0.001	0.01
88280	Δ	0.35 FT.	N.W. BOTTOM CORNER-SHAFT WENSLEY N°3 VEIN	QTZ. VEIN	0.526	0.59	0.001	0.01
88281	Δ	2.0 FT.	EAST WALL SHAFT WENSLEY	FELSIC UNIT SILICEOUS	0.014	0.01	0.001	0.01
88282	*		RANDOM - LOCATION NEAR STRIPPING?		0.002	0.01	0.001	0.01
88283	Δ	0.9 FT.	STRIPPING AREA WENSLEY N°3 VEIN	QTZ. VEIN	0.098	0.01	0.001	0.01
88284	Δ	1.0 FT.	"	QTZ. VEIN	0.213	0.12	0.001	0.01
88285	Δ	0.8 FT.	"		0.006	0.05	0.001	0.01
88286	Δ	1.0 FT.	"		0.004	0.03	0.001	0.02
88287	*		"	QTZ. VEIN	0..	0..	0.001	0.01
88288	*		WENSLEY N°3 VEIN	QTZ. VEIN	0.359	0.10	0.001	0.01

SAMPLE TYPE: * - GRAB　　Δ - CHIP　　═ - CHANNEL　　□ - BULK

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1983 PORTAL SITE
No. 3 Vein

1983 PORTAL SITE
No. 3 Vein
D. Woito

1983 PORTAL SITE

No. 3 Vein

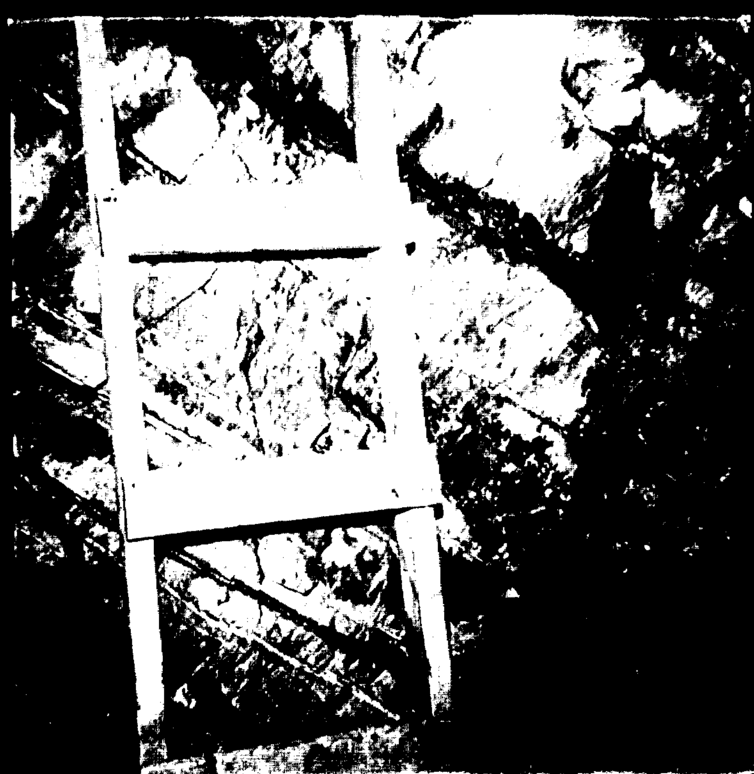
Maurice Burke at DUMP SITE

DRIFT FACE-3, No. 3 Vein

SHAFT - No. 3 VEIN

SHAFT - No. 3 VEIN

SHAFT - No. 3 VEIN
NORTH WALL



SHAFT - No. 3 VEIN
EAST WALL

SHAFT - No. 3 VEIN
BOTTOM - N.W. CORNER

STRIPPING AREA
No. 3 Vein

SUMMARY AND CONCLUSIONS

1. Wicks Lake property consists of 15 contiguous unpatented mining claims. Claim group is located approximately seven miles to the east by water from west end of Kakagi Lake. Highway 71 runs along west shore of Kakagi Lake. The property is under option to Frances Resources Ltd.

2. Gold values are distributed erratically in the veins, and accurate indication of value of deposit will require heavy surface channel samples and bulk sampling underground.

3. 1944-1945 trenching was done by drilling shallow holes with X-ray drill, loading holes and blasting. Values found in the small area of the X-ray core were only one-third the values found in the heavier channel samples from blasted trench.

4. Bulk sample of 275 pounds taken along 200 feet of No. 3 Wensley vein, gave double the average value of the channel samples taken from samples crossing the vein.

5. An estimated 40% of the vein material was ground up and lost with "E" core diamond drilling. Diamond drilling with "E" core showed consistently lower values than the trenching above the hole.

6. All drill holes intersected mineralized quartz veins carrying gold values.

7. Detailed IP survey appears to be capable of locating narrow mineralized quartz veins, but not able to pinpoint them closely enough to permit drilling without detailed geological mapping.

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SUMMARY AND CONCLUSIONS (Cont'd)

8. The No. 3 and No. 5 Wensley veins are strong, narrow, continuous quartz veins varying in width from 2-6 inches, and in some areas up to 2 feet wide. In some cases, zones of sheared gouge are found in hanging and foot walls of vein. The wall rock is mineralized with disseminated pyrite and has right-angle tension veinlets and slips in which visible gold was reported. Tension veinlets were observed in open cut at portal site. No visible gold was seen.

Veins are confined to a sill-like body of gabbro-diorite, strike approximately east-west and dip 70-80 degrees to the north. Semi-massive pyrite and minor chalcopyrite was noted in many hand-cobbed samples of vein material. Visible gold was noted in No. 3 vein at Trench 83-2 and 12-inch vein in stripping area.

To date, the most important gold mineralization is found in Wensley No. 3 and No. 5 Veins. The significant zones are as follows:

No. 3 Vein

A surface bulk sample was taken from a zone 200 feet by 1.4 feet grading 0.95 oz. Au/ton. Zone lies between co-ordinates 10,000 East and 9,800 East.

No. 5 Vein

Surface sampling established a zone 120 feet by 4.5 feet grading 0.32 oz. Au/ton.

Diamond drilling under both zones intersected quartz vein, and all intersections assayed gold.

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SUMMARY AND CONCLUSIONS (Cont'd)

9. Property needs grass roots prospecting, and trenching in selected areas.
10. Any future surface diamond drilling should be BQ - NQ core size.
11. New trenching, stripping and shaft confirm surface extension of Wensley No. 3 Vein from 2 + 40 West to 5 + 20 West (No. 3 Baseline 1944).
12. Shaft exposed felsic rock unit with disseminated pyrite and quartz stringers. One grab sample assayed 0.09 oz. Au/ton.
13. Completed portal site ready for future underground work.

RECOMMENDATIONS

Wicks Lake property warrants further investigation on Wensley No. 3 Vein.

Proposed program would determine mining method, true vein width, dilution factor, grade of ore, and possibility of resuing narrow vein. These factors are required before any decision could be made on further development of property.

Therefore, an underground exploration program to explore Wensley No. 3 Vein is recommended as follows:

1. 300 feet of underground drifting by track method. Drift opening 7 feet by 5 feet.
2. Comprehensive sampling and assaying of vein and wall rock.
3. Bulk sample for milling test.

Estimated cost of proposed underground work is $150,000. Work expected to be completed within three months of start-up.

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CERTIFICATE

I, Ronald Murray Blais, Professional Engineer, of 1425 Pinegrove Crescent, North Bay, Ontario P1B 4P9, do delare that:

1. I am a graduate of Haileybury School of Mines - 1959, Haileybury, Ontario.
2. I have actively practiced my profession for 24 years.
3. I am a Registered Professional Engineer in the Province of Ontario.
4. I directly planned and supervised the exploration program described in this report.

Dated at North Bay, Ontario
February 10, 1984

R.M. Blais, P.Eng.

REGISTERED PROFESSIONAL ENGINEER
R. M. BLAIS
PROVINCE OF ONTARIO

APPENDICES

INFORMATION SOURCES

NO. 1

INFORMATION SOURCES

Thomson, Robert Resident Geologist Kenora, Ontario November 3, 1944	Report on E. Wensley Group, Kakagi Lake, District of Kenora.
Thomson, Robert Resident Geologist Kenora, Ontario June 16, 1945	Report on E. Wensley Group, Kakagi Lake, District of Kenora, Claims K. 10536 - K. 10538 inclusive, K. 10654 - K. 10656 incl., K. 10810 - K. 10817 incl.
Holbrooke, G.J. August 7, 1945	Report on Millree, Prospecting Syndicate Claims, Crow Lake, Kenora District.
Thomson, Robert Resident Geologist Kenora, Ontario November 19, 1945	Sylvanite-Kakagi Group, District of Kenora.
Bell, A.M. Field Engineer Noranda Mines Ltd. July 1945	Letter Report, Wensley Option.
Bell, A.M. Field Engineer Noranda Mines Ltd. August 18, 1945	Letter Report, Wensley Option.

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INFORMATION SOURCES (Cont'd)

Bell, A.M. Field Engineer Noranda Mines Ltd. November 18, 1945	Letter Report, Wensley Option.
Chisholm, L.D., B.Sc. October 1965	Report on a Mining Property of Goose Mining Company Limited
Davies, J.C. and Morin, J.A. 1976	O.D.M. - Geoscience Report - 134 Geology of the Cedartree Lake Area, District of Kenora, Ministry of Natural Resources.
Brodish, L. District Geophysicist Noranda Exploration Company Limited August 1981	Report of Work, Geophysical Surveys on the Martin Option, Northwest Ontario. NTS 52 F/5.
Grant, Michael Project Geologist November 1981	Noranda Exploration Company Limited, Martin Option, Project 621, Report of Work.
Clark, G. 1982	Kenora Area Mineral Potential Sponsored by: Tri-Municipal Economic Development Commission Compiled by: Mining Sector Work Program Staff.
Martin, Roy A.	Various private files of Roy A. Martin.
Dawson, James December 1982	Report on Wicks Lake Property

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METALLURGICAL REPORT

NO. 3

An Investigation of

THE RECOVERY OF GOLD

from Wicks Lake samples

submitted by

BARRIER REEF RESOURCES LIMITED

Progress Report No.1

Project No. L.R. 2752

Note:

This report refers to the samples as received.

LAKEFIELD RESEARCH OF CANADA LIMITED
Lakefield, Ontario
December 30, 1983

I N D E X

A B S T R A C T

Of the various concentration and extraction methods investigated the best gold recovery was obtained by direct cyanidation after fine grinding and preaeration. The recoveries for gold and silver were 94.9% and 90.5%, respectively. Reagent consumptions were 0.54 kg/t for NaCN and 0.88 kg/t for CaO. Other combinations gave the following results:

Operation	Gold Recovery
Gravity	26% at 869 g/t (25 oz/t)
Flotation	98% at 280 g/t (8.2 oz/t) 90% at 966 g/t (28.2 oz/t)
Flotation + Cyanidation	74%

INTRODUCTION

In a letter dated October 14, 1983, Mr. A.F. Reeve of Barrier Reef Resources Limited requested testwork on Wicks Lake ore samples. The program included a mineralogical examination and gravity separation, flotation and cyanidation testwork to investigate the recovery of gold.

LAKEFIELD RESEARCH OF CANADA LIMITED

D. M. Wyslouzil

D.M. Wyslouzil, P. Eng.,

Manager.

I. Jackman

I. Jackman,

Project Engineer.

Experimental Work by: C. Caza

D. Holmes

S U M M A R Y

1. Head Analysis

A representative sample of Composite 1 was removed and analysed for the elements shown below:

Gold	(Au)	37.7 g/t
Silver	(Ag)	64.4 g/t
Sulphur	(S)	1.17 %
Copper	(Cu)	0.060 %

2. Mineralogy

A flotation concentrate was examined mineralogically to determine the size and association of the gold. The largest gold particle identified was 27 µm. Approximately 80% of the gold seen was liberated and the remaining 20% was associated with pyrite.

3. Gravity Separation

Tests were performed to investigate the concentration of gold by gravimetric methods. The ground samples were fed over a laboratory Wilfley table. The table concentrate was cleaned once on a Mozley mineral separator. The results are summarized in Table No. 1.

Table No. 1 - Gravity Separation Results

Test No.	% -200 Mesh	Product	Weight %	Assay, g/t Au	% Distr. Au
1	26	Cleaner Concentrate	2.0	491.	26.5
		Rougher Concentrate	6.9	175.	33.5
		Rougher Tailing	93.1	25.8	66.5
		Head (calculated)	100.0	36.1	100.0
4	47	Cleaner Concentrate	1.4	869.	26.3
		Rougher Concentrate	9.8	227.	47.9
		Rougher Tailing	90.2	26.9	52.1
		Head (calculated)	100.0	46.5	100.0

Summary - Continued

3. Gravity Separation - Cont'd

The gold recovery increased from 34% to 48% when the fineness of grind was increased to 47% minus 200 mesh. The silver grade of the rougher concentrate from Test No. 4 was 238 g/t Ag representing 36% Ag recovery.

4. Flotation Testwork

The recovery of gold in a sulphide concentrate was investigated at two finenesses of grind. Aerofloat 208 and PAX were applied as collectors and MIBC as frother in the rougher flotation. The rougher concentrate was water cleaned twice. The results are presented in Table No. 2.

Table No. 2 - Flotation Results

Test No.	% -200 Mesh	Product	Weight %	Assays, g/t, %		% Distribution	
				Au	S	Au	S
5	67	Cleaner Conc.	2.9	966.	38.9	72.8	91.6
		Rougher Conc.	11.7	294.	10.4	89.4	98.6
		Rougher Tail.	88.3	4.63	0.02	10.6	1.4
		Head (calc.)	100.0	38.5	1.23	100.0	100.0
10	88	Cleaner Conc.	2.3	1108.	45.0	68.4	85.1
		Rougher Conc.	12.2	278.	9.82	91.1	98.5
		Rougher Tail.	87.8	3.78	0.02	8.9	1.5
		Head (calc.)	100.0	37.3	1.22	100.0	100.0

Increasing the fineness of grind resulted in a slight increase in weight recovery which improved the gold recovery from 89% to 91%.

Summary - Continued

5. Cyanidation Testwork

5.1. Direct Cyanidation

Cyanidation tests were conducted to investigate the effect of fineness of grind, cyanide concentration, retention time and preaeration on the recovery of gold. All tests were performed in bottles on rolls at 33% solids maintaining a pH of 10.5 to 11. The conditions and results are summarized in Table No. 3.

Table No. 3 - Cyanidation Results

Test No.	%-200 Mesh	Preaer Hours	NaCN g/L	Time Hour	Reag.Cons,kg/t NaCN	Reag.Cons,kg/t CaO	Preg.Soln,mg/L Cu	Preg.Soln,mg/L Fe	% Recy Au	Residue g/t Au	Head g/t Au
2	80	-	0.5	48	0.54	0.32	54	9.3	91.5	3.39	39.6
3	80	-	1.0	48	0.85	0.49	56	29.	92.9	2.86	40.2
6	93	-	0.5	48	1.34	0.44	NA	NA	93.6	2.53	39.6
7	93	-	0.5	24	1.04	0.41	NA	NA	90.8	3.11	39.8
8	99	-	0.5	48	1.31	0.50	78	74	94.0	2.48	40.8
9	99	6	0.5	48	0.54	0.88	80	1.6	94.9	2.04	39.3

The gold recovery increased from 91.5% to 94% and the residue assay dropped from 3.4 g/t to 2.5 g/t Au when the fineness of grind increased from 80% to 99% minus 200 mesh. The increase in the copper and iron levels in the pregnant solution contributed to the increase in cyanide consumption from 0.54 kg/t to 1.31 kg/t NaCN with the finer grind. Increasing the cyanide concentration to 1 g/L NaCN reduced the residue assay from 3.4 g/t to 2.9 g/t Au but increased the cyanide consumption from 0.54 kg/t to 0.85 kg/t NaCN. Extending the retention time from 24 to 48 hours increased the gold recovery from 91% to 94%. The iron content in the pregnant solution was reduced from 74 mg/L to 1.6 mg/L Fe with the addition of a preaeration stage in Test No. 9 which led to a sharp decrease in cyanide consumption from 1.3 kg/t to 0.5 kg/t NaCN. The best cyanidation results were also achieved in this test with 95% Au recovery leaving a residue assaying 2.0 g/t Au.

Summary - Continued

5.2. Cyanidation of the Flotation Concentrate

A rougher concentrate was recovered under conditions similar to the previous flotation tests. It assayed 251 g/t Au and 448 g/t Ag representing gold and silver recoveries of 91% and 90% respectively. The concentrate was reground to minus 200 mesh, was preaerated for six hours at pH 10.5 and was then leached in a 1 g/L NaCN solution for 48 hours. The reagent consumptions, based on the feed to the cyanidation, were 4.3 kg/t NaCN and 2.6 kg/t CaO. Due to the concentration of copper minerals during flotation, the copper concentration in the pregnant solution increased to 584 mg/L Cu. This amount of copper in solution would account for 60% of the cyanide consumption. The preaeration stage kept the iron level in the pregnant solution down to 3 mg/L Fe. The gold and silver extractions during cyanidation were 82% and 70% respectively, representing overall recoveries of 74% of the gold and 63% of the silver.

SAMPLE PREPARATION

On September 28, 1983, three boxes containing approximately 40 kg ore were received at Lakefield Research and given our reference number 8324154. Composite 1 was produced by combining all samples. It was crushed to minus 6 mm and riffled in half. One half was stored and the remaining half was further crushed to minus 10 mesh. A head sample was removed and test charges were prepared.

XRF Semi-Quantitative Analysis - Composite 1

Titanium	ND	Lead	ND
Chromium	ND	Uranium	ND
Manganese	T	Thorium	ND
Iron	LM	Yttrium	ND
Cobalt	ND	Columbium	ND
Nickel	FT	Molybdenum	ND
Copper	TL	Silver	ND
Zinc	ND	Cadmium	ND
Arsenic	ND	Tin	ND
Bismuth	ND	Antimony	ND

Code:

H	10% plus	L	.1 - 1%
MH	5 - 15%	TL	.05 - .5%
M	1 - 10%	T	.01 - .1%
LM	.5 - 5%	FT	Less than .01%
		ND	Not Detected

Test No. 1

Purpose: To investigate the recovery of gold in a gravity concentrate.

Procedure: The ground sample was fed over a laboratory Wilfley table. The table concentrate was cleaned once on a Mozley mineral separator. All products were filtered, dried and assayed.

Feed: 2 kg minus 10 mesh Composite 1.

Grind: 10 min/2 kg in the lab ball mill at 65 % solids.

Metallurgical Results

Product	Weight %	Assays, %, g/t		% Distribution	
		Au	S	Au	S
1. Mozley Table Conc.	1.95	491	41.6	26.5	68.4
2. Mozley Table Tail.	4.96	50.7	1.72	7.0	7.2
3. Wilfley Table Tail.	93.09	25.8	0.31	66.5	24.4
Head (Calculated)	100.00	36.1	1.19	100.0	100.0

Calculated Grades and Recoveries

Products 1 and 2	6.91	175	13.0	33.5	75.6

Screen Analysis - Combined Products

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 14	0.7	0.7	99.3
20	1.3	2.0	98.0
28	2.7	4.7	95.3
35	5.5	10.2	89.8
48	13.4	23.6	76.4
65	15.6	39.2	60.8
100	14.9	54.1	45.9
150	10.7	64.8	35.2
200	8.9	73.7	26.3
270	6.5	80.2	19.8
400	4.6	84.8	15.2
- 400	15.2	100.0	-
Total	100.0	-	-

Test No. 2

Purpose: To investigate the recovery of gold by cyanidation.

Procedure: The sample was pulped with water in a 2 liter bottle. NaCN and lime were added and the cyanidation was carried out on rolls in one 48 hour stage. The pulp was filtered and the residue washed three times with water.

Feed: 500 g minus 10 mesh Composite 1.

Solution Volume: 1000 mL Pulp Density 33 % solids

Solution Composition: 0.5 g/L NaCN

pH Range: 10.5-11.0 with $Ca(OH)_2$

Grind: 20 min/kg in ball mill at 50 % solids.

Reagent Balance:

Time Hours	Added, grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0-2½	0.53	0.14	0.50	0.11	0.29	0	0.21	0.11	10.7-10.3
2½-19½	0.22	0.06	0.21	0.05	0.44	0	0.06	0.05	10.9-10.3
19½-26½	0.06	0	0.06	0	0.50	0	0	0	10.6-10.4
26½-48	0	0.04	0	0.03	0.50	0.03	0	0	10.7-10.6
Total	0.81	0.24	0.77	0.19	0.50	0.03	0.27	0.16	-

Reagent Consumption (kg/t of cyanide feed) NaCN : 0.54
CaO : 0.32

Metallurgical Results

Product	Amount	Assays mg/L,g/t			% Distribution Au
		Au	Cu	Fe	
48 h Preg. Sol'n	890 mL	16.0	54.3	9.25	71.7
48 h Wash Sol'n	1110 mL	3.54	-	-	19.8
48 h Residue	502.3 g	3.39	-	-	8.5
Head (Calc.)	502.3 g	39.6	-	-	100.0

Test No. 2 - Continued

Screen Analysis - 48 h Residue

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 65	0.2	0.2	99.8
100	1.4	1.6	98.4
150	6.0	7.6	92.4
200	12.4	20.0	80.0
270	17.6	37.6	62.4
400	14.1	51.7	48.3
- 400	48.3	100.0	-
Total	100.0	-	-

Test No. 3

Purpose: To investigate the recovery of gold by cyanidation with a higher cyanide concentration.

Procedure: The sample was pulped with water in a 2 liter bottle. NaCN and lime were added and the cyanidation was carried out on rolls in one 48 hour stage. The pulp was filtered and the residue washed three times with water.

Feed: 500 g minus 10 mesh Composite 1.

Solution Volume: 1000 mL Pulp Density 33 % solids

Solution Composition: 1.0 g/L NaCN

pH Range: 10.5-11.0 with $Ca(OH)_2$

Grind: 20 min/kg ground in ball mill at 50 % solids.

Reagent Balance:

Time Hours	Added, grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0-2	1.05	0.14	1.0	0.11	0.80	0	0.20	0.11	10.9-10.6
2-4	0.21	0	0.20	0	0.78	0	0.22	0	10.6-10.6
4-17½	0.23	0.04	0.22	0.03	1.00	0.03	0	0	10.8- 9.1
17½-24½	0	0.20	0	0.15	1.00	-	0	-	10.7-10.6
24½-48	0	0	0	0	1.00	0.05	0	0.13	10.6-11.5
Total	1.49	0.38	1.42	0.29	1.00	0.05	0.42	0.24	-

Reagent Consumption (kg/t of cyanide feed) NaCN : 0.85
CaO : 0.49

Metallurgical Results

Product	Amount	Assays, mg/L,g/t			% Distribution Au
		Au	Cu	Fe	
48 h Preg. Sol'n	940 mL	16.0	55.9	29.3	75.9
48 h Wash Sol'n	1200 mL	2.81	-	-	17.0
48 h Residue	493.6 g	2.86	-	-	7.1
Head (Calc.)	493.6 g	40.2	-	-	100.0

Test No. 4

Purpose: To investigate the effect of a finer grind on the recovery of gold by gravity separation.

Procedure: As for Test No. 1.

Feed: 2 kg minus 10 mesh Composite 1.

Grind: 20 min/2 kg in the lab ball mill at 65 % solids.

Metallurgical Results

Product	Weight %	Assays, %, g/t			% Distribution		
		Au	Ag	S	Au	Ag	S
1. Mozley Table Conc.	1.41	869	672	39.9	26.3	14.4	41.6
2. Mozley Table Tail.	8.42	119	165	3.50	21.5	21.2	21.8
3. Wilfley Table Tail.	90.17	26.9	46.9	0.55	52.1	64.4	36.6
Head (Calculated)	100.00	46.5	65.6	1.35	100.0	100.0	100.0

Calculated Grades and Recoveries

Products 1 and 2	9.83	227	238	8.73	47.9	35.6	63.4

Screen Analysis - Combined Products

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 65	5.1	5.1	94.9
100	12.4	17.5	82.5
150	19.0	36.5	36.5
200	15.9	52.4	47.6
270	12.1	64.5	35.5
400	8.0	72.5	27.5
- 400	27.5	100.0	-
Total	100.0	-	-

Test No. 5

Purpose: To investigate the recovery of gold by flotation.

Procedure: As below.

Feed: 2 kg minus 10 mesh Composite 1.

Grind: 2 kg sample ground in the lab ball mill for 30 minutes at 65 % solids.

Conditions:

Stage	Reagents Added, grams/tonne			Time, minutes		pH
	AX350	R208	MIBC	Cond.	Froth	
Rougher	20	20	20	1	5	8.0
	20	20	-	1	5	-
	20	20	-	1	5	-
1st Cleaner	-	-	-	1	5	-
2nd Cleaner	-	-	-	1	5	-

Stage	Rougher	Cleaners
Flotation Cell	2000	250
Speed rpm	1800	1200

Metallurgical Results

Product	Weight %	Assays %, g/t		% Distribution	
		Au	S	Au	S
1. 2nd Cleaner Conc.	2.9	966	38.9	72.8	91.6
2. 2nd Cleaner Tail.	2.6	145	2.11	9.8	4.5
3. 1st Cleaner Tail.	6.2	42.4	0.50	6.8	2.5
4. Rougher Tailing	88.3	4.63	0.02	10.6	1.4
Head (Calculated)	100.0	38.5	1.23	100.0	100.0

Calculated Grades and Recoveries

Products 1 and 2	5.5	578	21.5	82.6	96.1
Products 1 to 3	11.7	294	10.4	89.4	98.6

Test No. 5 - Continued

Screen Analysis - Combined Products

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 65	0.4	0.4	99.6
100	3.2	3.6	96.4
150	12.1	15.7	84.3
200	17.3	33.0	67.0
270	17.6	50.6	49.4
400	11.8	62.4	37.6
- 400	37.6	100.0	-
Total	100.0	-	-

Test No. 6

Purpose: To investigate the recovery of gold by cyanidation with a finer grind.

Procedure: The sample was pulped with water in a 2 liter bottle. NaCN and lime were added and the cyanidation was carried out on rolls in one 48 hour stage. The pulp was filtered and the residue washed three times with water.

Feed: 500 grams minus 10 mesh Composite 1.

Solution Volume: 1000 mL Pulp Density 33 % solids

Solution Composition: 0.5 gpL NaCN

pH Range: 10.5-11.0 with $Ca(OH)_2$

Grind: 30 min/kg in lab ball mill at 50 % solids.

Reagent Balance:

Time Hours	Added, grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0-2	0.53	0.14	0.50	0.11	0.10	0	0.40	0.11	10.8-10.5
2-4½	0.42	0.02	0.40	0.02	0.35	0.01	0.15	0.01	10.6-10.4
4½-22	0.16	0.06	0.15	0.05	0.50	0.02	0	0.04	10.8-10.4
22-29	0	0.06	0	0.05	0.41	0.02	0.09	0.05	10.7-10.8
29-48	0.09	0	0.09	0	0.50	0.02	0	0	10.8-10.4
Total	1.20	0.28	1.14	0.23	0.50	0.02	0.64	0.21	-

Reagent Consumption (kg/t of cyanide feed) NaCN : 1.34
CaO : 0.44

Metallurgical Results

Product	Amount	Assays, mg/L,g/t Au	% Distribution Au
48 h Preg. + Wash	1950 mL	9.09	93.6
48 h Residue	477.5 g	2.53	6.4
Head (Calculated)	477.5 g	39.6	100.0

Test No. 6 - Continued

Screen Analysis - 48 h Cyanide Residue

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 100	0.2	0.2	99.8
150	1.6	1.8	98.2
200	5.0	6.8	93.2
270	12.0	18.8	81.2
400	15.1	33.9	66.1
- 400	66.1	100.0	-
Total	100.0	-	-

Test No. 7

Purpose: To investigate the recovery of gold by cyanidation with a shorter retention time.

Procedure: The sample was pulped with water in a 2 liter bottle. NaCN and lime were added and the cyanidation was carried out on rolls in one 24 hour stage. The pulp was filtered and the residue washed three times with water.

Feed: 500 g minus 10 mesh Composite 1.

Solution Volume: 1000 mL Pulp Density 33 % solids

Solution Composition: 0.5 g/L NaCN

pH Range: 10.5-11.0 with $Ca(OH)_2$

Grind: 30 min/kg in lab ball mill at 50 % solids.

Reagent Balance:

Time Hours	Added, grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0-2	0.53	0.17	0.50	0.13	0.11	0.02	0.39	0.11	10.7-10.3
2-4½	0.41	0.05	0.39	0.04	0.40	0.02	0.10	0.04	10.9-10.4
4½-24	0.11	0.05	0.10	0.04	0.48	0.01	0.02	0.05	10.7-10.4
Total	1.05	0.27	0.99	0.21	0.48	0.01	0.51	0.20	-

Reagent Consumption (kg/t of cyanide feed) NaCN : 1.04
CaO : 0.41

Metallurgical Results

Product	Amount	Assays, mg/L,g/t Au	% Distribution Au
24 h Preg. + Wash	2013 mL	8.81	90.8
24 h Residue	490.3 g	3.71	9.2
Head (Calculated)	490.3 g	39.8	100.0

Test No. 8

Purpose:	To investigate the recovery of gold by cyanidation at an increased fineness of grind.
Procedure:	The sample was pulped with water in a 2 liter bottle. NaCN and lime were added and the cyanidation was carried out on rolls in one 48 hour stage. The pulp was filtered and the residue washed three times with water.
Feed:	500 g Composite 1 minus 10 mesh.
Solution Volume:	1000 mL Pulp Density 33 % solids
Solution Composition:	0.50 g/L NaCN
pH Range:	10.5-11.0 with $Ca(OH)_2$
Grind:	1 kg sample ground in the lab ball mill for 45 minutes at 65 % solids.

Reagent Balance:

Time Hours	Added, grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0-2	0.53	0.30	0.50	0.23	0.13	0.04	0.37	0.19	11.2-10.7
2-4	0.39	0	0.37	0	0.40	0.04	0.10	0	10.7-10.8
4-6	0.11	0	0.10	0	0.40	0.04	0.10	0	10.8-10.7
6-21	0.11	0.05	0.10	0.04	0.50	0.05	0	0.03	11.0-10.8
21-29	0	0	0	0	0.45	0.05	0.05	0	10.8-10.5
29-48	0.05	0.05	0.05	0.04	0.46	0.06	0.04	0.03	10.9-10.6
Total	1.19	0.40	1.12	0.31	0.46	0.06	0.66	0.25	-

Reagent Consumption (kg/t of cyanide feed) NaCN : 1.31
CaO : 0.50

Metallurgical Results

Product	Amount	Assays ,mg/L,g/t				% Distribution	
		Au	Ag	Cu	Fe	Au	Ag
1. 48 h Preg. Cy. Sol'n	800 mL	18.4	30.0	77.6	73.5	71.4	67.6
2. 48 h Wash Solution	1050 mL	4.43	7.53	-	-	22.6	22.3
3. 48 h Cy. Residue	504.8 g	2.48	7.2	-	-	6.0	10.1
Head (Calculated)	504.8 g	40.8	70.3	-	-	100.0	100.0

Calculated Grades and Recoveries

Products 1 and 2	1850 mL	10.5	17.2	-	-	94.0	89.9

Test No. 8 - Continued

Screen Analysis - 48 h Residue

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 100	0.1	0.1	99.9
150	0.2	0.3	99.7
200	0.5	0.8	99.2
270	2.0	2.8	97.2
400	6.6	9.4	90.6
- 400	90.6	100.0	-
Total	100.0	-	-

Test No. 9

Purpose: To investigate the recovery of gold with preaeration.

Procedure: The sample was pulped with water in a 2 liter bottle and preaerated for 6 hours at pH 10.5-11.0. NaCN was added and the cyanidation was carried out on rolls in one 48 hour stage. The pulp was filtered and the residue washed three times with water.

Feed: 500 grams minus 10 mesh Composite 1.

Solution Volume: 1000 mL Pulp Density 33 % solids

Solution Composition: 0.50 g/L NaCN

pH Range: 10.5-11.0 with $Ca(OH)_2$

Grind: 1 kg sample ground in the lab ball mill for 45 minutes at 65 % solids.

Reagent Balance:

Time Hours	Added, grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
Preaeration:									
0-½	-	0.25	-	0.19	-	0	-	0.19	10.8- 9.8
½-1½	-	0.10	-	0.08	-	0	-	0.08	11.0-10.0
1½-3	-	0.10	-	0.08	-	0.02	-	0.06	11.0-10.3
3-5	-	0.10	-	0.08	-	0.03	-	0.07	11.2-10.9
5-6	-	0	-	0	-	0.02	-	0.01	10.9-10.8
Cyanidation:									
0-1	0.53	-	0.50	-	0.36	0.02	0.14	0	11.0-10.9
1-16	0.15	0	0.14	0	0.40	0.02	0.10	0	10.9-10.5
16-24	0.11	0.05	0.10	0.04	0.50	0.04	0	0.02	11.0-10.7
24-48	0	0	0	0	0.47	0.03	0.03	0.01	10.7-10.5
Total	0.79	0.60	0.74	0.47	0.47	0.03	0.27	0.44	-

Reagent Consumption (kg/t of cyanide feed) NaCN : 0.54
CaO : 0.88

Test No. 9 - Continued

Metallurgical Results

Product	Amount	Assays,mg/L,g/t				% Distribution	
		Au	Ag	Cu	Fe	Au	Ag
1. 48 h Preg. Cy. Sol'n	810 mL	18.2	30.3	80.1	1.58	74.6	70.4
2. 48 h Wash Solution	970 mL	4.09	7.22	-	-	20.3	20.1
3. 48 h Cy. Residue	501.1 g	2.04	6.6	-	-	5.1	9.5
Head (Calculated)	501.1 g	39.3	69.4	-	-	100.0	100.0

Calculated Grades and Recoveries

Products 1 and 2	1780 mL	10.5	17.7	-	-	94.9	90.5

Test No. 10

Purpose: To investigate the recovery of gold by flotation with a finer grind.

Procedure: As below.

Feed: 2 kg minus 10 mesh Composite 1.

Grind: 2 kg sample ground for 45 minutes in the lab ball mill at 65% solids.

Conditions:

Stage	Reagents Added, grams/tonne			Time, minutes		pH
	AX350	208	MIBC	Cond.	Froth	
Rougher	20	20	20	1	5	8.0
	20	20	-	1	5	-
	20	20	-	1	5	-
1st Cleaner	-	-	-	1	5	-
2nd Cleaner	-	-	-	1	5	-

Stage	Rougher	1st Cleaner	2nd Cleaner
Flotation Cell	2000	250	250
Speed: r.p.m.	1800	1200	1200

Metallurgical Results

Product	Weight %	Assays, %, g/t			% Distribution		
		Au	Ag	S	Au	Ag	S
1. 2nd Cleaner Conc.	2.3	1108.	1813.	45.0	68.4	64.0	85.1
2. 2nd Cleaner Tailing	2.2	232.	435.	5.16	13.7	14.7	9.4
3. 1st Cleaner Tailing	7.7	43.6	91.5	0.63	9.0	10.8	4.0
4. Rougher Tailing	87.8	3.78	7.8	0.02	8.9	10.5	1.5
Head (calculated)	100.0	37.3	65.2	1.22	100.0	100.0	100.0

Calculated Grades and Recoveries

Products 1 plus 2	4.5	680.	1139.	25.5	82.1	78.7	94.5
Products 1 to 3	12.2	278.	498.	9.82	91.1	89.5	98.5

Test No. 10 - Continued

Screen Analysis

Combined Products

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 100	0.2	0.2	99.8
150	2.0	2.2	97.8
200	9.7	11.9	88.1
270	18.2	30.1	69.9
400	15.8	45.9	54.1
- 400	54.1	100.0	-
Total	100.0	-	-

Test No. 11

Purpose: To recover the gold in a sulphide concentrate.

Procedure: As below.

Feed: 2 kg minus 10 mesh Composite 1.

Grind: 2 kg sample ground for 45 minutes in the lab ball mill at 65% solids.

Conditions:

Stage	Reagents Added, grams/tonne			Time, minutes		pH
	AX350	208	MIBC	Cond.	Froth	
Rougher	20	20	20	1	5	8.0
	20	20	-	1	5	-
	20	20	-	1	5	-

Stage	Rougher
Flotation Cell	2000
Speed: r.p.m.	1800

Metallurgical Results

Product	Weight %	Assays, g/t		% Distribution	
		Au	Ag	Au	Ag
Rougher Concentrate	13.4	251.	449.	91.0	89.8
Rougher Tailing	86.6	3.83	7.9	9.0	10.2
Head (calculated)	100.0	36.9	66.9	100.0	100.0

Test No. 12

Purpose: To investigate the gold recovery from a rougher concentrate.

Procedure: The sample was pulped with water in a 2 litre bottle. Lime was added and the pulp was preaerated for 6 hours. NaCN and lime were added and the cyanidation was carried out on rolls in one 48 hour stage. The pulp was filtered and the residue washed three times with water.

Feed: 250 g rougher concentrate from flotation Test No. 11.

Solution Volume: 500 mL Pulp Density: 33% solids

Solution Composition: 1.0 g/L NaCN

pH Range: 11.0 with $Ca(OH)_2$

Regrind: 20 minutes in the pebble mill at 50% solids.

Reagent Balance:

Time, Hours	Added, Grams				Residual		Consumed		pH	
	Actual		Equivalent		Grams		Grams		From	To
	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		
Preaeration:										
0 - 1	-	0.60	-	0.46	-	-	-	-	10.8	10.6
1 - 3	-	0	-	0	-	-	-	-	10.6	10.2
3 - 5	-	0.10	-	0.08	-	-	-	-	10.8	10.2
5 - 6	-	0.10	-	0.08	-	0.01		0.61	10.8	10.5
Cyanidation:										
0 - 2	0.53	0.10	0.50	0.08	0.08	0.05	0.42	0.04	11.0	11.0
2 - 18	0.44	0	0.42	0	0.18	0.04	0.32	0.01	11.0	11.0
18 - 23	0.34	0	0.32	0	0.40	0.04	0.10	0	11.0	11.1
23 - 25	0.11	0	0.10	0	0.43	0.04	0.07	0	11.1	11.0
25 - 31	0.07	0	0.07	0	0.30	0.03	0.20	0.01	11.0	10.9
31 - 48	0.21	0.02	0.20	0.02	0.46	0.04	0.04	0.01	11.0	10.9
Total	1.70	0.92	1.61	0.72	0.46	0.04	1.15	0.68		

Reagent Consumption (kg/t of cyanide feed) NaCN: 4.32
CaO: 2.55

Test No. 12 - Continued

Metallurgical Results

Product	Amount	Assays, mg/L, g/t				% Distribution			
		Au	Ag	Cu	Fe	Ind.		O'all	
						Au	Ag	Au	Ag
1. 48 h Preg. Cy Sol'n	420 mL	96.8	149.	584	3.16	60.9	52.4	55.4	47.1
2. 48 h Wash Solution	1390 mL	10.0	14.9	-	-	20.8	17.3	18.9	15.5
3. 48 h Cyanide Residue	266.5 g	45.7	136.	-	-	18.3	30.3	16.7	27.2
Head (calculated)	266.5 g	251.	449.	-	-	100.0	100.0	91.0	89.8

Calculated Grades and Recoveries

Products 1 plus 2	1810 mL	30.2	46.0	-	-	81.7	69.7	74.3	62.6

Screen Analysis

48 hour Cyanide Residue

Mesh Size (Tyler)	% Retained Individual	% Retained Cumulative	% Passing Cumulative
+ 150	0.1	0.1	99.9
200	0.1	0.2	99.8
270	0.7	0.9	99.1
400	2.6	3.6	96.4
- 400	96.4	100.0	-
Total	100.0	-	-

LAKEFIELD RESEARCH OF CANADA LIMITED
Lakefield, Ontario
December 30, 1983 / tmg

APPENDIX

MICROSCOPIC EXAMINATION

OF A CLEANER CONCENTRATE SAMPLE

INTRODUCTION

Two samples were received in the Mineralogy Laboratory for determination of the nature of the occurrences of the contained gold. The samples were identified as

(1) Sample 1 - minus 10 mesh

(2) Test No. 5 - Second Cleaner Concentrate

R.W. Deane
Mineralogist.

SUMMARY

Gold was identified in the concentrate sample as free particles and associated with pyrite in an approximate ratio of 4 to 1, free gold to locked gold. The particle size of the gold was 27 micrometres and smaller. The concentrate contained iron oxides after pyrite and copper sulphides.

The minus 10 mesh sample was not examined.

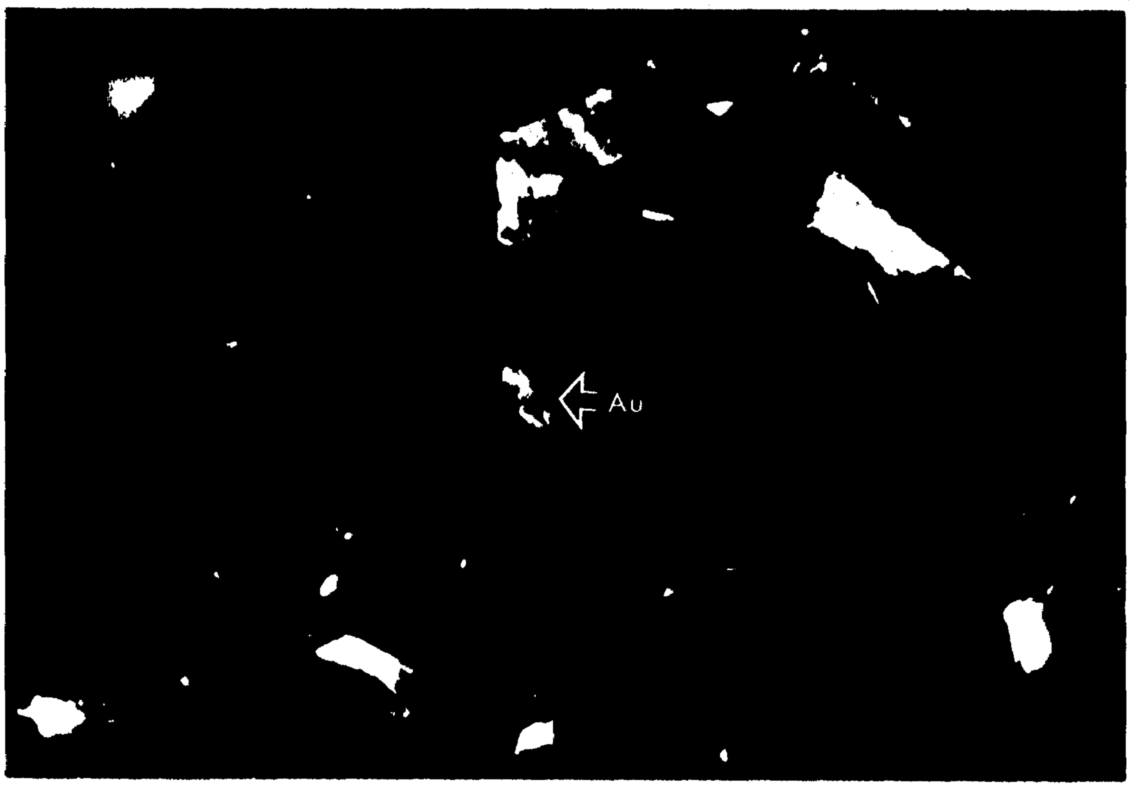
RESULTS

A portion of each sample was briquetted and polished for microscopic examination. The head sample of minus 10 mesh material was not examined for this report.

Gold was present in the cleaner concentrate as free gold - illustrations 1 to 4 - and associated with pyrite as mixed grains - illustration 5. The maximum size of the gold was 27 micrometres. Iron oxide was present and is shown as an alteration of the pyrite in illustration 6.

Appendix - Continued

The ratio of liberated to locked gold was about 4 to 1. None of the gold identified exhibited surface tarnish but all of it occurred as irregularly shaped "nuggets" sometimes resembling distorted or twisted peanuts in the shell.



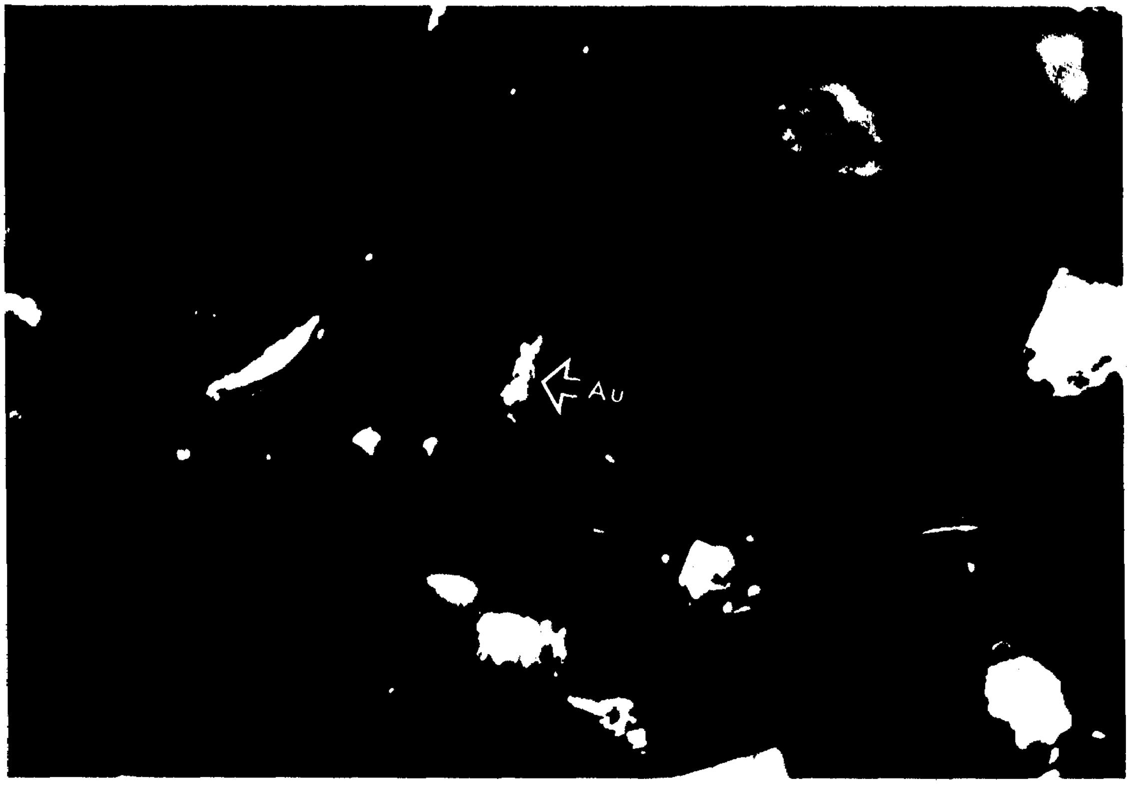
74 μm
(200 mesh)

Illustration 1

25 μm grain of Au. White grains are pyrite and other yellow grains are subsurface pyrite.

Illustration 2

27 µm grain of gold. White grains are pyrite.



74 μm
(200 mesh)

Illustration 3

25 μm grain of gold. White grains are pyrite.

74 μm
(200 mesh)

Illustration 4

10 μm grains of gold (free) with pyrite (white).

74 µm
(200 mesh)

Illustration 5

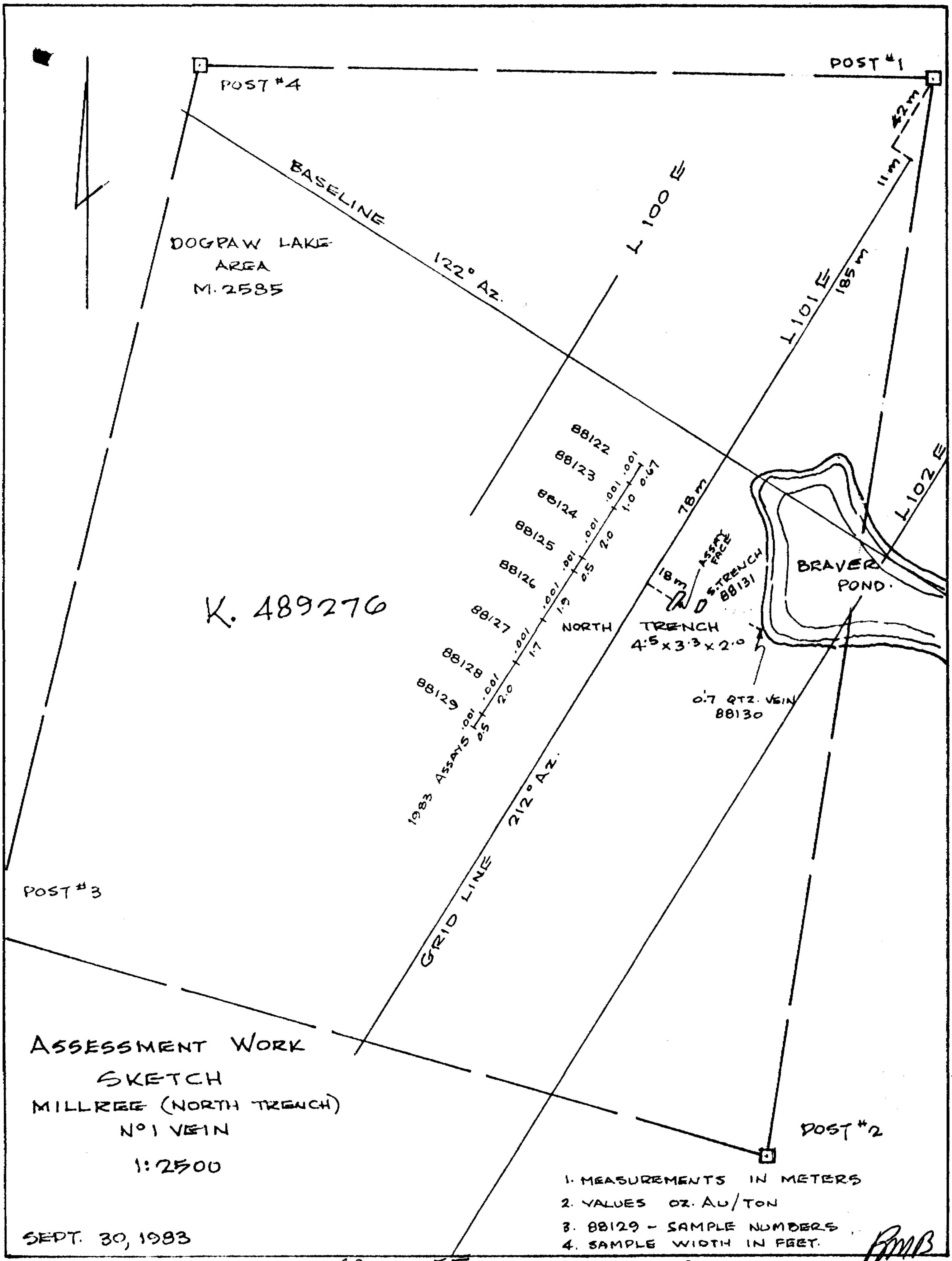
12 µm and 5 µm particles of gold on pyrite (white).

74 µm
(200 mesh)

Illustration 6

Partly oxidized pyrite.

Magnification 300X.



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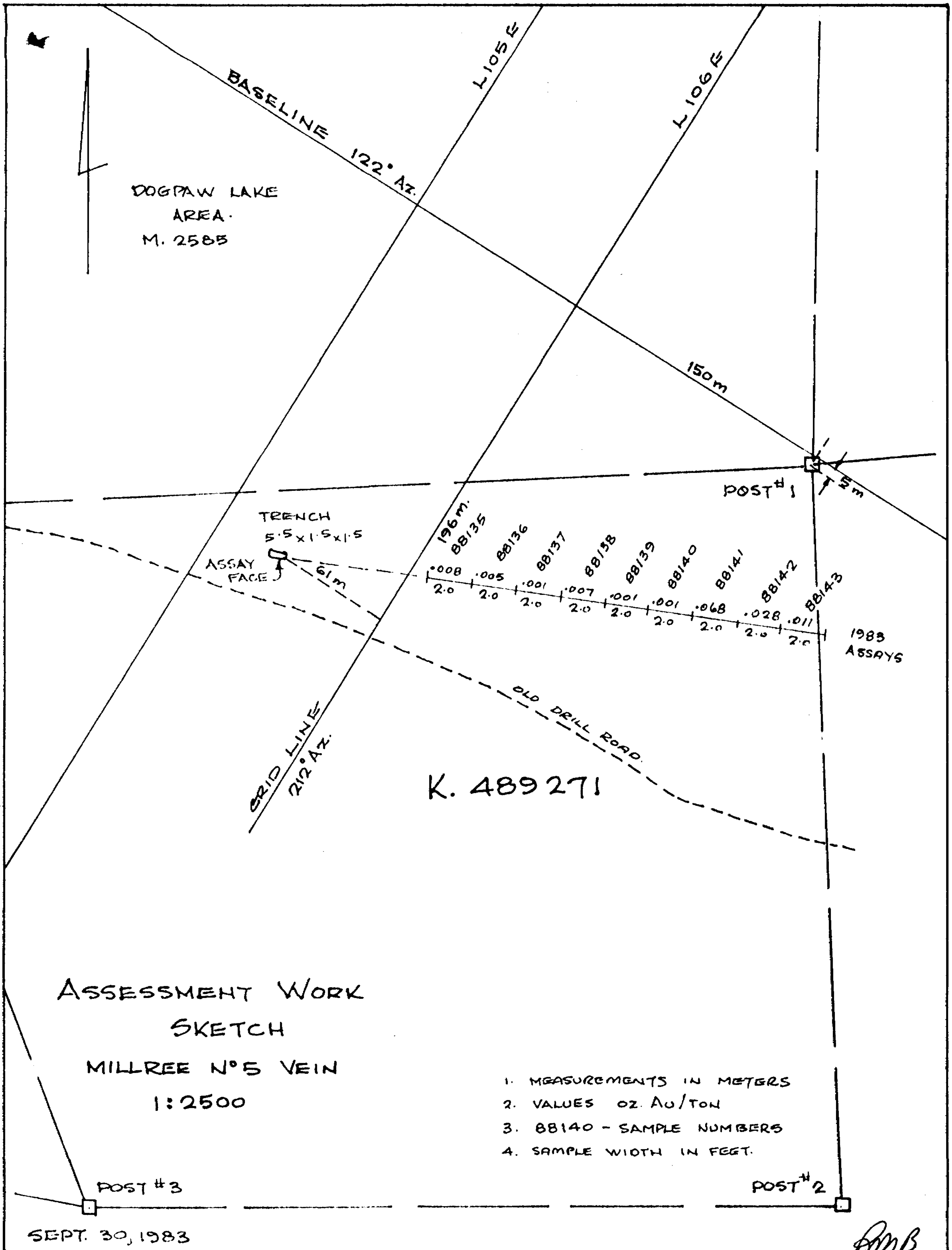

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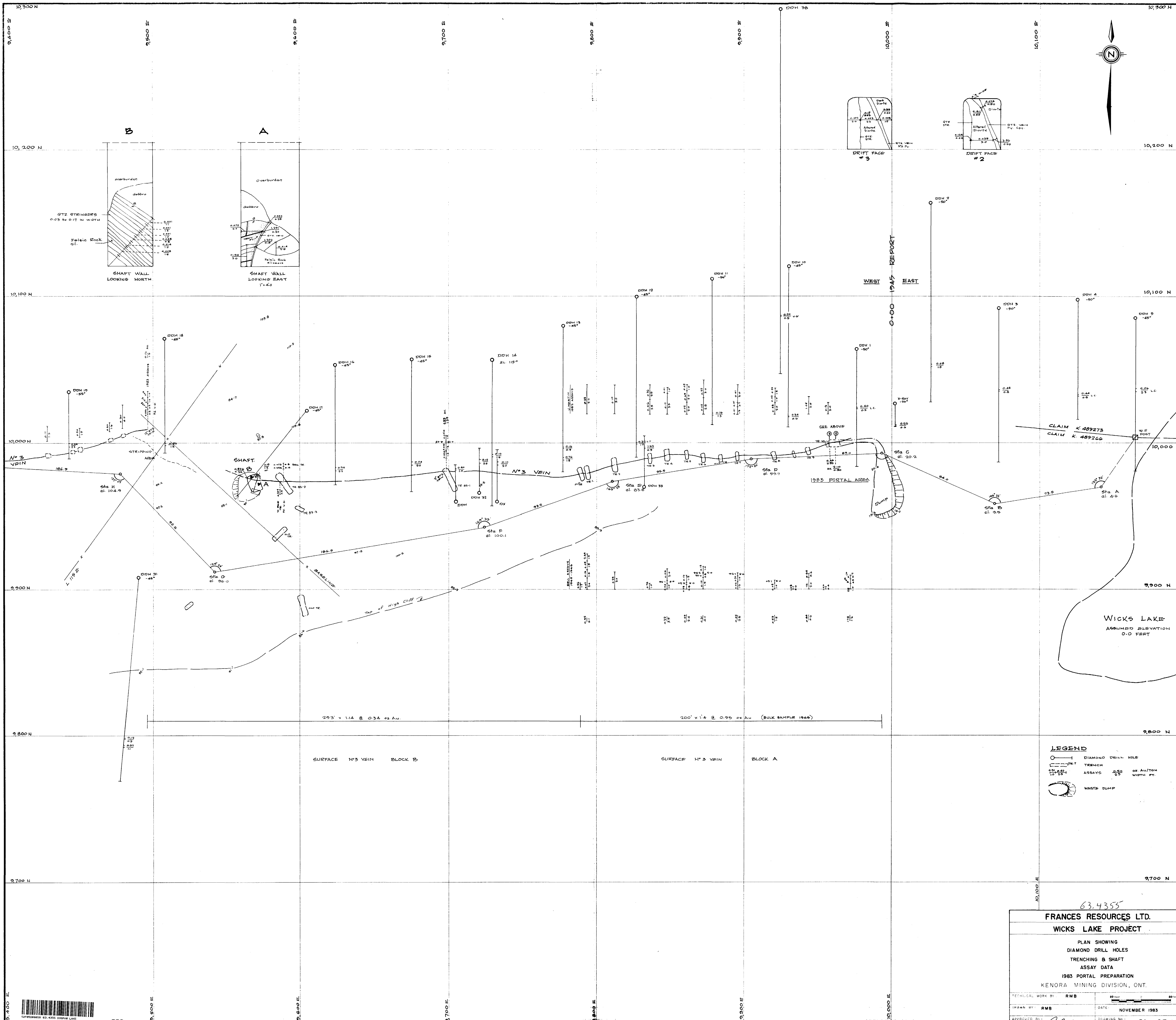

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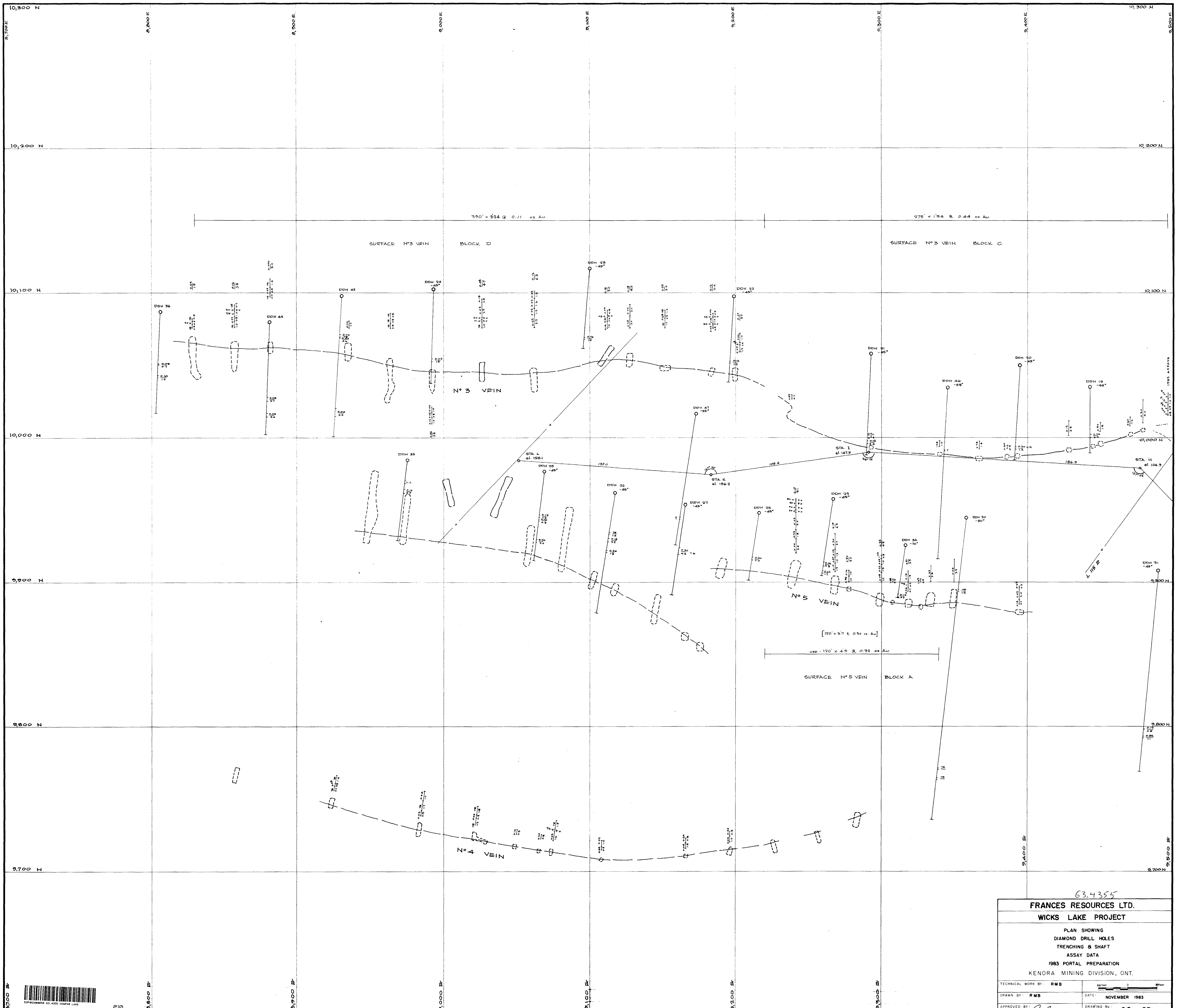
ASSAY DATA
1983 PORTAL PREPARATION
KENORA MINING DIVISION, ONT.

TECHNICAL WORK BY	RMB		
DRAWN BY	RMB	DATE	NOVEMBER 1983
APPROVED BY	RMB	DRAWING No.	01 - 83

0M83-3-C-179



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PLAN SHOWING
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1983 PORTAL PREPARATION
KENORA MINING DIVISION, ONT.
TECHNICAL WORK BY: RMB
DRAWN BY: RMB
APPROVED BY: RMB.
DATE: NOVEMBER 1983
DRAWING No.: 02 - 83
SURFACE N°3 VEIN BLOCK D
390' x 3.24 @ 0.11 oz Au
SURFACE N°3 VEIN BLOCK C
275' x 1.54 @ 0.44 oz Au
SURFACE N°5 VEIN BLOCK A
[120' x 3.7 @ 0.30 oz Au]
N°3 VEIN
N°5 VEIN
N°4 VEIN
STA. L
STA. K
STA. I
STA. H
DDH 36
DDH 44
DDH 43
DDH 24
DDH 23
DDH 22
DDH 35
DDH 25
DDH 26
DDH 27
DDH 47
DDH 28
DDH 29
DDH 34
DDH 30
DDH 21
DDH 46
DDH 20
DDH 19
DDH 31
10,300 N
10,200 N
10,100 N
10,000 N
9,900 N
9,800 N
9,700 N
8,700 E
8,800 E
8,900 E
9,000 E
9,100 E
9,200 E
9,300 E
9,400 E
9,500 E
L 115 E
210


63.4355
FRANCES RESOURCES LTD.
WICKS LAKE PROJECT
LONGITUDINAL SECTION 10+00 N
NO.3 VEIN - BLOCKS A, B & C
DIAMOND DRILL HOLES
ASSAY DATA
KENORA MINING DIVISION, ONT.
TECHNICAL WORK BY: RMB
DRAWN BY: RMB
DATE: NOVEMBER 1983
APPROVED BY:
DRAWING No. 03-83
OM83-3-C-179
275' x 1.54 @ 0.44 oz. Au.
293' x 1.14 @ 0.34 oz. Au.
200' x 1.4 @ 0.95 oz. Au. (BULK SAMPLE - 1949)
N°3 VEIN BLOCK C.C.
N°3 VEIN BLOCK B.B.
N°3 VEIN BLOCK A.A.
N°3 VEIN BLOCK D.C.
N°3 VEIN BLOCK D.B.
N°3 VEIN BLOCK D.A.
PROPOSED 9'x7' DRIFT
X-CUT - SOUTH N°3 VEIN
1983 SHAFT
1983 TRENCH
ORIGINAL PROFILE
WEST EAST
0+00 1945 REPORT
WICKS LAKE
DDH 38 INTERSECTION
9,200 E
9,300 E
9,400 E
9,500 E
9,600 E
9,700 E
9,800 E
9,900 E
10,000 E
10,100 E

63.4355

FRANCES RESOURCES LTD.

WICKS LAKE PROJECT

LONGITUDINAL SECTION 10+00 N
NO. 3 VEIN - BLOCK C & D
DIAMOND DRILL HOLES
ASSAY DATA

KENORA MINING DIVISION, ONT.

TECHNICAL WORK BY: RMB	
DRAWN BY: RMB	DATE: NOVEMBER 1983
APPROVED BY: RMB	DRAWING No: 04 - 83

3 · C · 179

230

63.4355

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WICKS LAKE PROJECT

LONGITUDINAL SECTION 99+00N
NO. 5 VEIN - BLOCK A
DIAMOND DRILL HOLES
ASSAY DATA

KENORA MINING DIVISION, ONT.

TECHNICAL WORK BY: R.M.B.	
DRAWN BY: R.M.B.	DATE: NOVEMBER 1983
APPROVED BY: RMB	DRAWING No: 05-83

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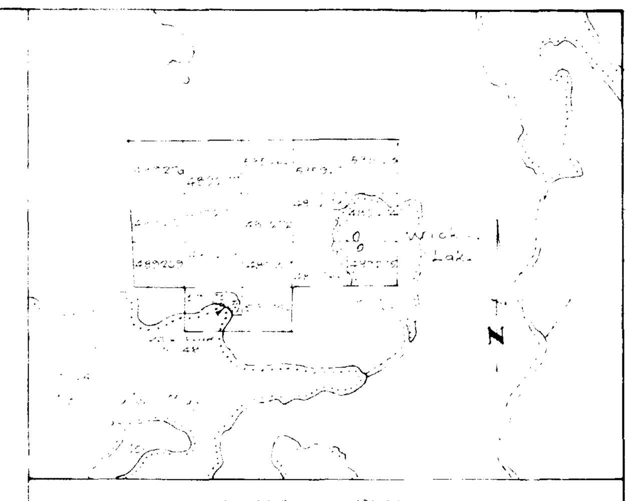
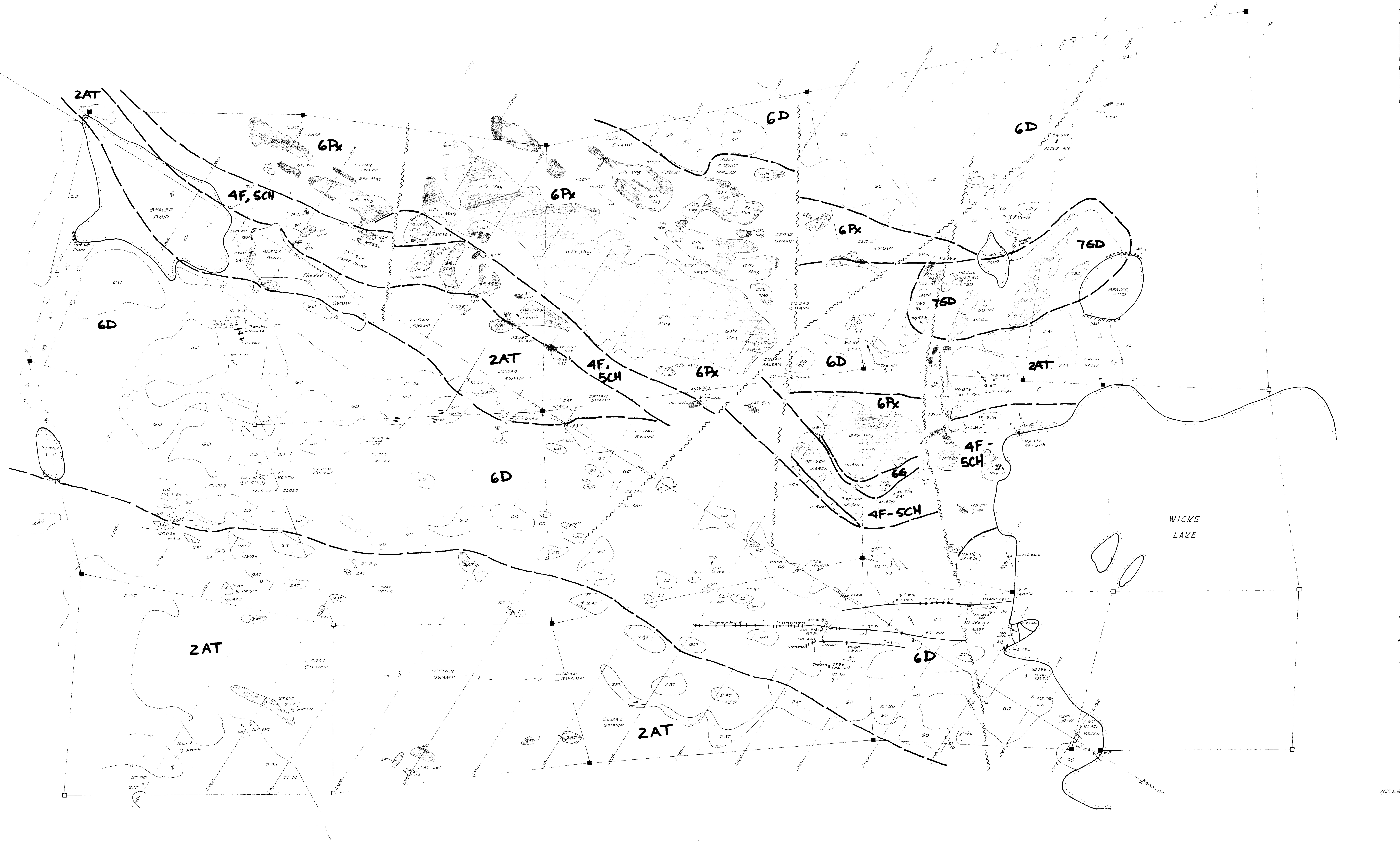
240





LEGEND

ARCHEAN

7 FELSIC-INTERMEDIATE INTRUSIVES
GD - Granodiorite

6 MAFIC-INTERMEDIATE INTRUSIVES
G - Gabbro
D - Diorite
Px - Pyroxenite

5 CHEMICAL SEDIMENTS
CH - [illegible]

4 [illegible]
F - Fine Clastics

3 FELSIC VOLCANICS
LT - Lapilli Tuff
AT - Ash

2 INTERMEDIATE VOLCANICS
B - Breccia
LT - Lapilli Tuff
AT - Ash

ABBREVIATIONS

SH - Schistose
q - Quartz
Chl - Chlorite
Sil - Silicified
q - Quartz veining
Py - [illegible]
Mag - Magnetite
Cal - [illegible]

SYMBOLS

- Outcrop Area
- Swamp
- Geological Contact assumed
- [illegible]
- Foliation dip unknown indicated, vertical
x MG58b - Sample location with sample number
- Lake Shore
- Quartz vein
- Diamond drill hole WJ 5-81

NOTE: PICKET LINES COVERING CLAIMS K 535062-68 ARE CHAINED & FLAGGED

- CLAIM POST POSITION LOCATED
- CLAIM POST POSITION ASSUMED
- WITNESS POST POSITION LOCATED

SCALE

0 25 50 75 100 200 300 METERS

NOTE: GEOLOGY COPIED FROM PROJECT Nº 621 BY NORANDA EXPLORATION CO. LTD.

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REVISED	GEOLOGY WICKS LAKE KENORA MINING DIVISION
DATE: OCT 15,85 DRAWN: R.M.B. DWG Nº OG-83	FRANCES RESOURCES LTD.

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250