

THE SPRING GEOLOGICAL MAPPING PROGRAM
TCHAIKAZAN RIVER PROJECT
TASEKO LAKE AREA

MAY - JULY 1982

part 2
of 4

This Report Covers the Following Mineral
Claims Held by Suncor Inc.:

1059	SUN-1	1067	SUN-9
1060	SUN-2	1069	SUN-11
1062	SUN-4	1070	SUN-12
1063	SUN-5	1071	SUN-13
1064	SUN-6	1072	SUN-14
1066	SUN-8		

on N.T.S. Sheet 92 0/4

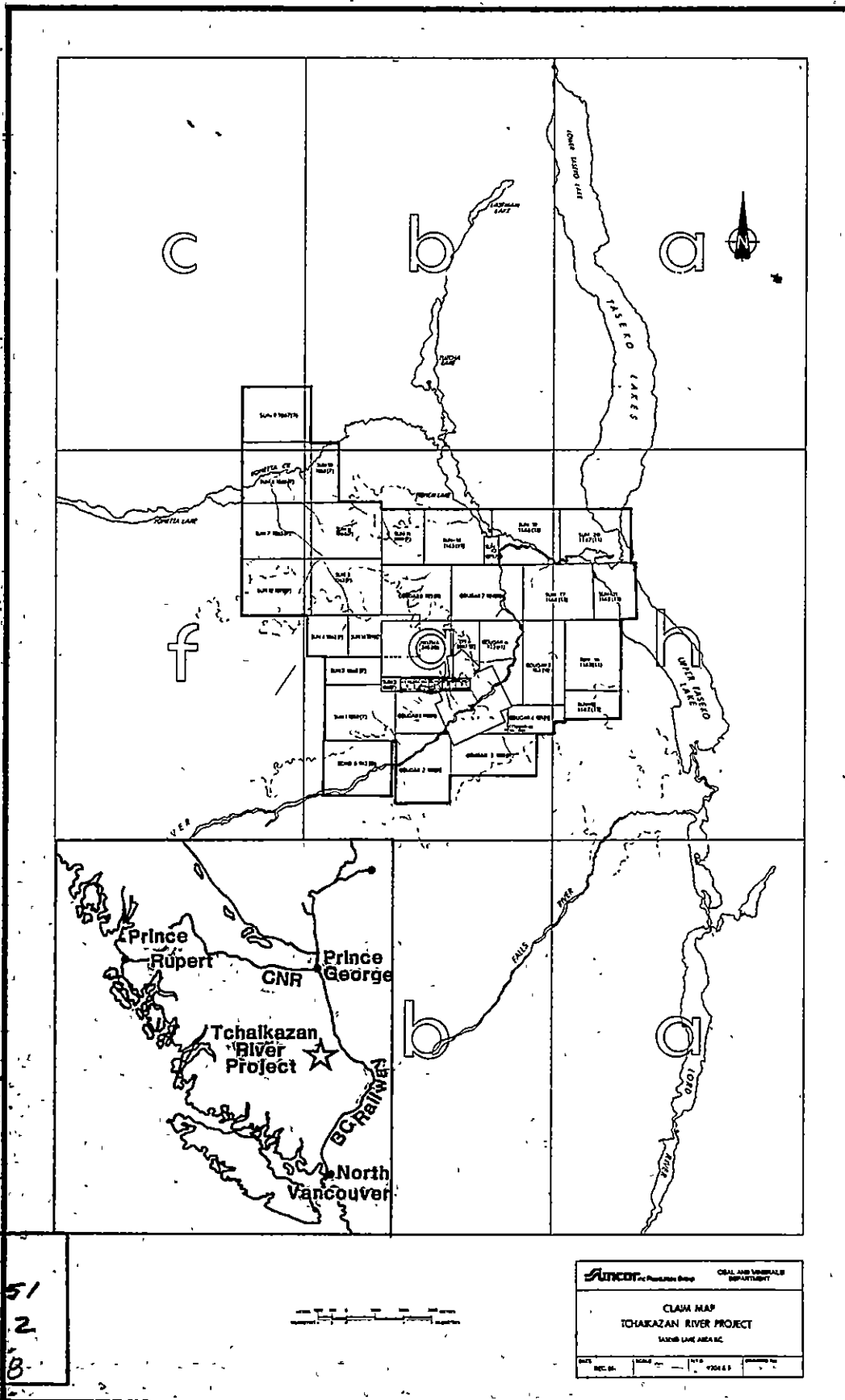
Centered on 51°11'N 123°39'W
in the Clinton Mining Division

by Paul A. Hawkins
Calgary, Alberta
September 7, 1982

SUNCOR Report #9151

GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,774



SUNCOR INC
 REPORT NO: 9151
 COPY 1 OF 2
 JC. 1 OF 8

SUNCOR Petroleum Group		OIL AND GAS DIVISION	
CLAIM MAP TCHAKAZAN RIVER PROJECT MADON LAKE AREA BC			
DATE	SCALE	BY	PROJECT NO.
DEC. 84	1:50,000	W. B.	9244 B. 1



TO RANDEVILLE 15 Km

123°40'
FISHEM LAKE

AIRFIELD

LORD RIVER MINE DEVELOPMENT ROAD

SUNCOR ACCESS ROAD

COUGAR 8

COUGAR 7

HELENA

LYRA

COUGAR 6

COUGAR 5

ECHO 4 ECHO 3 ECHO 2 ECHO 1 ECHO 7

CAMP SITE

CHARLIE GROUP CLAIMS

HUB TRENCHES

51°10'

COUGAR 1

COUGAR 10

COUGAR 4

ECHO 5

RIVER

TCHAIKAZAN

COUGAR 3

COUGAR 2

SUNCOR INC

REPORT NO: 9151

COPY 1 OF 2

ENC. 2 OF 8

SCALE 1:50,000

1000 1000 2000 METRES

Suncor Inc. Resource Group

COAL AND MINERALS DEPARTMENT

TCHAIKAZAN RIVER ZELON OPTION

LOCATION MAP TASEKO LAKE AREA, BRITISH COLUMBIA

DATE APR 81

SCALE 1:50,000

NT.S. 92-0/4

DRAWING NO. 81-3075-CB1

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1.0 INTRODUCTION

The Tchaikazan River project is located just west of the Taseko Lakes in south central British Columbia. This report covers work carried out on the SUN 1-14 claims which form part of the project area. Work performed on other claims will be covered under separate later submissions.

The property hosts a porphyry system with copper and molybdenum mineralization and peripheral gold and silver mineralization. The main area of interest occurs in the vicinity of the Hub area on the Tchaikazan River. The early work in the area was centered in this area. The SUN claims covered in this report were staked as a result of encouraging regional work in the area to the north of the original claim block.

1.1 LOCATION AND ACCESS

The property is 156 km from Williams Lake by air, but also can be reached by road using 4 wheel drive vehicles via Lee's Corners, and along the Lord River Mine development Road, a distance of some 270 km. The property can also be reached using float planes, by landing in Fishem Lake. Weekly servicing was obtained out of Williams Lake using both 4 wheel drive vehicles and helicopter support. A Bell Jet Ranger III on Term Charter was based out of the Fishem Lake Airstrip. The base camp was located on the south end of Fishem Lake adjacent to the Fishem Lake Airstrip.

The property is located within the Tyraughton Trough just adjacent to the Coast Plutonic Complex. Several promising prospects are located nearby; Fish Lake (Cu,Au) 35 km to the north, Poison Mountain (Cu), 75 km to the west, Lord River (Au) 8 km to the south east and Banner (Cu), 13 km east. Several other claim blocks exist in the area held by individuals and companies but are not at an advanced stage of exploration.

The claims covered by this report stretch from the RCAF Peak area to the north across the Yohetta Valley. The claims in the Yohetta Valley are partially accessible by road, however the greater portion is accessible only by helicopter. A network of pack horse trails exist in the area but these were not used. Early Mineral Exploration in the area was responsible for the clearing of these trails.

1.2

PHYSIOGRAPHY

The Taseko Lake area lies within the Coast Range Mountains. The area is cut by several U shaped valleys. The largest of which is the Taseko Lake Valley. It runs north-south and is one of the great U shaped valleys of the Cordilleran Interior System. This forms the eastern boundary of the property. Several other valleys run approximately North-North-easterly and are of glacial origin. The melt water from the many glaciers in the area is very cloudy and carries a lot of sediment; causing the Tchaikazan River and the Taseko Lake to be very cloudy and almost a turquoise color. The other streams and lakes with run off or ground water sources run clear.

The wide valleys and alpine terrain in the area show a transition from a well forested valley bottom to upper open alpine slopes to glacial ice fields. Elevations range from about 4350' to RCAF Peak at 9400'. The tree line lies between 6500' and 7000'.

1.3 PROPERTY HISTORY

Prospecting in the Taseko Lake area in 1945 led to the discovery of gold and silver mineralization in the vicinity of the Tchaikazan River. This work was carried out under the supervision of Dr. Harry Warren of the University of British Columbia. The showings occur within the Charlie group. The Charlie Group is located on "Tchaikazan River, Zelon Option" Map 81-075B. Limited sampling of these showings was undertaken and native gold, silver, and hissite, a gold telluride, were found to occur in the quartz vein. Further investigations were carried on during the winter of 1946-47. The mineralization was described in a paper written by Warren in the Royal Society Transactions (Warren, Harry V, 1947). The Charlie Group was optioned to Conwest for further development, however the option was allowed to lapse. No specific details regarding the work carried out is known.

In 1954 copper and molybdenum mineralization was located along the banks of the Tchaikazan River. Further trenching and sampling of the mineralization was also done. Harry Warren carried out a biogeochemical study of molybdenum on the property. (Warren, Harry V, 1965).

Between 1966 and 1967 Falconbridge carried out limited soil sampling, a magnetometer survey, shallow trenching and eight drill holes totalling 1250 feet. In 1968 Copper Range Exploration Co. built a road from Fishem Lake to the Cu-Mo showings and carried out further trenching and a further magnetometer survey.

In 1969 Rio Tinto Exploration optioned the property and carried out detailed work on the property until 1973 when it dropped its option. Rio carried out a detailed soil sampling program around the hub area which revealed a significant Cu-Mo anomaly in the Hub area. Further trenching on this anomaly did not intersect sufficient mineralization to explain the soil anomaly (Troup A.C. and Peterson D.B., 1971). A magnetometer and induced polarization survey was

1.3 PROPERTY HISTORY - (Continued)

carried out and revealed an extensive area of increased chargeability over the property with a roughly circular chargeability depression in the centre of the grid area (Forminoff P.J., and Peterson D.B. 1971).

Rio Tinto carried out some 1501' in seven holes of diamond drilling but did not intersect sufficient mineralization to continue. In 1973 it dropped its option.

In 1979 Zelon Chemicals Ltd. (owned by John Hajek, a former Rio Tinto employee) option the property from Harry Warren. Zelon Chemicals carried out some limited prospecting and mapping in 1980. Late in 1980 Suncor optioned the property from Zelon Chemicals.

In 1981 a limited program of geological mapping, geochemical sampling and prospecting was carried out by a five man crew. A new grid was also cut with its origin at the Hub Trenchs. Additional acreage was acquired in the summer and fall of 1981 to bring the project area up to 13,000 hectares. Holdings as of January 1, 1981 are shown on Tchaikazan River Project Map 82-201. Work carried out on the project in 1981 is covered by Suncor Report #9046 (Hawkins, P.A., 1981) and #9047 (Hawkins, P.A., 1982). The majority of the work was confined to the Tchaikazan Valley. A limited amount of mapping was carried out elsewhere in the property.

Limited work was carried out in the Pond Creek area and near the Haho showing. Rock sampling in the area indicated the presence of several promising areas which warranted further follow-up and prospecting.

1.5 SPRING MAPPING PROGRAM

During the early part of the 1982 field season geological mapping was carried out over the SUN 1-14 mineral claims in the Taseko Lake area by a 10 man field crew. A staff listing is provided in the appendix. The mapping covered by this report took place between May 27 and July 15, 1982. The mapping was carried out under the supervision of Dave Dillon M.Sc. with the help of two Senior Assistants Karla Lange B.Sc. and Catherine Lawrence B.Sc. The project was under the overall supervision of Paul A. Hawkins, P.Eng. A number of junior field assistants also assisted in the mapping.

The mapping was conducted at a scale of 1:10,000 using blow-ups of Topographical maps as bases and with the use color airphotos flown by Western Remote Sensing in September 1981 for Suncor Inc. Traverses were carried out using pace and compass methods with helicopter set outs.

The area which was mapped covers 171 claim units or 4275 hectares. The claims form part of both the Yohetta Valley group and the RCAF Peak group which are shown on Drawing 82-157D and 82-157C.

1.6 ASSESSMENT WORK SUMMARY

The Assessment Work calculations were based on preliminary billings available at the time of the preparation of the Statements of Exploration and Development. A per manday field cost was arrived at, as shown in the appendix, and this was applied to each claim depending on the actual number of mandays spent on the claim. A total of 66.5 mandays were spent mapping on the claims. An average crew salary figure was used in the calculation as obtained in the appendix.

Certain costs were transferred to other claims within their claim group. No charges were made for assays or geochemical analysis which were not completed at the time of the preparation of the statements. This data will be filed as a separate report.

The Tchaikazan River property is located within the Tyaughton Trough of the Intermontaine Belt. It is just adjacent to the eastern margin of the Coast Plutonic Complex. Locally the property appears to be part NW trending belt of Cretaceous sediments and volcanics intruded several recent felsic intrusive centres of Late Cretaceous or early Tertiary age.

The Taseko Lake Area was mapped by H.W. Tipper (Tipper, H.W., 1963) and updated again in 1978 (Tipper, H.W., 1978). The sedimentary rocks are discussed in GSC Paper 67-54 (Jeletzky, J.A. and Tipper, H.W., 1968). The area has never been properly mapped with respect to the volcanics and the intrusive of the area. The main rocks of interest during the mapping were the sediments. The GSC mapping of the volcanic rocks in the area is not reliable on a detailed scale.

The Cretaceous sediments and volcanics of the Taseko Lake area are probably part of the Taylor Creek Group. No attempt was made to correlate rock units by field staff. Sedimentary rocks in the project area include: shale, conglomerates, Arkose, Argillates, mudstones and sandstone. Volcanic and pyroclastic rocks in the area were: andesites, basalts, greywache, tuff and agglomerates. Intrusive rocks of the area are: feldspar Porphyry, Quartz feldspar porphyry, granodiorite, diorite, pegmatite, felsite and lamprophyre dikes. The amount of alteration present sometimes hampers the field determination or rock type.

2.1 ROCK UNITS

Rock unit names were developed from early field mapping during the first part of the 1982 field season. Several modifications will likely be required before a satisfactory set of units and correlations can be made. The severe alteration in some areas hampered field determination. The gradations of some of the volcanics into sediments was also a major problem. A simplified table of units is provided however a more detailed discussion of units follows.

BLACK SHALE (UNIT 1)

- black, fine grained, often exhibiting laminar banding fissile.
- slately cleavage
- invariably shows rusting
- commonly found interbedded with argillite
- weathers to black blocky material
- occasional disseminated pyrite

QUARTZ PEBBLE CONGLOMERATE (UNIT 2a)

- generally buff to greenish and containing a fine matrix (less than 10%) often limonitic.
- outcrops seen on north side of Yohetta Valley are typical.

ARKOSE (UNIT 2b)

- tan to pinkish brown also greenish to greyish often lithic fragments generally medium grained but poorly sorted.
- well bedded and resistant unit.
- best outcrop exposure occurs in the lower half of airstrip creek.

CONGLOMERATE (UNIT 2c)

- new unit to include conglomerates from 3c and 4b
- largely made up of lithic fragments of older adjacent units usually volcanics
- medium to very coarsely grained

BLACK-GREY BASALTS (UNIT 3a)

- fine grained to aphanitic
- vesicular, often containing olivine or pseudomorphs after olivine, also amygdular varieties present.
- basaltic flows
- sometimes magnetic
- vary from black to grey to dark green in color
- occasionally with pyroclastic fragments or lithic fragments from the edge of flows
- amphiboles often visible.

DARK PURPLE - BASALTS (UNIT 3b)

- fine to medium grained
- purple, often vesicular and porphyritic phenocrysts and generally plagioclase
- may contain lithic fragments
- often grades into a dark green andesite-basalt
- vary from denser darker, very well indurated rocks to less dense poorly indurated rock which is normally highly weathered, but still retains its characteristic volcanic appearance.

PURPLE-MAUVE GREYWACKE (UNIT 3c)

- very fine grained to very coarse grained
- color varies from dark grey to green to brownish to light grey and green to mauve to deep purple
- sometimes conglomeratic
- poorly sorted and polymictic often exhibiting graded bedding
- unit may also include biotitic often exhibiting graded and lapille tuffs
- clastics were subangular to subrounded
- no preferred orientation in clasts
- varied from poorly to well indurated
- in many cases it was difficult to distinguish from greywacke and tuffs
- purple and green tinted soils are commonly below or covering such this unit and is likely the weathering product.

ARGILLITES (UNIT 3d)

- massive bedded to banded fine grained sediments periodically exhibiting festoon bedding, and flame structures (This unit may include some tuffs) color is variable from black through blacks to browns to light green.)
- commonly interbedded with black shale

GREEN-GREY-BLACK ANDESITE/BASALT FLOWS (UNIT 4a)

- commonly massive or porphyritic
- with small lithic fragments
- dark colored
- commonly vesicular with feldspars and pyrite
- disseminated pyrite sometimes present
- not always clear if unit is flow or not
- amygdules range in size from a few mm to several cm in length
- characteristically ellipsoidal and elongate in the direction of flow
- flows often cross cut by quartz carbonate veins
- veining has undergone chlorite alteration in some areas.

GREEN-GREY-BROWN GREYWACKE (UNIT 4b)

- similar to Unit 3c
- in some areas conglomeratic
- green to purple to grey coarse grained with a fine grained matrix
- fragments may be chert, unknown lithic fragments, purple basalt, greenish basalt/andesite, or rounded feldspar grains
- several types may exist

SANDSTONE (UNIT 4c)

- medium to coarse grained and well sorted
- clast composition is varied and impure
- A siltly-clayey matrix is common but not always present
- light grey to brown in color usually massive, some beds visible on north side of Yohetta Valley

PYROCLASTICS (VOLCANICLASTICS) (UNIT 4d)

- volcanic clastics tuffs, agglomerates
- clastics generally sub angular to angular
- tuffs appear sometimes to be welded
- generally characterized clasts with chill rims in a fine grained matrix
- tuffs were low color index, aphanitic, commonly mineralized with disseminated pyrite
- agglomerates were rare

PORPHYRITIC HORNBLLENDE ANDESITE (UNIT 5a)

- a mesocratic olive green groundmass, contains amphibole laths. The groundmass is fine grained to aphenitic.
- some amphibole crystals up to 1 cm in length
- randomly oriented

GREEN TO VERY LIGHT GREY ANDESITES (UNIT 5b)

- mesocratic to leucocratic and porphyritic.
Phenocrysts and microphenocrysts are hornblende
and white feldspar in a green groundmass.

FELSITES (UNIT 6)

- grey to white to buff aphenitic rock exhibiting concoidal fracture.
- fine grained to aphanitic

QUARTZ-FELDSPAR PORPHYRY (UNIT 6a)

- mesocratic to melanocratic rock phenocrysts quartz, white feldspar (1 cm long), and hornblende
- matrix varies from fine to coarse grained
- ratio between felsic and mafic varies
- phenocrysts reach up to 5 cm in size but average 4 mm
- commonly carries pyrite and occasional chalcopyrite
- usually exhibits argillitic alteration
- pyrite and magnetite common

FELDSPAR PORPHYRY (UNIT 6b)

- there are several textural variations
- crowded hornblende - feldspar porphyry - dominated by phenocrysts of white feldspar and hornblende
- sparse hornblende porphyry - dominated by aphanitic groundmass with white feldspars and hornblende
- porphyry breccia - essentially sparse porphyry with fragments of country rocks
- phenocrysts sizes: feldspar (12 mm), hornblende (3 mm)
- mineralogical variation involves replacement of hornblende by biotite in the periphery of the hub stock, as well as zonation of sulphides from molybdenite and chalcopyrite disseminations in the inner zone to increasing pyrite outward

GRANODIORITE, GRANITE, PEGAMITITE (UNIT 6c)

- granodiorite - medium grained pinkish beige rock containing white and pink feldspars (ratio 9:1), quartz and biotite
- granite - medium grained pinkish beige rock containing white and pink feldspars (ratio 6:4), quartz and biotite
- pegmatite veins (rare) - very coarse grained leucocratic rock containing micorcline and quartz

LAMPROPHYRE DIKES (UNIT 7)

- melanocratic green to dark grey to black porphyritic rock containing phenocrysts of hornblende (?) and rare feldspar

TCHAIKAZAN RIVER PROJECT

TABLE OF ROCK UNITS

Igneous Extrusives

Pyroclastics	Tuffs: light through dark grey, aphanitic to crystalline, sometimes clastic. Agglomerates, usually red or green.
Volcaniclastics	Basaltic and andesitic flows are commonly clastic-volcanic breccias occur locally.
Flows	Andesite, grey through green, aphanitic to porphyritic; extremely porphyritic may be igneous intrusive. Phenocryst usually hornblende and feldspar. Basalt, grey, brown, through to shades of purple. Purple color due to local concentrations of hematite (?). Commonly porphyritic, as for andesite; also vesicular and amygdaloidal.

Igneous Intrusives

Lamprophyres	Basic, porphyritic to aphanitic dikes cross-cut stratigraphy locally.
Porphyries	Occuring as dikes, stocks, and sills. Feldspar porphyry, green-grey matrix with well formed feldspar phenocrysts, usually plagioclase, up to 1 cm across. Hornblende is a common accessory phenocryst. Quartz feldspar porphyry: same as feldspar porphyry but containing an appreciable amount of quartz: 10-20%. Felsites: light colored, fine-grained to aphanitic igneous rock. Quartz-eye felsites occur when the felsite contains apen-shaped quartz phenocrysts.

Sedimentary rocks

Shale	Black, aphanitic, fissile and friable, low resistance to weathering.
Argillaceous sediments	Usually interbedded shales, mudstones, siltstones.
Sandstones	Include classically formed sandstone as well as some slightly impure varieties.
Greywacke	Dark grey, brown, also purple. Sandstone with large detrital quartz and feldspar phenocrysts. Fragments angular. Exhibits graded bedding locally. Includes some conglomeritic sections.
Conglomerates	Green through brown through purple. Typically poorly consolidated. Complete range in clast size and composition. Clast shape mainly well rounded. Quartz pebble conglomerates found locally.

2.2 ECONOMIC GEOLOGY

A number of new showings have been located in the SUN 1-14 mineral claims. They all show copper mineralization and are all fracture related. How they locally relate to a porphyry model has not yet been determined. The showings are located on drawing 82-204, New Showing Location 1982 - Tchaikazan River Project.

The following discussion is based on field observations and preliminary assay data which will be submitted later.

The Barndoor showing is located SUN-5 on a ridge on west side of Pond Creek on the south side of Yohetta Valley. The showing is a spotty occurrence of malachite in a highly fractured dark grey basalt. The basalt is also highly altered in some spots to largely clay minerals. The mineralization was of limited extent. Further stripping of outcrop combined with detailed mapping is required.

The Haho showing located in SUN-14 and Helena claims returned good values in copper and silver (Hawkins, P.A., 1982). Further work was undertaken in the area and several other showings were found. This area is now called Ravioli Ridge and extends to the east and south east of Haho. These showings carry malachite and chalcopryrite. They appear to be related to quartz carbonate veining. The Ravioli showings occur in outcrops while in the case of Haho, no outcrop source for the mineralized boulders has yet been found. The mineralized boulders at the Haho showing have now been extended to cover an area 20 x 40 meters.

A number of showings have been found on the unmarked peak just west of Fishem Lake. The Peak at 7724' stands out as it is almost isolated from other peaks in the area. The showings occur on the ridge running south east from the peak. Malachite with

2.2 ECONOMIC GEOLOGY - (Continued)

minor azurite occur with disseminated chalcopyrite and rare pyrite. The malachite and azurite appear associated with minor folding in the sediments in which they occur. They also appear as fracture coatings in the intrusive rocks in adjacent areas. The rocks are highly weathered and previously present sulphides appear to have been leached out.

Fresher rock samples may yield better results. Further prospecting and detailed mapping is required. The showings may be related to the intrusive rocks which appear to make up the core of the mountain.

Several mineral showings exist on a ridge west of Pond Creek. The ridge on which the showings occur have been named "Amazon Ridge". The Amazon ridge area comprises 3 mineral claims SUN-5, 12 and 14. Mineralization consists of malachite, azurite, chrysocolla, native copper and native silver.

The rocks in the northern part of the ridge are composed of porphyritic andesites while the southern portion of the ridge is composed mainly of clastic sediments, commonly hematized. Mineralization is not confined to one rock unit but usually occurs in fractures and cross cutting quartz carbonate veins. Malachite and azurite were also found in a feldspar porphyry associated with jointing surfaces, which may be related to stockwork mineralization.

Native copper, malachite, azurite, chalcopyrite, chrysocolla and possible native silver were located on the west side of Amazon ridge. Several fracture related zones carry impressive copper oxides. One such zone called the Ring showing carries a narrow vein about 1 cm wide of metal copper and possible silver. Further detailed mapping and prospecting is required.

Another area of minor interest is the Catwalk area in SUN-1 and Echo-5. Several Quartz-carbonate veins exist in areas of known

2.2 ECONOMIC GEOLOGY -- (Continued)

gossen zones. No sulphides were seen but it was not possible to get an unweathered sample. Further examination is required.

In summary, the area has a number of new Cu, Ag showing which are a definite indication of the high mineral potential of the area. All the showings are fracture related and may fit into a porphyry copper model. The area however requires much more work.

3.0

CONCLUSIONS

The SUN 1-14 claims host several recently discovered showings. Further more detailed work is required to fully evaluate these showings. Additional regional geological mapping is also required. The completion of the chemical analysis of rocks and soils will also greatly assist in the evaluation.

It is apparent from past work (Hawkins, P.A., 1982) and outcrop examinations during mapping that significant copper, gold and silver mineralization exists within the area covered by report and warrants additional, more detailed examination.

Paul A. Hawkins

3.1 FURTHER WORK

Regional mapping should be continued with additional prospecting in the area. Detailed mapping should be undertaken at the Barndoor, Haho, Catwalk, Ring and Pond Creek areas. Geophysical surveys such as Magnetometer and VLF-EM should be carried out at Barndoor, Haho, Ring and Pond Creek areas. Better control should also be established in all areas. Further rock sampling would better define these showings.

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APPENDIX

1. Claim Listing
2. Author's Qualifications
3. Field Staff List
4. Spring Geological Mapping Program Unit Cost Estimate
5. Spring Geological Mapping Program Cost Breakdown
6. 1982 Cariboo and Tchaikazan Mean Salary Calculation

MINERAL CLAIM LISTING
TCHAIKAZAN RIVER PROJECT
TASEKO LAKE AREA, B.C.

Mining Division: Clinton

RECORD #	CLAIM NAME	LOT #	UNITS	ANNIVERSARY DATE	IN GOOD STANDING UNTIL	HECTARES
7831	Wash N.C.	7831			1983	14.75
7832	Clean Up M.C.	7832			1983	20.90
7833	Bear M.C.	7833			1983	20.90
7834	Grin M.C.	7834			1983	20.90
7835	Sakes Fractional M.C.	7835			1983	20.90
7836	Ham M.C.	7836			1983	7.12
6190	Eggs		1	Aug. 24/45	1985	20.85
6968	Sugar		1	Aug. 14/53	1985	20.90
6969	Pork		1	Aug. 14/53	1985	20.90
6970	Beans		1	Aug. 14/53	1985	20.90
13212	Onion 1		1	June 16/66	1985	20.90
13213	Onion 2		1	June 16/66	1985	20.90
13214	Onion 3		1	June 16/66	1985	20.90
16923	A1		1	June 27/68	1985	20.90
16924	A2		1	June 27/68	1985	20.90
16925	A3		1	June 27/68	1985	20.90
16926	A4		1	June 27/68	1985	20.90
16927	A5		1	June 27/68	1985	20.90
16928	A6		1	June 27/68	1985	20.90
16929	A7		1	June 27/68	1985	20.90
16930	A8		1	June 27/68	1985	20.90
16931	A9		1	June 27/68	1985	20.90
16932	A10		1	June 27/68	1985	20.90
16933	A11		1	June 27/68	1985	20.90
16934	A12		1	June 27/68	1985	20.90
16935	A13		1	June 27/68	1985	20.90
16936	A14		1	June 27/68	1985	20.90
16937	A15		1	June 27/68	1985	20.90
16938	A16		1	June 27/68	1985	20.90
16939	A17		1	June 27/68	1985	20.90
16940	A18		1	June 27/68	1985	20.90
16941	A19		1	June 27/68	1985	20.90
16942	A20		1	June 27/68	1985	20.90

TCHAIKAZAN RIVER PROJECT

RECORD #	CLAIM NAME	LOT #	UNITS	ANNIVERSARY DATE	IN GOOD STANDING UNTIL	HECTARES
547	Lyra		10	Dec. 7/79	1981 (1990)	250.00
548	Helena		20	Dec. 7/79	1981 (1983)	500.00
918	Cougar 1		12	Nov. 21/80	1981 (1985)	300.00
919	Cougar 2		20	Nov. 21/80	1981 (1985)	500.00
920	Cougar 3		18	Nov. 21/80	1981 (1984)	450.00
921	Cougar 4		8	Nov. 21/80	1981 (1987)	200.00
922	Cougar 5		18	Nov. 21/80	1981 (1985)	450.00
923	Cougar 6		18	Nov. 21/80	1981 (1991)	450.00
924	Cougar 7		20	Nov. 21/80	1981 (1986)	500.00
925	Cougar 8		20	Nov. 21/80	1981 (1984)	500.00
926	Echo 1		1	Nov. 25/80	1981 (1991)	20.90
927	Echo 2		1	Nov. 25/80	1981 (1991)	20.90
942	Echo 5		20	Dec. 16/80	1981 (1984)	500.00
965	Cougar 10		12	Feb. 6/81	1982 (1983)	300.00
983	Echo 3		1	Feb. 27/81	1982 (1992)	20.90
984	Echo 4		1	Feb. 27/81	1982 (1992)	20.90
985	Echo 7		1	Feb. 27/81	1982 (1992)	20.90
1059	Sun 1		20	July 15/81	1982 (1983)	500.00
1060	Sun 2		8	July 15/81	1982 (1988)	200.00
1061	Sun 3		2	July 15/81	1982 (1988)	50.00
1062	Sun 4		9	July 15/81	1982 (1989)	225.00
1063	Sun 5		20	July 15/81	1982	500.00
1064	Sun 6		20	July 15/81	1982	500.00
1065	Sun 7		20	July 15/81	1982 (1990)	500.00
1066	Sun 8		20	July 15/81	1982	500.00
1067	Sun 9		20	July 15/81	1982	500.00
1068	Sun 10		8	July 15/81	1982 (1992)	200.00
1069	Sun 11		12	July 15/81	1982	300.00
1070	Sun 12		20	July 15/81	1982 (1988)	500.00
1071	Sun 13		2	July 15/81	1982 (1984)	500.00
1093	Sun 14		15	Sept. 3/81	1982	375.00
1142	Sun 15		8	Nov. 2/81	1982	200.00
1143	Sun 16		20	Nov. 2/81	1982	500.00
1144	Sun 18		20	Nov. 2/81	1982	500.00
1145	Sun 19		20	Nov. 2/81	1982	500.00
1146	Sun 20		20	Nov. 2/81	1982	500.00
1147	Sun 21		12	Nov. /81	1982	300.00
					TOTAL	13,524.22

Author's Qualifications

Paul Alan Hawkins P. Eng. B.Sc. (Eng)
2105, 920 - 9th Avenue S.W.
CALGARY, Alberta
T2P 2T9

Registered Professional Engineer, Province of Alberta

B.Sc (Eng) Queen's University 1977
Geological Engineering (Mineral Resources)

Work History

May 1981 - Present	Suncor Inc.	Project Geologist
May 1978 - March 1981	Pan Ocean Oil Ltd.	Project Geologist
Feb. 1978 - April 1978	Gulf Minerals	Drill Geologist
May 1977 - Jan. 1978	Asamera Oil	Junior Geologist
July 1976 - Dec. 1976	Urangessellschaft	Senior Assistant
May 1976 - July 1976	Hollinger Mines	Drill Geologist
May 1975 - Sept. 1975	HBOG Mining	Field Assistant
May 1974 - Sept. 1974	Duval Corp.	Field Assistant

FIELD STAFF LIST

1. David Dillon
M.Sc. (Geology) Brock University 1982
B.Sc. (Geology) University of Toronto 1979
2. Catherine Lawrence
B.Sc. (Geology) University of Western Ontario 1982
3. Karla Lange
B.Sc. (Geology) University of British Columbia 1982
4. Jacqui Rublee
2nd year geology student, University of British Columbia
5. Kimberly Russell
2nd year geology student, Sir Sandford Fleming College
6. Richard Laing
B.Sc. (Biology) University of Calgary
1st year geology student, University of Calgary
7. Steve Barnhart
2nd year geology student, Unveristy of Waterloo
8. Jim Boyd
2nd year geology student, McMaster University
9. Reno Pressacco
Graduate geological technician, Cambriam College 1982
10. Gerald Lalonde
Cook
11. Derek Armstrong
B.Sc. (Geology) University of Waterloo 1982
12. Derek Newman
3rd year geology student, Memorial University

13. John Mirynech

1st year geology student, University of Western Ontario

14. Mark Ho

2nd year geology student, University of Waterloo

15. Don Sabo

1st year geology student, University of Saskatchewan

16. Roy Lush

Cook

17. Ernst Maas

Helicopter Pilot

18. Cynthia Bonthoux

Replacement Cook

SPRING GEOLOGICAL MAPPING PROGRAM

UNIT COST ESTIMATE

Camp Costs (per day)

Food and Catering Costs	\$25.00	
Equipment and Camp Costs	15.00	
Camp Fuel	5.00	
Transportation and Logistics	5.00	
	<hr/>	
	\$50.00	\$50.00

Prorated Salary

Average Salary (from Mean Salary Calculation)	\$95.01	\$95.01
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Helicopter Costs

Direct Helicopter Costs		
1 hour/day x \$374	\$374.00	
Fuel @ \$4.05 x 25 gals./hour	101.25	
	<hr/>	
	\$475.25	
Per. Manday based on 10 people	\$47.52	\$47.52
Per Manday Field Cost		<hr/> <hr/>
		\$192.53

SPRING GEOLOGICAL MAPPING PROGRAM

Cost Breakdown

		<u>MANDAYS MAPPING</u>	<u>MAPPING COST</u>	<u>REQUEST WORK CREDIT</u>	<u>TO P.A.C. ACCOUNT</u>
1059	SUN-1	18.0	3465.54	3465.54	--
1060	SUN-2	1.0	194.53	--	194.53
1061	SUN-3	0.0	--	--	--
1062	SUN-4	7.0	1347.71	--	1347.71
1063	SUN-5	3.0	577.59	577.59	--
1064	SUN-6	9.0	1732.77	1732.77	--
1065	SUN-7	0.0	--	--	--
1066	SUN-8	1.0	192.53	192.53	--
1067	SUN-9	7.0	1342.31	1342.31	--
1068	SUN-10	0.0	--	--	--
1069	SUN-11	5.5	1058.91	1058.91	--
1070	SUN-12	9.5	1829.03	--	1829.03
1071	SUN-13	2.0	385.06	--	385.06
1072	SUN-14	3.5	673.80	673.80	--
		<u>66.5</u>	<u>12799.78</u>	<u>9043.45</u>	<u>3756.33</u>

1982 CARIBOO AND TCHAIKAZAN MEAN SALARY

CALCULATION

	<u>Daily Rate</u>	
P. Hawkins	\$234.09	Projects Geologist Cordillera
D. Dillon	102.26	Tchaikazan Party Chief
C. Lawrence	99.64	Senior Field Assistant
K. Lange	98.34	Senior Field Assistant
V. Rublee	70.49	Junior Field Assistant
K. Russell	70.49	Junior Field Assistant
R. Laing	95.73	Camp Manager
S. Barnhart	70.49	Junior Field Assistant
J. Boyd	78.33	Junior Field Assistant
R. Pressacco	80.06	Junior Field Assistant
G. Lalonde	117.49	Cook
D. Armstrong	99.64	Cariboo Party Chief
D. Newman	80.93	Senior Field Assistant
J. Miryneck	58.75	Junior Field Assistant
M. Ho	70.49	Junior Field Assistant
D. Sabo	70.49	Junior Field Assistant
R. Lush	<u>117.49</u>	Cook
	\$1,615.20	
AVERAGE	\$ 95.01	

Paul A. Hawkins
September 6, 1982

C. DRILLING (Details in report submitted as per section 6 of regulations.)
 (The itemized cost statement must be part of the report.)

COST	
1982 Geological Program	4904.11
TOTAL OF C AND D	
	4904.11

D GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL
 (Details in report submitted as per section 5, 6 or 7 of regulations.)
 (The itemized cost statement must be part of the report.)
 (State type of work in space below)

Who was the operator (provided the financing)? Name . . . SUNCOR INC.
 Address . . . P.O. Box 38
 . . . Calgary, Alberta

Portable Assessment Credits (PAC) Withdrawal Request		AMOUNT
Amount to be withdrawn from owner(s) account(s)		
Name of Owner		
(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D)	1.	695.89
	2.	
	3.	
	4.	
TOTAL WITHDRAWAL		695.89
TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL		5600.00

I wish to apply \$ 5600 of this work to the claims listed below.

(State number of years to be applied to each claim, its month of record, and identify each claim by name and record no.)

. . . . 1067. SUN - 9 . . (07) 20 units . . . 1 year *1 1/2* \$2000
 1069. SUN - 11 . (07) 12 units . . . 2 years 3600
 \$5600

Value of work to be credited to portable assessment credit (PAC) account(s)

(May only be credited from the approved value of C and (or) D not applied to claims.)

Name		AMOUNT
In owner(s) name:	1.	
	2.	
	3.	
In operator(s) name (party providing the financing):	1.	
	2.	
	3.	

Paul Harkin
 (Signature of Applicant)
 Project Geologist

C. DRILLING

(Details in report submitted as per section 6 of regulations.)
(The itemized cost statement must be part of the report.)

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL

(Details in report submitted as per section 5, 6, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below)

		COST
1981 Field Season Geological Program		1156.69
1982 Field Season Geological Program		3465.54
TOTAL OF C AND D		4622.23

Who was the operator (provided the financing)?

Name SUNCOOR INC.

Address P.O. Box 38

Calgary, Alberta

Portable Assessment Credits (PAC) Withdrawal Request

Amount to be withdrawn from owner(s) account(s).

		AMOUNT
(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D.)	Name of Owner	
	1. <u>SUNCOOR INC.</u>	1377.77
	2.	
	3.	
TOTAL WITHDRAWAL		1377.77
TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL		6000.00

I wish to apply \$ 6000.00 of this work to the claims listed below.

(State number of years to be applied to each claim, its month of record, and identify each claim by name and record no.)

1059 SUN - 1(07) 20 units 3 years \$6000.00

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Value of work to be credited to portable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

		AMOUNT
In owner(s) name.	1.	
	2.	
	3.	
In operator(s) name (party providing the financing).	1.	
	2.	
	3.	

Paul Hawk
(Signature of Applicant)
Project Geologist

DRILLING

(Details in report submitted as per section 8 of regulations.)
(The itemized cost statement must be part of the report.)

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL

(Details in report submitted as per section 8, 8, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below.)

		COST
Induced Polarization Survey		788.27
1982 Geological Exploration		673.80
TOTAL OF C AND D		1462.07

Who was the operator (provided the financing)?

Name ... SUNCOX INC.
Address ... P. O. Box 38
Calgary, Alberta T2P 2V5

Peritable Assessment Credits (PAC) Withdrawal Request

Amount to be withdrawn from owner(s) account(s):

		AMOUNT
(May be no more than 30 per cent of value of the approved work submitted as assessment work in Case (a) D.)	Name of Owner	
	1. <u>SUNCOX Inc.</u>	437.93
	2.	
	3.	
TOTAL WITHDRAWAL		437.93
TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL		1900.00

I wish to apply \$ 1900.00 of this work to the claims listed below

(State number of years to be applied to each claim, its month of record, and identify each claim by name and record no.)

1093 SUN-14(09) 15 units 1 year \$1500 plus 400 excess credit

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.....

Value of work to be credited to peritable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

		Name	AMOUNT
In owner(s) name.	1.		
	2.		
	3.		
In operator(s) name (party providing the financing).	1.		
	2.		
	3.		

Paul A. Hawkins
(Signature of Applicant)

Paul A. Hawkins
Project Geologist



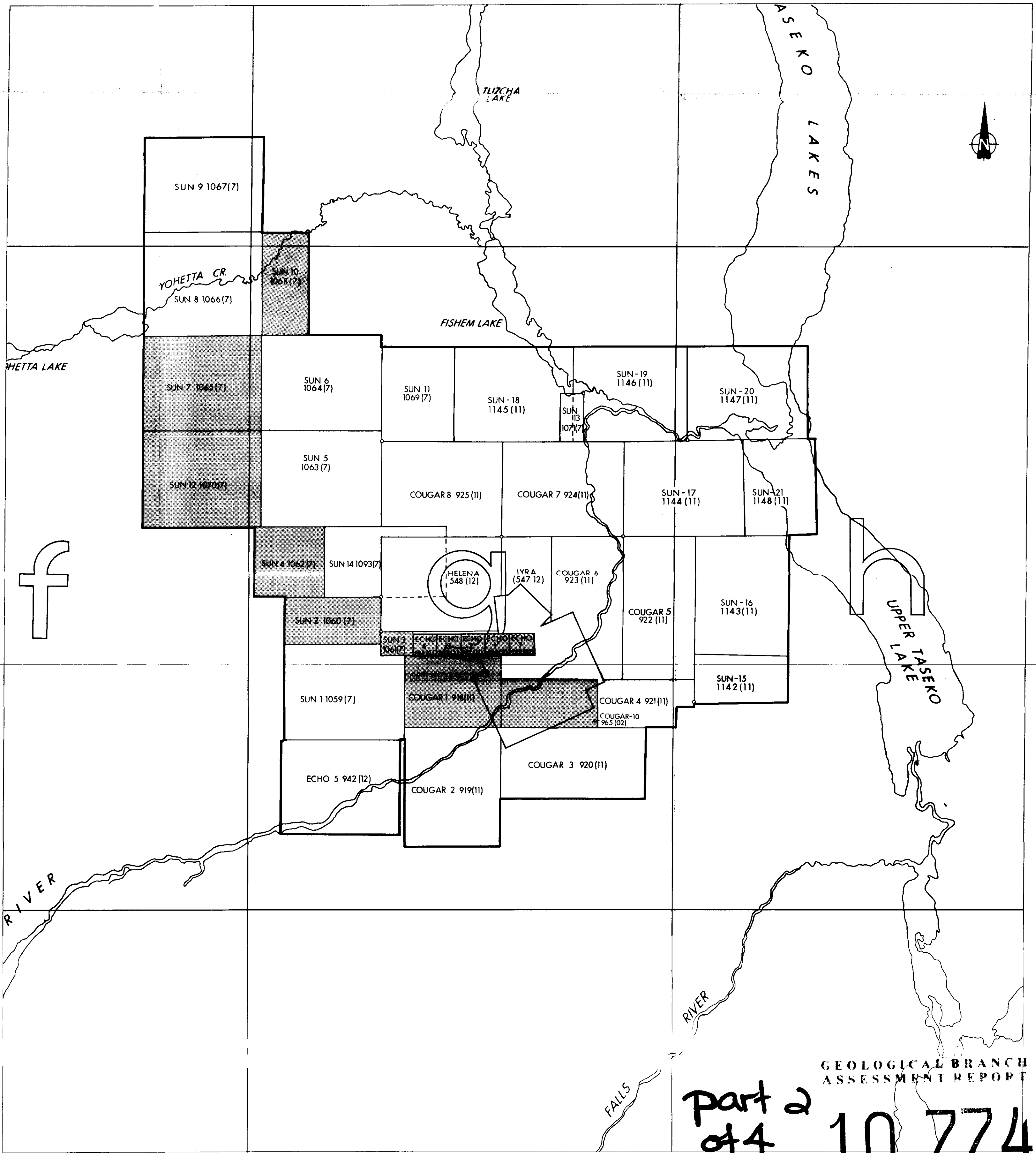
U.S.A. DESIGN PATENT 4139248 1979
CANADIAN IND. DESIGN REG. NO. 42524
CANADIAN PATENT 1065729 1979



(RD) 1977

IRON MAIDEN SYSTEMS LTD. CALGARY ALBERTA CANADA

IM 42



GEOLOGICAL BRANCH
ASSESSMENT REPORT

part 2
of 4 10,774

1000 500 0 1000 2000 3000 4000 METRES

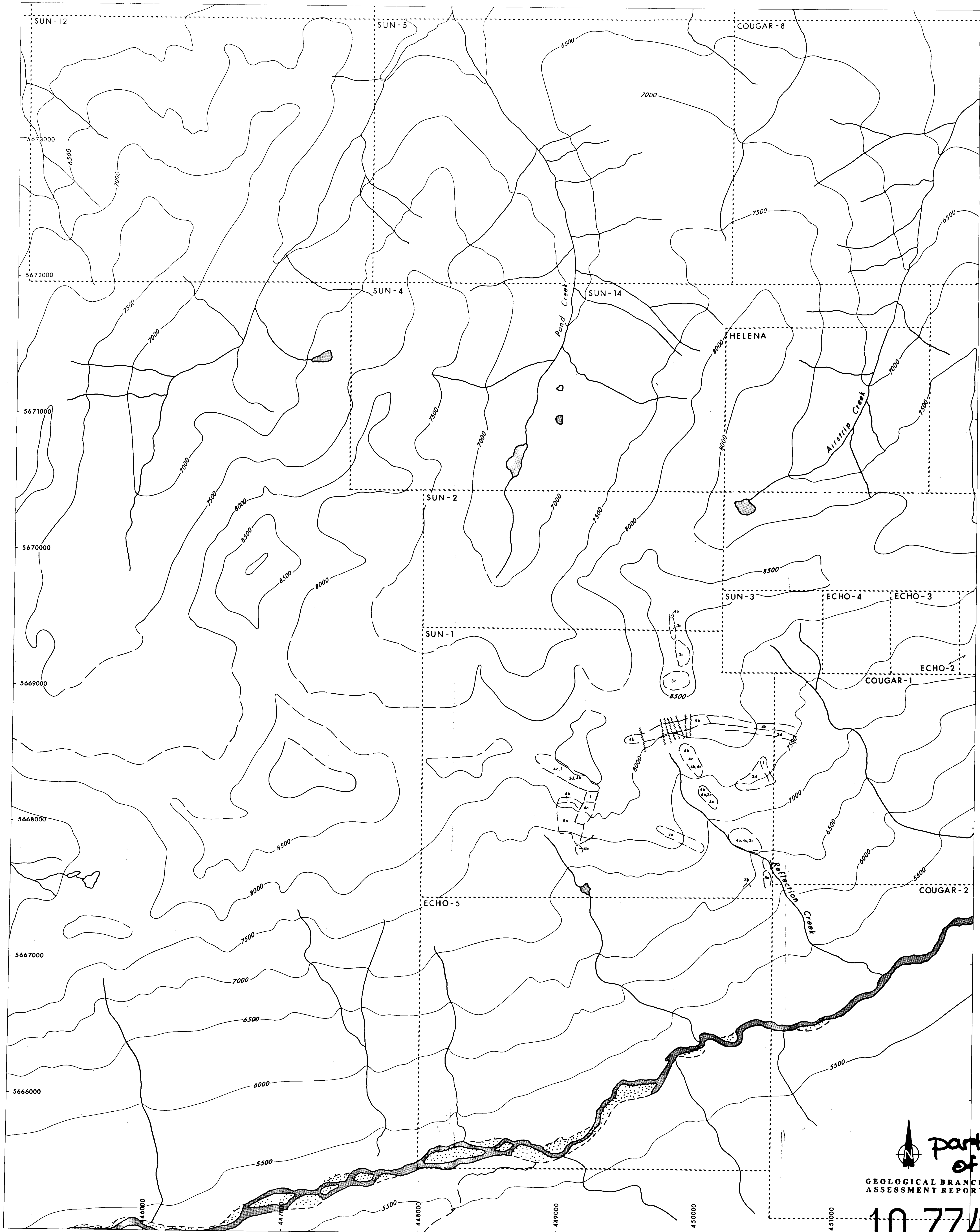


COAL AND MINERALS
DEPARTMENT

RCAF PEAK GROUP
TCHAIKAZAN RIVER PROJECT
TASEKO LAKE AREA, B.C.

DATE July, 1982	SCALE 1:50,000	FILES 920/4 & 5	DRAWING No. 82-157-C
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REPORT NO. 9151
COPY 1 OF 2
ENG. CF



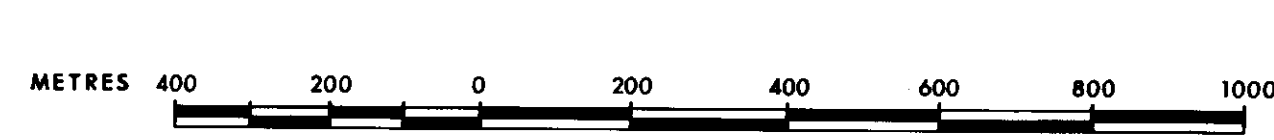
part 2
of 4

GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,774

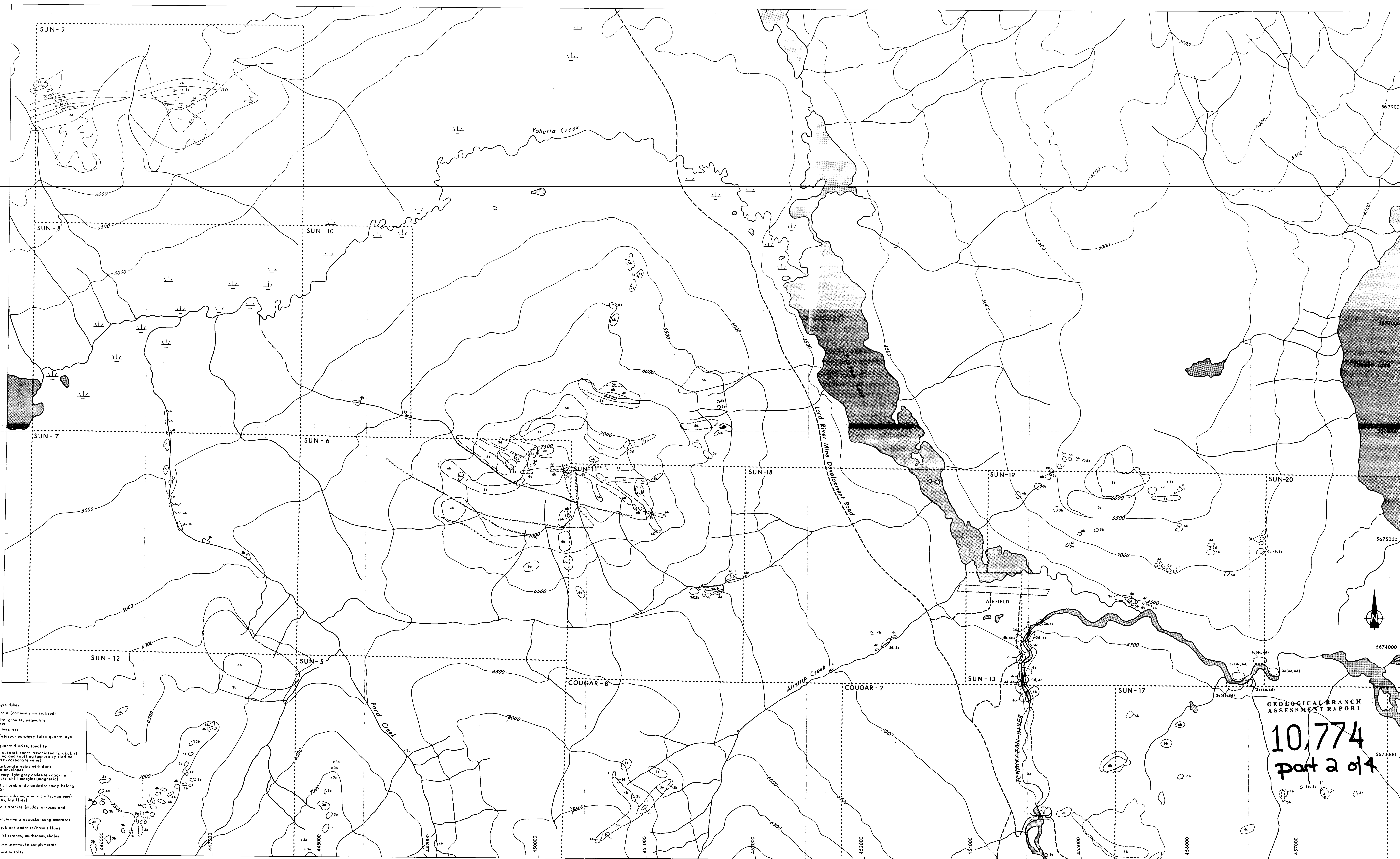
LEGEND

3a	Porphyritic hornblende andesite	-----	Faults: assumed, definite
4c	Argillaceous arenite (muddy arkoses and wackes)	○	Outcrop
4b	Grey, green, brown greywacke-conglomerates	---	Geological contacts (assumed)
4a	Green, grey, black andesite/basalt flows		
3d	Argillites (siltstones, mudstones, shales)		
3c	Purple-mauve greywacke-conglomerate		
3b	Purple-mauve basalts		
3a	Black-grey basalts		
1	Black shale		



SUNCOR INC.
REPORT NO. 9151
COPY 1 OF 2
ENC. 7 OF 8

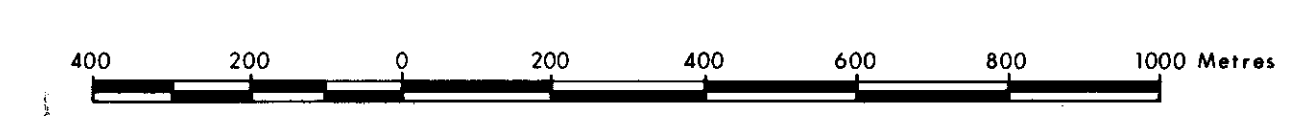
Suncor INC. Resources Group		COAL AND MINERALS DEPARTMENT	
RCAF PEAK AREA SUN - 1, GEOLOGY TCHAIKAZAN RIVER PROJECT TASEKO LAKE AREA, B.C.			
DATE May, 1982	SCALE 1:10,000	N.T.S. 920/4	DRAWING No. 82-202-B



- LEGEND**
- 7 Lamprophyre dykes
 - 8a Fault breccia (commonly mineralized)
 - 8b Granodiorite, granite, pegmatite veins/dykes
 - 8c Feldspar porphyry
 - 8d Quartz-feldspar porphyry (also quartz-eye foliated)
 - 8e Diorite, quartz diorite, tonalite
 - 8f Breccia/stockwork zones associated (probably) with folding and faulting (generally riddled with quartz-carbonate veins)
 - 8g Quartz carbonate veins with dark alteration envelopes
 - 8h Green to very light grey andesite - dioritic dikes, stocks, sill (mostly magnetic)
 - 8i Porphyritic hornblende andesite (may belong in group 8)
 - 8j Miscellaneous volcanic tuffs, agglomerates, bombs, lapillies
 - 8k Argillaceous arenite (muddy arkoses and wackes)
 - 8l Grey, green, brown greywacke-conglomerates
 - 8m Green, grey, black andesite/basalt flows
 - 8n Argillites (siltstones, mudstones, shales)
 - 8o Purple-mauve greywacke conglomerate
 - 8p Purple-mauve basalts
 - 8q Black-grey basalts
 - 8r Arkose
 - 8s Quartz-pebble conglomerate
 - 8t Black shale
- Faults: assumed, definite
- Outcrop
- geological contacts (assumed)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,774
part 2 of 4



BUNCOR INC
REPORT NO. 91/82
COPY 1 OF 2
END OF 2

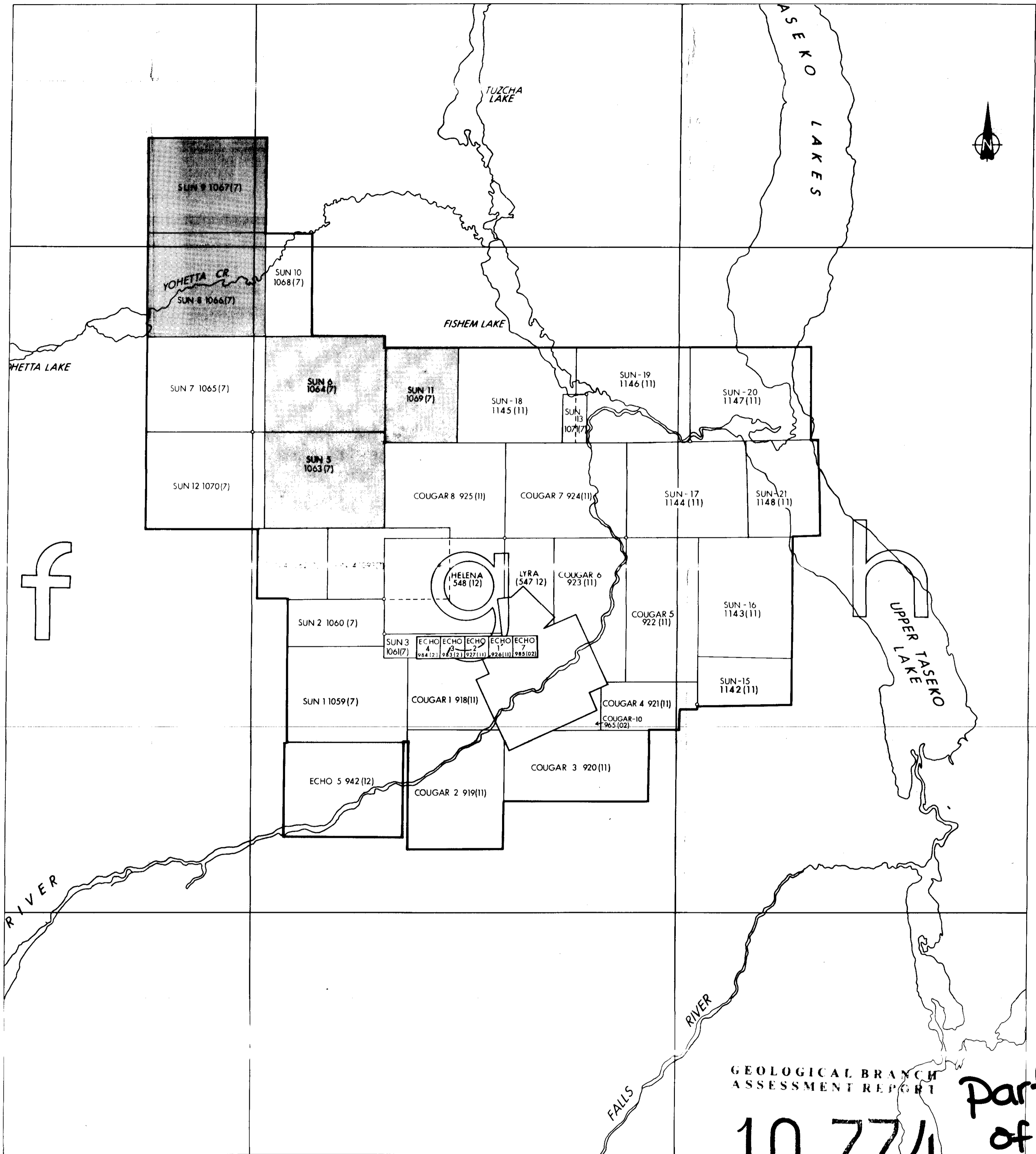
Bunco Resources Group COAL AND MINERALS DEPARTMENT

YOHETTA VALLEY
GEOLOGY

TCHAIKAZAN RIVER PROJECT
TASEKO LAKE AREA, BRITISH COLUMBIA

DATE	SCALE	N.T.S.	DRAWING No.
June, 1982	1:10,000	92/4 & 5	82-164

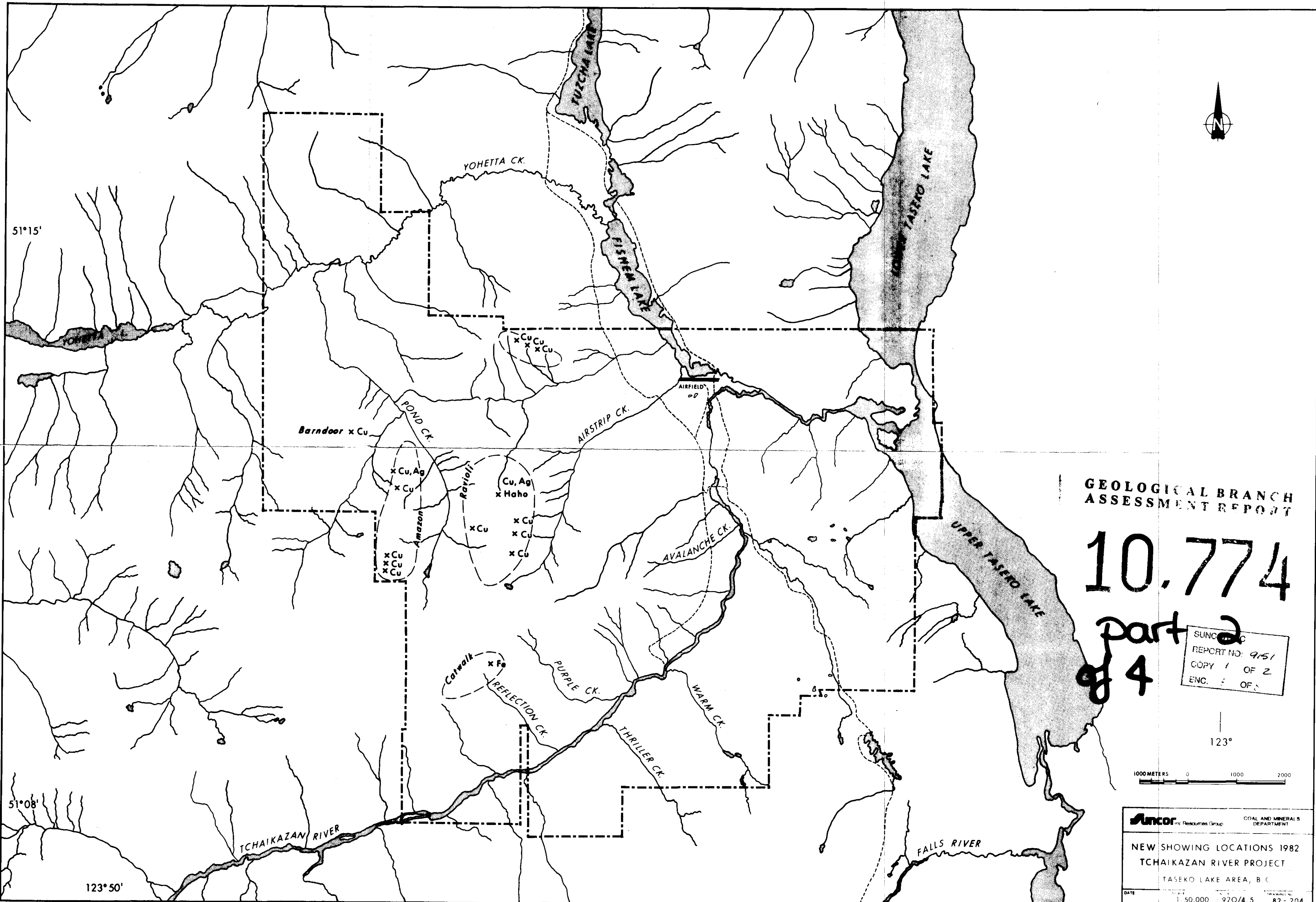
REVISION: SEPT. 21/82



GEOLOGICAL BRANCH
ASSESSMENT REPORT *part 2 of 4*
10,774
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SUNCOR INC
REPORT NO: 9151
COPY 1 OF 2
ENC. 4 OF 5

Suncor The Resources Group		COAL AND MINERALS DEPARTMENT	
YOHETTA VALLEY GROUP TCHAIKAZAN RIVER PROJECT TASEKO LAKE AREA, B.C.			
DATE July, 1982	SCALE 1:50,000	NTS 920/4 & 5	DRAWING No. 82-157-D



GEOLOGICAL BRANCH
ASSESSMENT REPORT

10.774

part 2
of 4

SUNCOR
REPORT NO: 9151
COPY 1 OF 2
ENC. 2 OF 2

123°



Suncor Resources Group COAL AND MINERALS DEPARTMENT

NEW SHOWING LOCATIONS 1982
TCHAIKAZAN RIVER PROJECT
TASEKO LAKE AREA, B.C.

DATE: 1982 SCALE: 1:50,000 SHEET NO: 920/4,5 DRAWING NO: 82-204