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13966

S U N C O R I N C .

Geochemical Report

Work Performed between August 14

and September 1, 1984

Manson Lakes, Area B.C.

SAGE 1 - 4 CLAIMS

Record Numbers 6566, 6563, 6564, 6565

OMINECA MINING DIVISION

NTS 93 N/10 9N

55° 38'

124° 19.5'

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,966

D.B. Cross, B.Sc

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Appendix 1 - Analytical Techniques

Map Pocket

LOCATION AND ACCESS

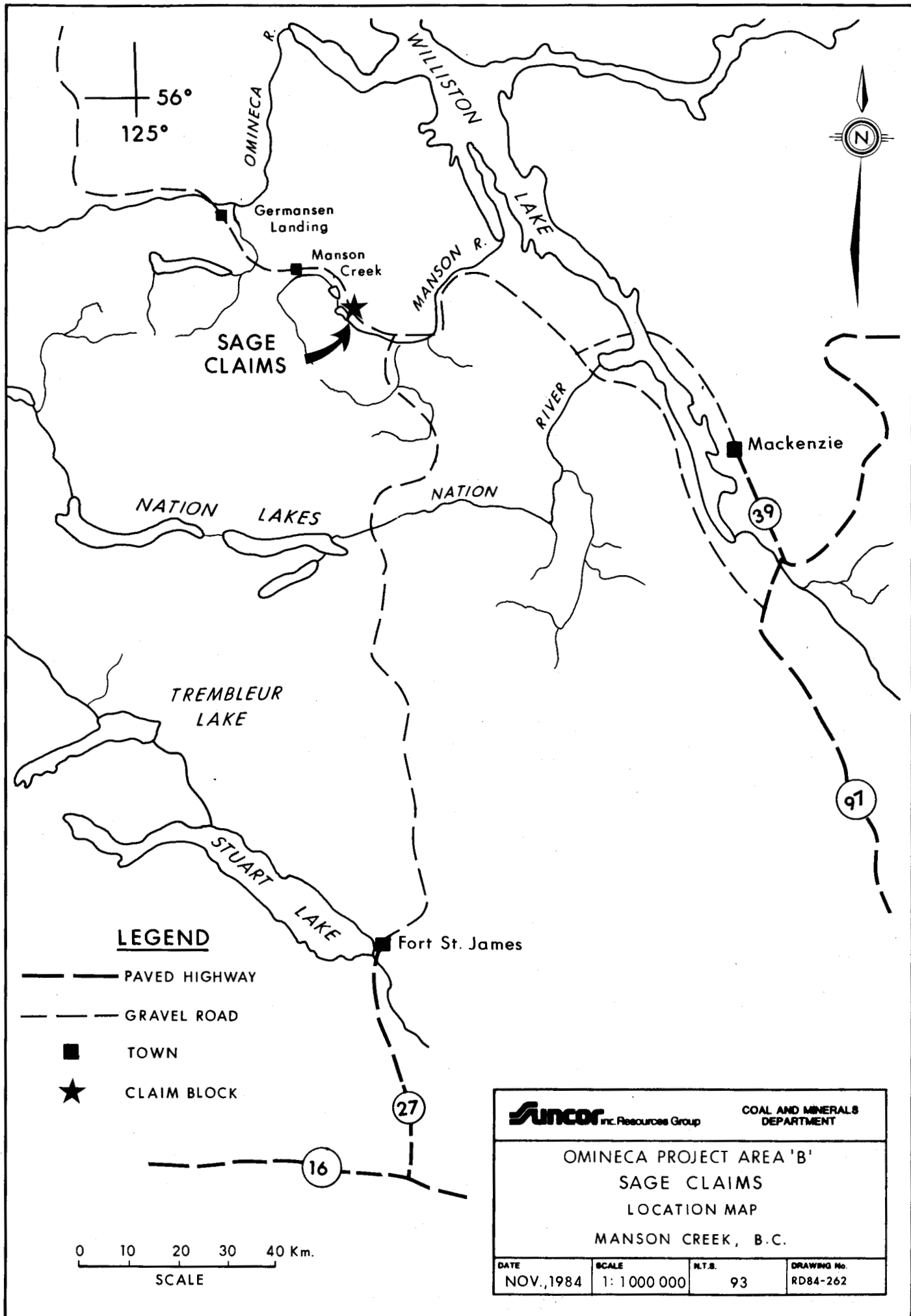
The Sage 1-4 claims are located 210 km northwest of Prince George, B.C. They are situated on the east shore of the southern of the Manson Lakes, 15 km by road south of the village of Manson Creek (Fig. RD84-262). Good gravel roads provide access from either Ft. St. James or MacKenzie, B.C. Immediate access to the property is provided by a logging trunk road which passes through the property (RD84-258). In addition, active logging is being carried out in this area and a branch-line has been constructed onto the middle of the property and it is expected that it will be logged within two years.

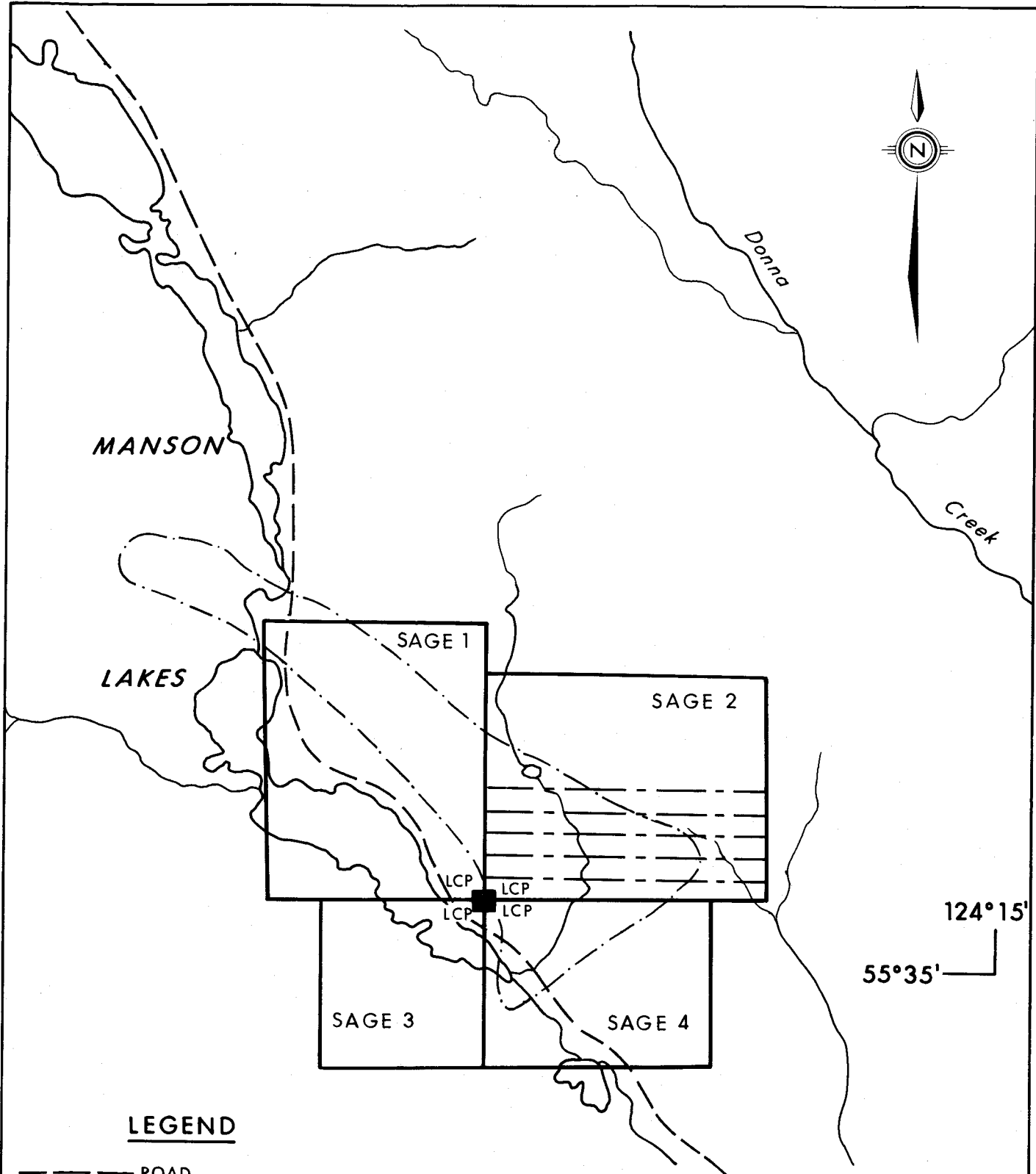
PHYSIOGRAPHY

The claims are located in an area of rolling, hilly country with gentle slopes. Elevations on the property vary from a minimum of 865m at Manson Lake to a maximum of 1400m at the north-east corner of the property. The entire property is heavily wooded by spruce and fir trees with stands of poplar and alder on south-west facing slopes. Less than 1% of the claims is outcrop, mainly along ridge-tops and roadcuts along logging roads.





PROPERTY DEFINITION

The Sage 1-4 claims are situated in the Omineca Mining Division and are wholly owned and operated by Suncor Inc., of Calgary. The claims were staked on July 16 and 17, 1984 and are defined as follows:





LEGEND

-  ROAD
-  MAGNETIC ANOMALY
-  SOIL GRID
-  CLAIM BOUNDARY, LCP LOCATION (HIPCHAIN & COMPASS)



Suncor inc. Resources Group		COAL AND MINERALS DEPARTMENT	
OMINECA PROJECT AREA 'B' SAGE CLAIMS			
CLAIM AND GRID LOCATION MAP			
MANSON CREEK, B.C.			
DATE OCT., 1984	SCALE 1:50 000	N.T.S. 93N9	DRAWING No. RD84-258

<u>CLAIM</u>	<u>NO. UNITS</u>	<u>RECORD NO.</u>	<u>RECORD DATE</u>
Sage 1	20	6566	Aug. 14/84
Sage 2	20	6563	Aug. 14/84
Sage 3	9	6564	Aug. 14/84
Sage 4	12	6565	Aug. 14/84

SUMMARY OF WORK IN 1984

These claims were staked in mid-July during a regional exploration program. Subsequent to staking, a crew of 3 men, based in Manson Creek, spent 8 man-days on the property, including travel to Manson Creek. The dates of this work were August 14 and 15 and September 1, 1984. Work was done by the following personnel:

T. Donnelly	Party Chief	August 14 & 15, Sept. 1
D. Safton	Geologist	August 14 & 15
R. Smith	Prospector	August 14 & 15, Sept. 1

A total of 133 soil samples on Sage 2 and 17 sediment samples on Sage 2 and 4 were taken.

REGIONAL GEOLOGY

The claims cover an area underlain by volcanic rocks of the Nina Creek Group of Pennsylvanian to Permian age which are believed to be, in part, roughly equivalent to rocks of the Cache Creek Group. To the east approximately 5 km, these rocks are in fault contact with schists and gneisses of the Wolverine Metamorphic Complex. Approximately 2 km west, these volcanics are in probable fault contact with the Germansen Batholith, but the nature of this contact is uncertain as it is drift-covered in this

area.

The Nina Creek volcanics are cut here by the Manson Fault Zone. Data from an airborne magnetic survey done by the GSC show the property to be underlain by a magnetic anomaly in a situation very similar to Au occurrences known as the Opec and QCM claims situated north of Manson Creek. There the mag. anomaly is believed to be caused by serpentized mafic and ultramafic intrusives which occur along the Manson Fault and contain appreciable magnetite. No geological mapping was undertaken on the Sage claims in 1984.

GEOCHEMISTRY

Soil Survey

A soil geochem survey was undertaken on the property in order to outline any zones of anomalous metal content. Due to other commitments the survey was not completed. A total of 133 soil samples were taken from the "B" horizon at an approximate depth of 20-30cm. These samples were taken on grid lines 200m apart with samples at 50m spacings. All of the soil samples were taken on the Sage 2 claims.

Stream Sediment Survey

Only one stream flows across the property. On September 1, 17 sediment samples were taken, 7 on Sage 2 and 10 on Sage 4.

These samples were shipped to Chemex Labs Ltd. of Calgary and were analysed by the methods described in Appendix 1. All samples were analysed for Au, Ag and Cu. Sample locations are shown on Fig. RD84-279B. Analytical results for Au and Ag are shown on

Fig. RD84-279C and for Cu on Fig. RD84-279D

Results and Conclusions

The soil survey did not cover the entire property, however, some conclusions can be drawn from the results. Isolated high values occur that appear to bear no geologic relation to each other. The overburden on the property consists of river gravels deposited in topographic areas now lying at higher elevations than the existing drainage system. Anomalous geochemistry associated with these gravels should closely reflect ancient drainage courses rather than gold content in bedrock.

Further overburden sampling on this property is not warranted. Exposed bedrock represents the only viable means of assessing this prospect.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "D.B. Cross", is written over a horizontal line.

D.B. Cross
Senior Geologist

SAGE CLAIMS

1984

Exploration Cost Summary

Salaries

T. Donnelly	3 days @ \$150/day	\$ 450.00
D. Safton	2 days @ \$110/day	\$ 220.00
R. Smith	3 days @ \$150/day	\$ 450.00

Technical Supervision

D. Cross	4 days @ \$200/day	\$ 800.00
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Room and Board

	8 man-days @ \$60/day	\$ 480.00
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Transportation

	4 days truck rental @ \$950/month	\$ 95.00
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Geochemistry

133 soil samples Cu, Au, Ag, per sample @ \$13.45		\$1,788.85
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17 stream sediment samples Cu, Au, Ag @ \$12.65 per sample		\$ 215.05
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Report and Map preparation

	11 days @ \$150/day	\$1,650.00
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TOTAL		\$6,148.90 =====
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QUALIFICATIONS

I, Donald B. Cross of the City of Calgary, Alberta, do hereby certify that;

1. I hold an Honours Bachelor of Science Degree.
2. I am a member of the Canadian Institute of Mining and Metallurgy.
3. I have practiced my profession for more than 11 years.
4. I personally supervised the field crew carrying out work detailed in the attached report.
5. I am employed by Suncor Inc. as an Exploration Geologist responsible for Technical Supervision of field projects.

Dated at Calgary, Alberta this 23rd Day of July, 1985.



Donald B. Cross

APEX ANALYTICAL LABORATORIES, CALGARY

SAMPLE PREPARATION

ROCKS AND DIAMOND DRILL CORE:

These samples are crushed by a primary jaw crusher then through a secondary cone crusher to a particle size of 1/4 inch. The sample is now riffled and a 200 gram portion is kept and pulverized in a terner mill to -200 mesh fraction. The remainder of the sample is kept as a reject. The pulverized sample is rolled to make sure it is well mixed and is then weighed and analyzed.

SOILS

Soil samples are dried and then screened through a 80 mesh stainless steel screen. The -80 mesh sample fraction is then weighed and analyzed. If a soil sample contains an excess of pebbles or is too small, then the entire sample must be pulverized to -200 mesh. This is the only way in which enough material may be found for analysis.

GEOCHEMICAL ANALYSIS - AQUA REGIA DIGESTION

- 1) Place 18 x 150 mm test tubes in aluminum digestion blocks.
- 2) Weigh 0.5 g of sample into test tubes.
- 3) Intersperse samples with blanks, checks and certified reference materials.
- 4) If samples are highly organic, dry ash in aluminum blocks on hot plates with hot plates set at 6-7 for 2-3 hours. Cool.
- 5) Add 2 ml conc. HNO_3 and heat 40-45 minutes with hot plates set a 5. Cool.
- 6) Transfer to wire racks but leave aluminum blocks on hot plates.
- 7) Add 3 ml conc. HCl . Let sit 15-25 minutes.
- 8) Add 2 ml H_2O to the blanks.
- 9) Place test tubes back in aluminum blocks, one row at a time watching for any samples that might have too violent a reaction.

If samples start to overflow, cool test tubes in a beaker of cold water and then place back in aluminum blocks.

- 10) Digest samples for 2 hours.
- 11) Add 1.0 ml of ammonium acetate solution to each tube and leave on a hot plate a further 15 minutes.
- 12) Remove samples from aluminum blocks, transfer to wire racks and let cool.
- 13) Dilute to 10 ml with 1 N HNO_3 : vortex and allow to stand for 3 hours.
- 14) Read on A.A. against similarly prepared standards.

NOTE: Arsenic analysis by semi quantitative method, is run from the above solutions using a varian AA-5 spec. and recorder (if necessary to graph results).

FIRE ASSAYING

The following is a brief outline of the mechanics of fire assaying for gold and silver.

The ore is mixed with litharge (PbO) and various fluxed and a reducing agent or oxidizing agent is added, (flour or niter) to form a lead button which weighs between 25 and 35 grams. The whole mix is melted in a fire clay crucible at around 1000°C for 30-40 minutes. The lead collects all the gold, silver and precious metals. The molten assay is taken from the furnace and poured into cone shaped iron molds and due to the differences in the specific gravity of the lead and the slag, the lead collects in the bottom of the mold. When cooled the lead button is separated from the slag and hammered into a cube for ease of handling. The button is then placed in a pre-heated cupel in a furnace with the temperature set at around 900°C. A current of air passes over the top of the cupel containing the lead. The lead is converted back to litharge and is absorbed by the cupel.

Gold and silver are not affected and so remain in the cupel as a small bead. After cupellation is complete (about 60 minutes), the cupel is removed from the furnace. The small bead is then cleaned, flattened with a hammer and transferred to a parting cup. This flattened bead consists of a mixture of gold and silver.

The bead is weighed on a gold balance or micro balance. The bead is parted by placing it in hot, dilute nitric acid which dissolves all the silver but leaves the gold intact. The gold is washed free of silver nitrate by decantations with water and dilute ammonium hydroxide and then annealed at red heat and weighed as pure gold. The difference between the two weighings is the weight of silver.

The bead is weighed in milligrams and the results expressed in ounces per ton in the original sample.

METHOD FOR THE DETERMINATION OF GOLD BY FIRE ASSAY

PRECONCENTRATION AND ATOMIC ABSORPTION ANALYSES

1. A 1 assay ton (29.166g) sample is weighed into a 30 g crucible, 1 mg of Ag is added as a collected agent.
2. Enough flux reducing or oxidizing reagent is added to produce a lead button.
3. The sample is transferred into an assay furnace and heated to 2000°F for 40-45 minutes.
4. The fusion is poured into a iron mould.
5. The slag is separated from the lead button in which Au and Ag has been alloyed.
6. The lead button is again transferred to a cupel in the assay furnace.
7. By heating slightly below melting point of Ag, Lead is eliminated either by vaporizing or absorbing into the cupel in about 40 minutes.
8. A bead which contains all the Au in the 1 assay ton sample is recovered on the cupel.
9. The bead is transferred to a 16 x 150 mm test tube, 1 ml of concentrated HNO₃, and 4 ml of 1:1 HCl are added to the tube.
10. The tube is heated on the hot plate for approximately 1 hour, or until all the residue is dissolved in the tubes.
11. The volume is adjusted to 10 ml with 1:1 HCl and the samples are mixed.
12. Samples are read on a Varian AA5 Atomic absorption spectrophotometer.

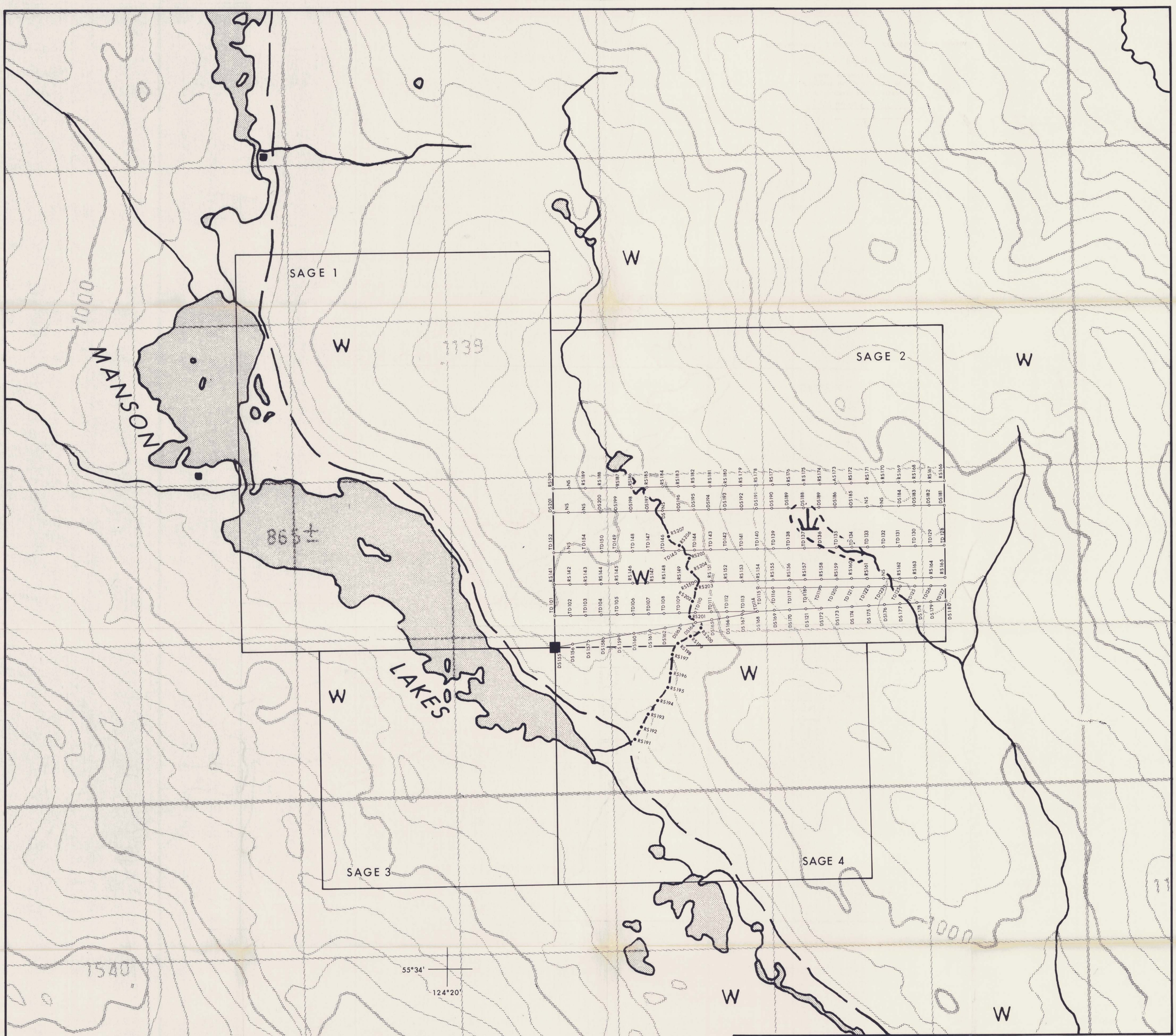
RDB4-279-B

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



IRON MAIDEN® SYSTEMS CALGARY, ALBERTA, CANADA

IM 42



MANSON

LAKES

- LEGEND**
- ROAD, GRAVEL
 - STREAM
 - LAKE
 - CLAIM BOUNDARY
 - LEGAL CORNER POST
 - TD 101 SOIL SAMPLE LOCATION
 - RS 101 SEDIMENT SAMPLE LOCATION



GEOLOGICAL BRANCH ASSESSMENT REPORT

13,966

Suncor Inc. Resources Group COAL & MINERALS DEPARTMENT

OMINECA PROJECT AREA 'A'
SAGE CLAIMS
SAMPLE LOCATION MAP
MANSON CREEK, B.C.

DATE	SCALE	N.T.S.	FIGURE
OCT., 1984	1:10000	93N10	RDB4-279-B

R.D84-179-C



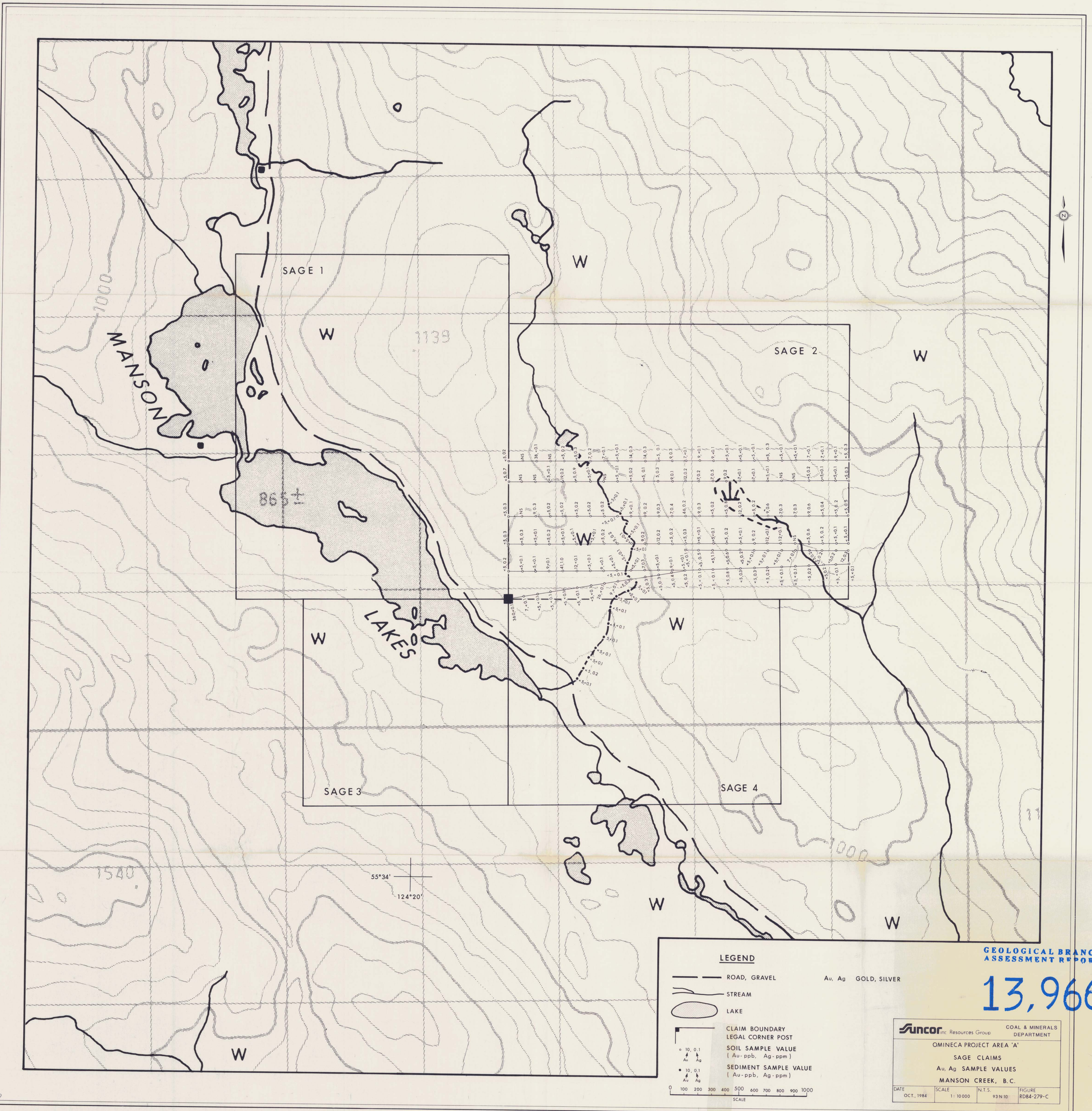
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IRON MAIDEN SYSTEMS CALGARY ALBERTA CANADA



IM 42



LEGEND

- ROAD, GRAVEL
 - STREAM
 - LAKE
 - CLAIM BOUNDARY
 - LEGAL CORNER POST
 - SOIL SAMPLE VALUE
(Au - ppb, Ag - ppm)
 - SEDIMENT SAMPLE VALUE
(Au - ppb, Ag - ppm)
- Au, Ag GOLD, SILVER

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,966

Suncor Resources Group COAL & MINERALS DEPARTMENT

OMINECA PROJECT AREA 'A'

SAGE CLAIMS

Au, Ag SAMPLE VALUES

MANSON CREEK, B.C.

DATE: OCT. 1988 SCALE: 1:10,000 INT.S.: 93N30 FIGURE: RD84-279-C

IRON MAIDEN®
 U. S. A. DESIGN PATENT 4139248 1979
 CANADIAN IND. DESIGN REG. NO. 42524
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IRON MAIDEN® SYSTEMS CALGARY ALBERTA CANADA

