



52E10SW8562 2.10215 SHOAL LAKE

010

ST. JOE CANADA INC.

Report on a Geology Survey
Shoal Lake (KPM) Property
Claim Nos: K895845-849 Incl.

Shoal Lake, Northwestern Ontario
Kenora Mining Division
NIS Sheet No: 52E/10SW

RECEIVED
JUL 20 1987
MINING LANDS SECTION



52E10SW8562 2.10215 SHOAL LAKE

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Report on a Geology Survey
Shoal Lake (KPM) Property

Kenora Mining Division

PART A

A. INTRODUCTION

The following is a report on a mapping survey carried out by ST. JOE CANADA INC. between June 15-28, 1987 on claims K895845-849 inclusive, a part of the Shoal Lake (KPM) property.

(i) Property: Description, Location and Access

The SHOAL LAKE (KPM) PROPERTY encompasses 69 contiguous patented (21) and unpatented (41) mining claims totalling 1,116 hectares, located 60km west of Kenora, 14km south of the Trans-Canada Highway, Glass Township, in the Shoal Lake area of northwestern Ontario. The property is within NTS Quadrangle 52E/10SW and the claims are recorded on the Shoal Lake claim map G Plan 2642 (see Figures 1 and 2). The property is accessible by float and/or ski-equipped aircraft from Kenora or via the Trans-Canada Highway No. 17 west from Kenora to the Rush Bay Road turn-off, hence along a gravel road about 10km to the Clytie Bay landing. The Clytie Bay landing is situated 4km north by water from the property.

All of the claims are registered in the name of:

St. Joe Canada Inc.
#1116 - 111 Richmond Street, West
Toronto, Ontario
M5H 2J4

Mining Licence T3608

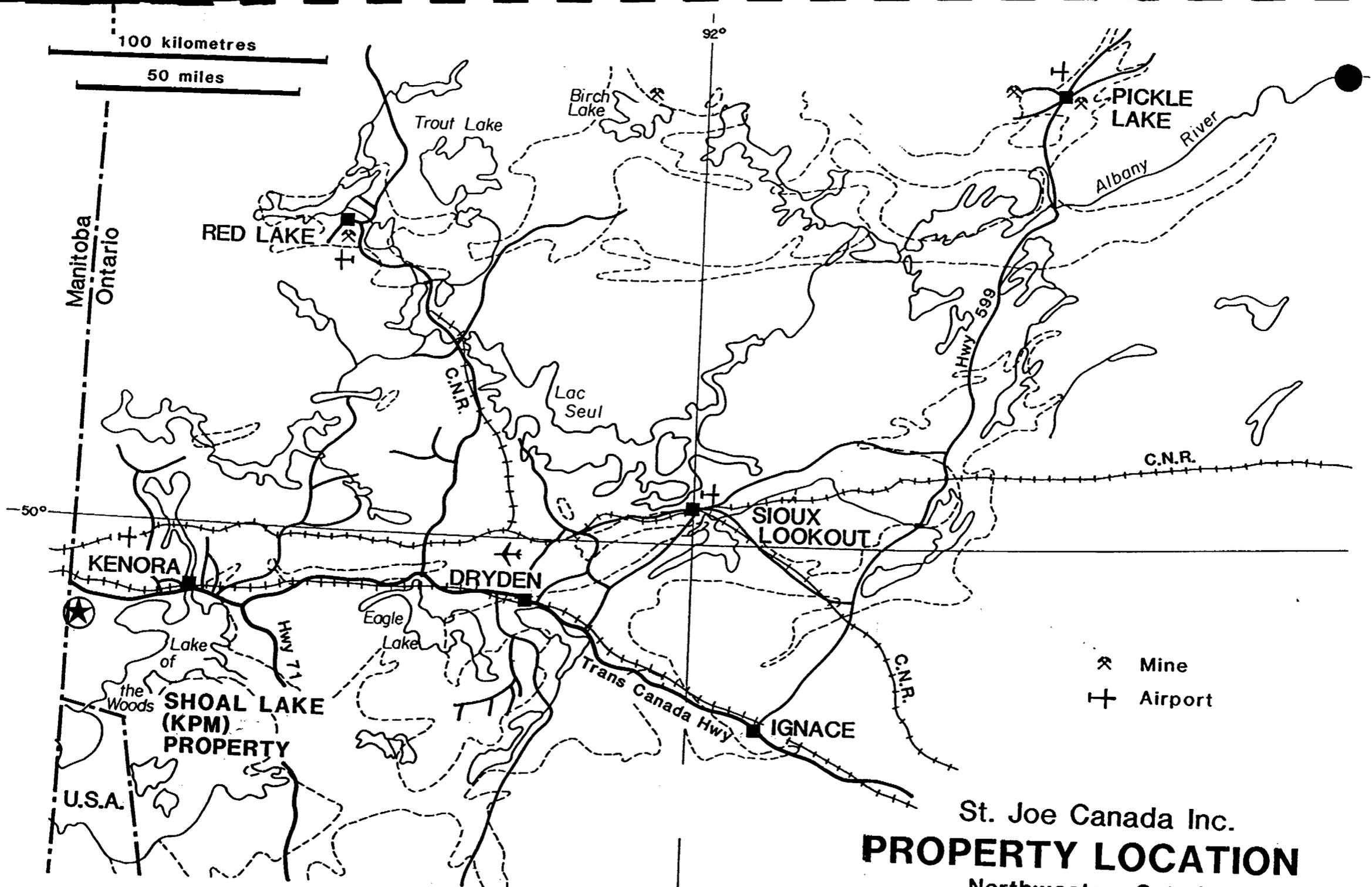
In 1985, the property was optioned from Kenora Prospectors and Miners Ltd.

B. HISTORY

1899-1900:

Imperial Occurrence: development work took place on a series of quartz stringers intruding basalt flows. A 5x8 foot main shaft was sunk to a depth of 110 feet on a east-southeast trending quartz vein. Two development levels were established at the 65 and 100 foot levels. A second shaft, 50 feet east of the main shaft was sunk on the same vein to a vertical depth of 50 feet.

Two former producing mines are present on the property. Production figures for the Mikado Mine No. 1 and No. 2 veins indicate 57,813 tonnes milled from an average grade of 17 grams per tonne gold. Main production



St. Joe Canada Inc.
PROPERTY LOCATION

Northwestern Ontario Figure 2

years are 1896 to 1902 with limited gold recoveries during 1910 - 1911 and 1931. A total of 16,997 tonnes grading 10 grams per tonne gold were produced from the Cedar Island (Cornucopia) Mine during 1896 - 1897 and 1931 - 1936.

No exploration was carried out on the property between 1936 - 1980. Denison Mines Ltd. optioned the property in 1980 and completed limited ground geophysics, minor trench sampling and 1,318 meters of diamond drilling.

In 1985, Norontex carried out surface trenching and sampling on the mainland east of the Cedar Island Mine and south of the Mikado Mine.

The Ontario Geological Survey has carried out regional and detailed mapping programs in the area in 1978 and 1986 by J.C. Davies and P.M. Smith, respectively.

C. GENERAL GEOLOGY

Archean rocks of the Superior Province of the Precambrian Shield underlie the property, which lies on and near the southwest margin of the Canoe Lake Stock of granodiorite composition. The volcanic assemblage consists of a sequence of fine to medium-grained pillowed and feldspar phyric basalt flows intercalated with coarse-grained flows of gabbroic composition. The rocks are folded into a northeast-trending anticline with the axis trending in close proximity to the Cedar Island Mine. Two major directions of shearing have been recognized, one striking about 120° , paralleling the vein structure on Cedar Island, the other one striking about 340° coincident with the Mikado veins.

D. MAPPING SURVEY

The survey was carried out between June 15 - June 28, 1987 by:

Kevin Leonard	Bruce Fagan
886 Tanager Avenue	R. R. #4
Burlington, Ontario	Coldwater, Ontario
L7T 2Y2	LOK 1EO

Data from the mapping survey have been plotted on Plan 1, located in the back pocket of the report.

A grid was established with pickets spaced 25 meters apart. Crosslines were turned off the baseline at 100m intervals and were cut and picketed at 25 meter spacings. The survey was completed at a scale of 1:2500.

(i) Shoal Lake (KPM) Claims Geology

The claims are underlain by a sequence of north-trending mafic volcanic rocks of basaltic and gabbroic composition which are in sharp contact to the west with the Canoe Lake quartz-diorite stock. The volcanic assemblage has been intruded by two prominent east-west trending and several subordinate variably oriented quartz-feldspar-porphyry dykes or sills.

A unit of gabbro occupies the western third of the map area. It is dark green in colour, medium to coarse-grained and contains abundant feldspar phenocrysts up to 1cm in length. The weathered surface exhibits an interstitial salt and pepper texture and is in part "warty" in appearance. The "warts" are raised epidote knots which stand up in relief relative to the surrounding matrix. Outcrops with this texture are located along the 6+00N baseline between L3+00E and L4+00E. Sulphides present include pyrite and pyrrhotite locally distributed along fracture faces and narrow shear bands adjacent the contact with the feldspar phyrlic basalt.

Feldspar phyrlic basalt covers the north-central and southern two-thirds of the claims. This unit overlies the gabbro to the west and forms a gradational and locally sheared contact with the former. The rock is dark green, fine to medium-grained, massive to locally pillowed, containing up to 4cm subhedral carbonate-altered plagioclase pseudomorphs (phenocrysts). Its constituent mineralogy comprises interlocking laths of oligoclase and hornblende (80%) with minor quantities of mafic (chlorite and biotite) minerals and trace sulphides.

The Canoe Lake stock covers the northeast corner and southeast edge of the claims. It is in sharp contact with the feldspar phyrlic basalt flows and forms a heterogeneous quartz-diorite intrusive body which is light grey in colour, medium to coarse-grained, equigranular, and porphyritic with abundant quartz phenocrysts up to 2cm in diameter. The stock consists of quartz, oligoclase, sericite, biotite, hornblende and trace pyrite.

Two east-west trending quartz-feldspar-porphyry dykes or sills intrude the volcanic sequence. They contain abundant quartz and feldspar phenocrysts in a medium-grained groundmass. The groundmass consists of quartz, plagioclase, biotite, chlorite and sericite. These units may be late stage crystallization products of the Canoe Lake stock.

The rocks in this area have been regionally metamorphosed to amphibolite facies suggested by a mineral assemblage of quartz-hornblende-oligoclase-magnetite. This grade of metamorphism forms an aureole which can be traced up to 600m encircling the Canoe Lake stock and is a result of emplacement of the stock.

Structurally the area is relatively undeformed, stratigraphic contacts strike 160° and dip 70° - 80° northeast. Some evidence of faulting was found between L4+00E and L4+50E towards the northwest portion of the claims. This structure strikes 20° and has been traced for 350 meters. The Imperial Mine pits and trenches are spatially associated with this feature. The Imperial Mine shear zone consists of poorly developed, discontinuous quartz stringers hosted within weakly altered, limonitic feldspar phyrlic basalt flows. The wallrock contains trace to 1% pyrite in locally distributed disseminations. The zone trends 25° - 35° and dips 75° northeast.

E. RECOMMENDATIONS

A program of detailed VLF-EM and magnetometer surveys are recommended in order to outline the potential for east-west structures known in the area to be prospective hosts for gold mineralization.

Respectfully submitted,

Kevin Leonard

Kevin Leonard
Project Geologist

DATED AT TORONTO this 16th day of July, 1987.

F. REFERENCES

Davies, J.C., 1978:

Geology of Shoal Lake - Western Peninsula Area, District of Kenora. Ontario Geological Survey Open File Report 5242, 131p.

Davies, J.C. and Smith, P.M., 1984:

The structural and stratigraphic control of gold in the Lake of the Woods area. pp. 185-193, in Summary of Field Work and Other Activities 1984, by the Ontario Geological Survey, edited by John Wood, Owen L. White, R.B. Barlow, and A.C. Colvine, Ontario Geological Survey Miscellaneous Paper 119, 309p.

Smith, L.G., 1923:

Report on the "Mikado" Mine, unpublished report, Regional Geologists Office, Kenora. 20p.

Smith, P.M., 1986:

Duport, A structurally controlled gold deposit in northwestern Ontario, Canada. pp. 197-212, in A.J. Macdonald, ed., Proceedings of Gold '86, an International Symposium on the Geology of Gold: Toronto, 1986. 517p.

Smith, P.M. and Thomas, D.A., 1986:

Interrelationship of gold mineralization and the Canoe Lake stock, northwestern Lake of the Woods area. pp. 242-252, in Summary of Field Work and Other Activities 1986, by the Ontario Geological Survey, edited by P.C. Thurston, Owen L. White, R.B. Barlow, M.E. Cherry, and A.C. Colvine, Ontario Geological Survey Miscellaneous Paper 132, 435p.

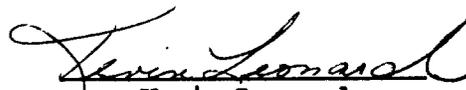
Appendix 1

Certificate

CERTIFICATE

I, Kevin Leonard, of the City of Burlington, Province of Ontario, do hereby certify that:

1. I reside at 886 Tanager Avenue, Burlington, Ontario.
2. I have worked as a geologist for the last 9 years.
3. I am a graduate of McMaster University with an Honours Degrees (1978) in Geology.
4. I am a member of the Prospectors and Developers Assoc. of the Canadian Institute of Mining and Metallurgy, and of the Geological Association of Canada.
5. I helped carry out the geology survey. The map preparation was done under my supervision. I have written the report.


Kevin Leonard

DATED AT TORONTO this 16th day of July, 1987.

Appendix 2

Technical Data Statement



TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological

Township or Area Shoal Lake G2642

Claim Holder(s) St. Joe Canada Inc.

Survey Company St. Joe Canada Inc.

Author of Report Kevin Leonard

Address of Author 886 Tanager Ave. Burlington, Ont.

Covering Dates of Survey 15/06/87-28/06/87
(linecutting to office)

Total Miles of Line Cut 2

MINING CLAIMS TRAVERSED
List numerically

K	895845
(prefix)	(number)
	895846
	895847
	895848
	895849

SPECIAL PROVISIONS
CREDITS REQUESTED

ENTER 40 days (includes
line cutting) for first
survey.

ENTER 20 days for each
additional survey using
same grid.

	DAYS per claim.
Geophysical	
-Electromagnetic	
-Magnetometer	
-Radiometric	
-Other	
Geological	40
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: July 16/87 SIGNATURE: Kevin Leonard
Author of Report or Agent

Res. Geol. _____ Qualifications 2.5133

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 5

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: Fixed transmitter Shoot back In line Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

Instrument _____

Scale constant _____

Corrections made _____

Base station value and location _____

Elevation accuracy _____

Instrument _____

Method Time Domain Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

INDUCED POLARIZATION RESISTIVITY

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

Corrections made _____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

Additional information (for understanding results) _____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent
p. p. m.
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____



Recorded Holder
ST. JOE CANADA INC

Township or Area
SHOAL LAKE AREA

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical Electromagnetic _____ days Magnetometer _____ days Radiometric _____ days Induced polarization _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column Geological <u>40</u> days Geochemical _____ days Man days <input type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/> <input type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	<p>K 895845 to 849 inclusive</p>

Special credits under section 77 (16) for the following mining claims

[Empty box for special credits]

No credits have been allowed for the following mining claims

not sufficiently covered by the survey insufficient technical data filed

NO CREDIT APPROVED FOR GEOPHYSICAL (ELECTROMAGNETIC & MAGNETOMETER) SURVEYS AS REPORTS AND MAPS NOT SUBMITTED.

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 60.

September 14, 1987

Your File: 122-87
Our File: 2.10215

Mining Recorder
Ministry of Northern Development and Mines
808 Robertson Street
Box 5050
Kenora, Ontario
P9N 3X9

Dear Sir:

RE: Notice of Intent dated August 25, 1987 -
Geophysical (Electromagnetic & Magnetometer) and Geological
Survey on Mining Claims K 895845 et al in Shoal Lake Area

The assessment work credits, as listed with the above-mentioned
Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so
indicate on your records.

Yours sincerely,

R.M. Charnesky (Mrs.)
Acting Manager
Mining Lands Section
Mineral Development & Lands Branch
Mines & Minerals Division

Whitney Block, 6th Floor
Queen's Park, Toronto
Ontario, M7A 1W3

Telephone: (416) 965-4888

DK:sc

St. Joe Canada Inc
Suite 1116
111 Richmond Street West
Toronto, Ontario
M5H 2J4

Kevin Leonard
886 Tanager Avenue
Burlington, Ontario
L7T 2Y2

Mr. G. H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Resident Geologist
Min of Northern Development
& Mines
Box 5080
Kenora, Ontario, P9N 3X9

L 2 E

L 3 E

L 4 E

L 4+50E

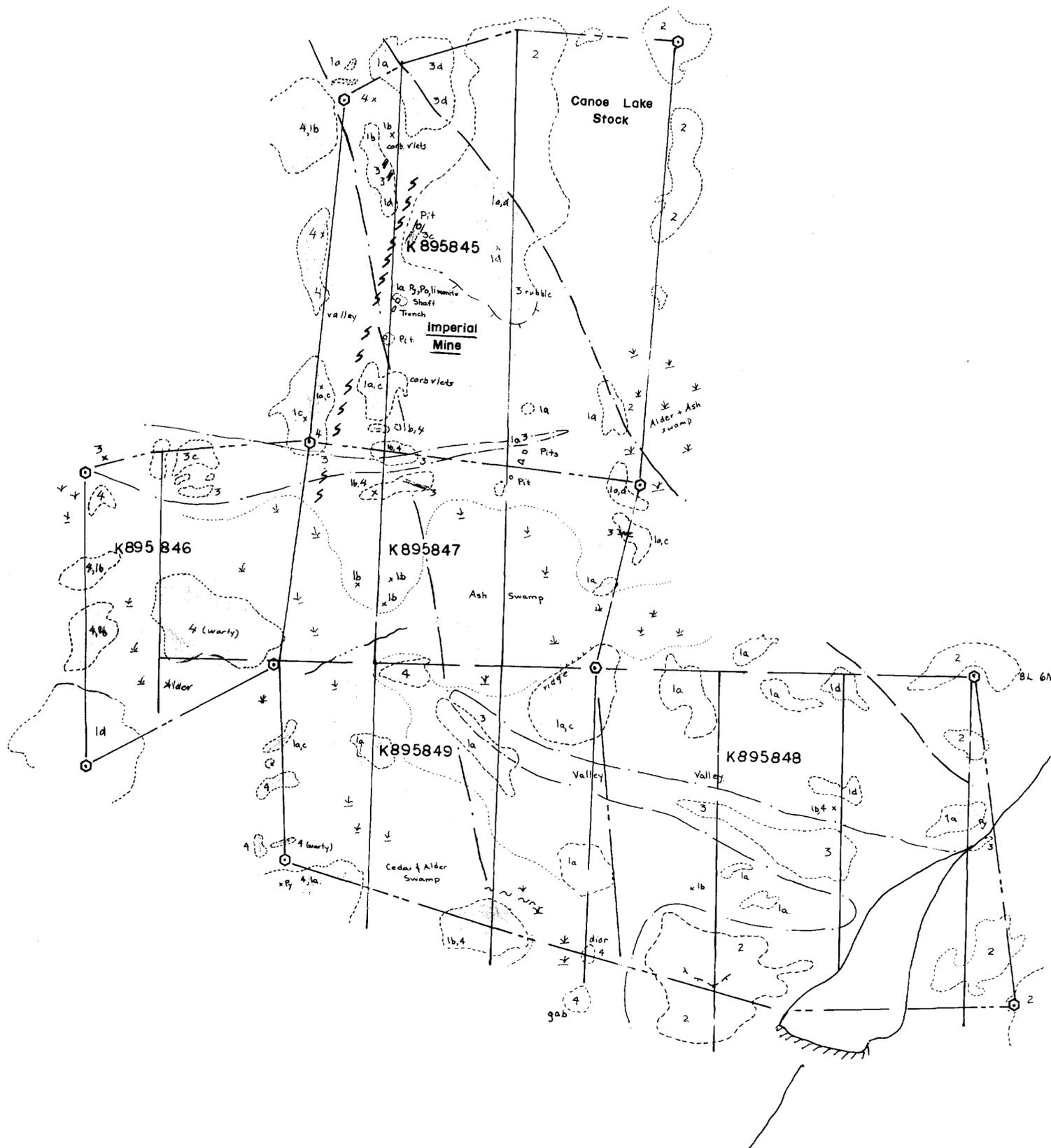
L 5 E

L 6 E

L 7 E

L 8 E

L 9 E



10 N



LEGEND

- 1 Basalt
 - a medium to fine-grained, massive basalt
 - b medium to coarse-grained, massive basalt
 - c pillowed basalt
 - d phenocryst bearing feldspar phyric basalt
- 2 Quartz Diorite
- 3
 - a Quartz Porphyry
 - b Feldspar Porphyry
 - c Quartz-feldspar Porphyry
 - d Granite
 - e Felsite
 - f Aplite
- 4 Gabbro

SYMBOLS

- claim post
- shaft
- trench
- area of outcrop
- - - - - inferred geological contact
- ~ swamp
- py-pyrite
- po-pyrrhotite



2:0215

Kenn Leonard

ST JOE CANADA INC

SHOAL LAKE KPM PROPERTY
GEOLOGY

SHOAL LAKE ONTARIO

Scale: 1:2500	Drawn By: B. Fagan K. Leonard	Date: June 1987	PLAN 1.	N.T.S. Ref: 52E/10SW
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