1984 EXPLORATION ACTIVITIES
CARIBOO GOLD PROJECT

YANKS PEAK AREA
August-September 1982

The following report pertains to the Mineral Claims held by Suncor Inc. in the Yanks Peak Area.

Little Snowshoe Group:

282	Old Timer	568	Bertha	656	Old Faithful
283	Jane	602	Betty	1612	Cone
510	Junior	602	Betty Fraction	1611	Rose
511	Little Robert	603	Janes Extension #1	2003	Astride
512	Indian Broom	654	Janes Extension #2		
513	Bella Coola	655	Junior Fraction		
513	Frill Fraction				
513	Tri Fraction				
513	Junior Extension				

Grouped April 15, 1982

N.T.S. Sheet 93A/14

Centered on 52°51'30"N 121°25;30"W

in the Cariboo Mining Division

David L. Safton B.Sc.
Calgary, Alberta
December 1984

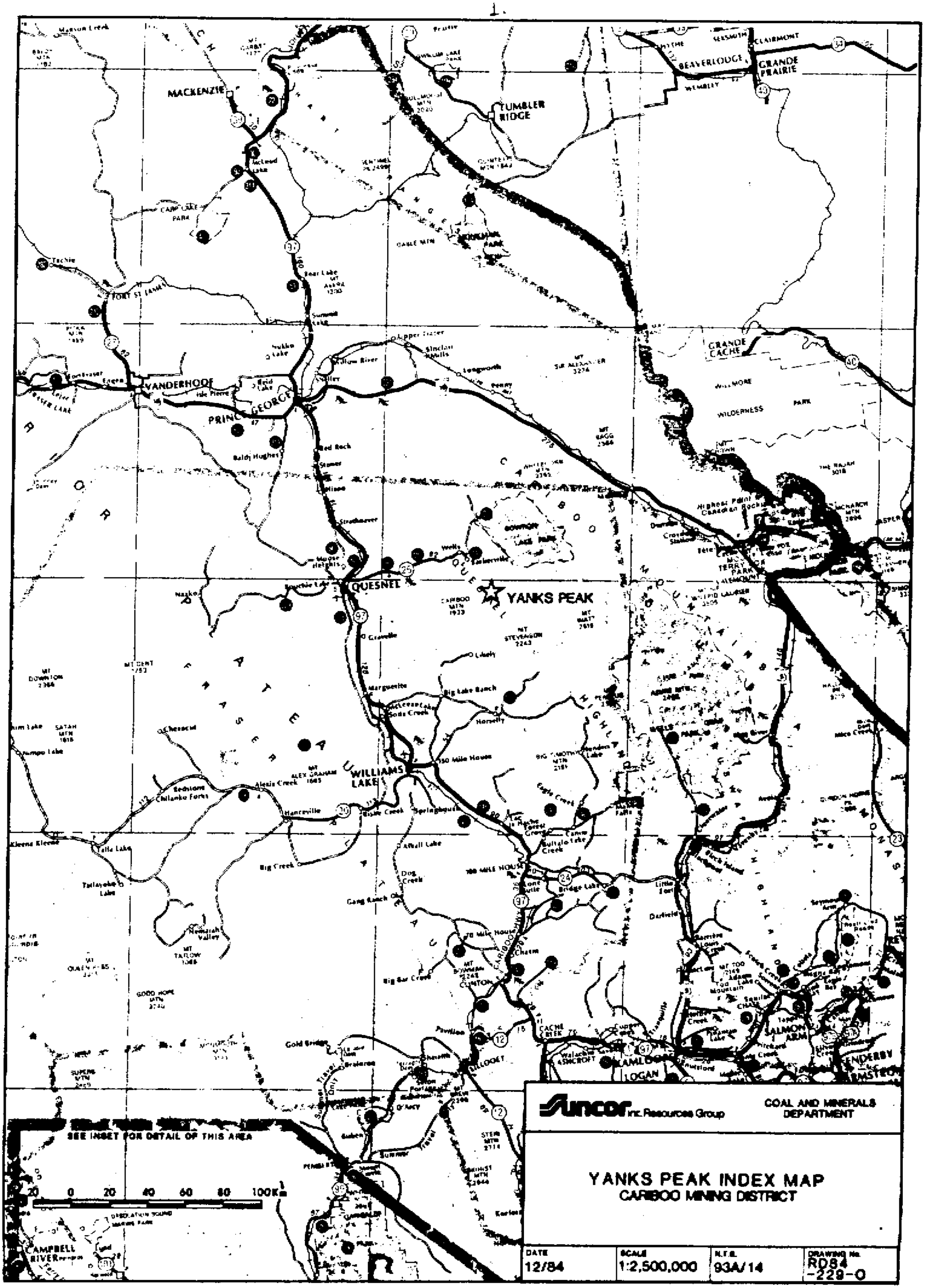
TABLE OF CONTENTS

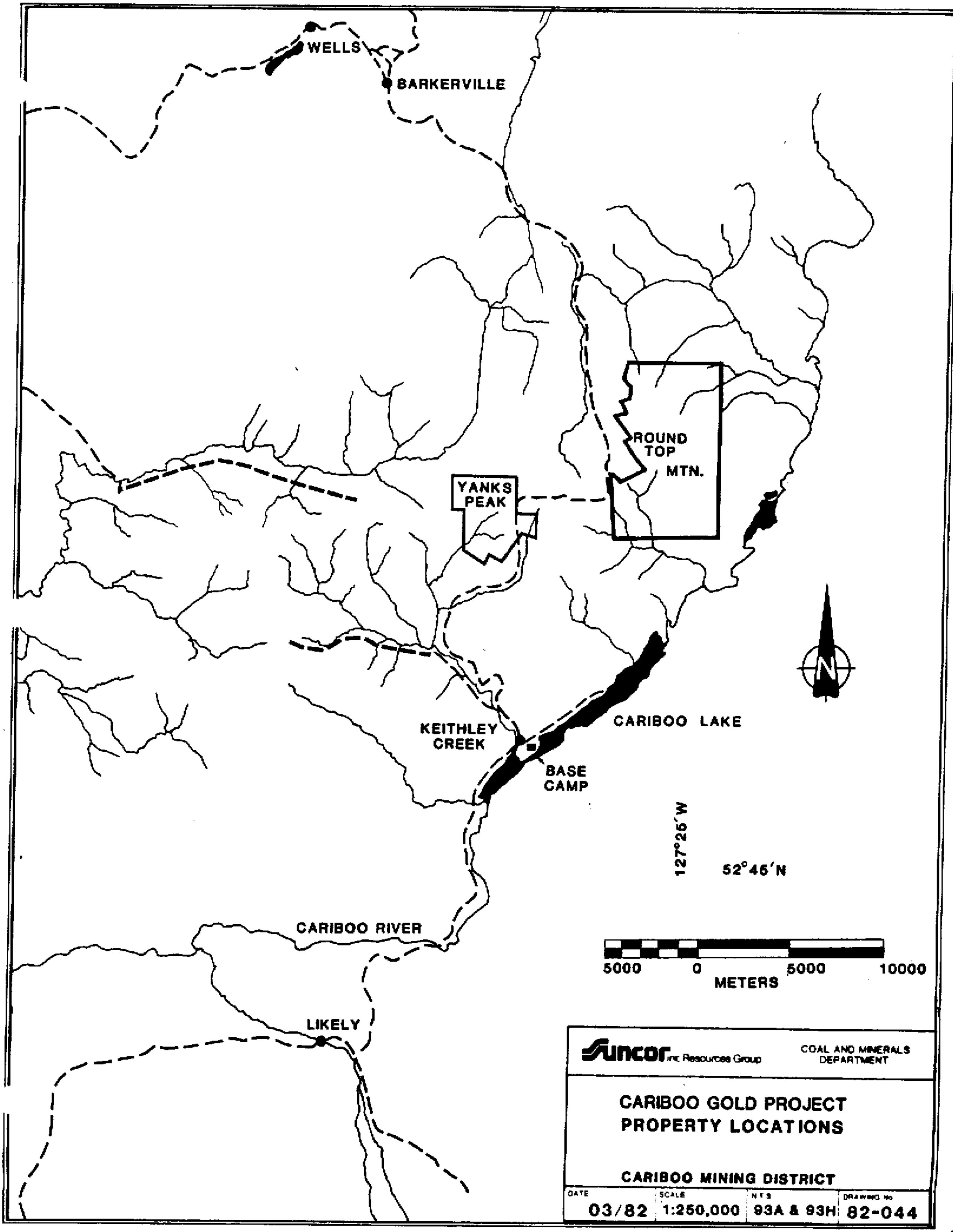
LIST OF MAPS

MAP TITLE	MAP NUMBER	
Index Map Yanks Peak	230-0	1
Cariboo Project Property Map	82-044	2
Roundtop Mountain Claim Map	230-N	3
~~Soil Sample Locations~~	~~230-D~~	
Gold in Soil	230-F	✓
Silver in Soil	230-E	✓
Zinc in Soil	230-G	✓
Lead in Soil	230-H	✓
Past Workings	230-C	✓
Geology	230-I	✓
Magnetometer Survey Contoured by Virtual Computing Services, Calgary	230-J	✓
VLF Survey - Cutler Station	230-K-1	✓
VLF Survey - Cutler Station, 3 Point Moving Average	230-K-2	✓
VLF Survey - Cutler Station - Fraser Filter Contoured by Virtual Computing Services, Calgary	230-K-3	✓
VLF Survey - Seattle Station	230-L-1	✓
VLF Survey - Seattle Station, 3 Point Moving Average	230-L-2	
VLF Survey - Seattle Station - Fraser Filter Contoured by Virtual Computing Services, Calgary	230-L-3	✓

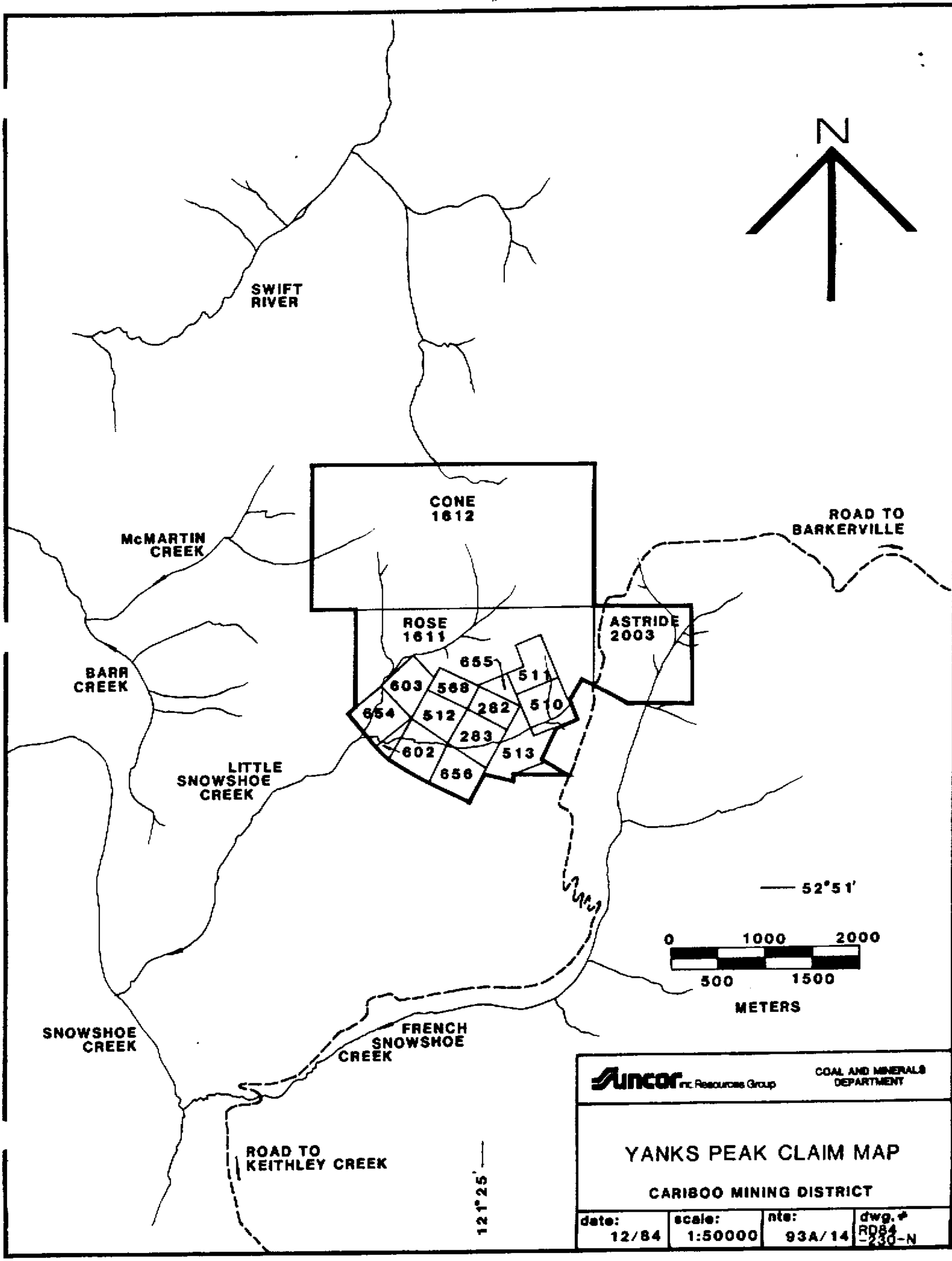
LIST OF TABLES

LIST OF FIGURES


MACKENZIE
TUMBLER RIDGE
BEAVERLODGE
GRANDE PRAIRIE
CLAIRMONT
WEMBLEY
FORT ST. JAMES
VANDERHOOF
PRINCE GEORGE
GRANDE CACHE
WILLMORE
WILDERNESS
PARK
QUESNEL
YANKS PEAK
WILLIAMS LAKE
100 MILE HOUSE
CLINTON
CACHE CREEK
KAMLOOPS
SALMON ARM
ENDERBY
LILLOOET
CAMPBELL RIVER
SEE INSET FOR DETAIL OF THIS AREA
20 0 20 40 60 80 100Km
Suncor inc. Resources Group
COAL AND MINERALS DEPARTMENT
YANKS PEAK INDEX MAP
CARIBOO MINING DISTRICT
DATE
12/84
SCALE
1:2,500,000
N.T.S.
93A/14
DRAWING No.
RD84 -229-0


WELLS
BARKERVILLE
ROUND TOP MTN.
YANKS PEAK
KEITHLEY CREEK
BASE CAMP
CARIBOO LAKE
127°25'W
52°46'N
5000 0 5000 10000
METERS
CARIBOO RIVER
LIKELY
Suncor inc Resources Group
COAL AND MINERALS DEPARTMENT
CARIBOO GOLD PROJECT
PROPERTY LOCATIONS
CARIBOO MINING DISTRICT
DATE 03/82
SCALE 1:250,000
N.T.S. 93A & 93H
DRAWING No 82-044

3.



N
SWIFT RIVER
CONE 1612
McMARTIN CREEK
ROAD TO BARKERVILLE
ROSE 1611
ASTRIDE 2003
655
511
603
568
282
510
654
512
283
602
513
656
BARR CREEK
LITTLE SNOWSHOE CREEK
52°51'
0
1000
2000
500
1500
METERS
SNOWSHOE CREEK
FRENCH SNOWSHOE CREEK
ROAD TO KEITHLEY CREEK
121°25'
Suncor inc Resources Group
COAL AND MINERALS DEPARTMENT
YANKS PEAK CLAIM MAP
CARIBOO MINING DISTRICT
date: 12/84
scale: 1:50000
nts: 93A/14
dwg.# RD84-230-N

INTRODUCTION

The Little Snowshoe Group of claims is located in south central B.C. approximately 85 km east of Quesnel and 30 km south of Wells. Claim group center is about 3 km directly north of Yanks Peak. The Yanks Peak and Roundtop Mountain Property to the north comprise Suncor's Cariboo Gold Project. The property locations are displayed on map 82-044.

The Quesnel Highlands, in which the two properties are located, marks a transition from the very rugged Cariboo Mountains to the east and the Interior or Fraser Plateau to the west. In general, topography is moderate to rugged with few bare cliffs but numerous steep wooded slopes. Plate 1, Yanks Peak viewed from the north, was taken from the west side of grid on line 19N. Much of the grid lies over gently rolling highland meadows as seen in the foreground of Plate 1. Heavy coniferous forest and dense undergrowth found in the meadows are supported by the annual 75-150 centimeters of precipitation. Temporary snowfall may occur as early as late August or early September with actual accumulation starting near the end of September or early October. Most snow leaves the area by early July.

For the 1984 field season the Yanks Peak area was accessed from Wells via east-heading logging roads for 24 km and then an additional 25 km south on the historic Cunningham Pass Trail. The trail which originally joined Barkerville with Keithley Creek and Roundtop and Yanks Peak is in poor condition and is best travelled by four wheel drive vehicles. With numerous highland meadows and the 4 X 4 trail adequate landing sites are available for helicopter access to the property.

PROPERTY HISTORY

In 1981 Suncor Inc. optioned the Yanks Peak property from Zelon Enterprises Ltd. Two lots of claims were grouped on April 15, 1982 to form the French Snowshoe and Little Snowshoe Claim Groups. Exploration programs were conducted on the property in the summers of 1981 and 82. Subsequently the French Snowshoe Claim Group has been dropped. The Little Snowshoe Group, still under option, consists of 1039.95 hectares of reverted crown grants and modified grid claims.

The Cariboo District in general has attracted precious metal, and to a lesser extent base metal exploration since the late 1860's. District placer gold production up to 1950 amounted to 69,237 oz. (Holland, 1954). Of this, Little Snowshoe Creek, which drains the western portion of the property, has produced in excess of 6,000 oz. while French Snowshoe Creek which drains the eastern portion of the property has produced about 500 oz. In contrast to placer, lode gold production has amounted to only 5,204 oz. (Holland, 1954). Most of this is attributed to the Cariboo Hudson Mine which is located near Suncor's Roundtop Mountain property.

Numerous pits and drifts attest to the high level of exploration activity to which the area has been subjected. The majority of these old workings have been documented in Holland (1954).

Suncor Inc. has now completed exploration programs in 1981, 82 and 84.

1984 WORK SUMMARY

The 1984 Yanks Peak exploration program included grid establishment, geophysical and geochemical surveys, and geological mapping. Both the gridding and the geophysical surveys were performed by Highrock Contracting of LaRonge, Saskatchewan. The geochemical survey and geological mapping were conducted by Suncor personnel.

A 49.0 line kilometer grid was established over the property by the Highrock Contracting crew between August 1 and August 10, 1984 forty eight line kilometers of magnetometer and 46 line kilometers of VLF geophysical surveys were conducted over the grid. The geochemical survey consisted of 1004 soil samples on the grid (Map 230-D) and 7 rock samples from various locations within and bordering the property. A list of all samples and results is supplied in the Appendix. Geological mapping was conducted at a scale of 1:5000 over approximately on half of the grid. All work was performed between August 30 and September 28, 1984.

GENERAL GEOLOGY

The region has been mapped and remapped since the late 1800's. As a result, new lithological and structural aspects have been continually brought to light. Consequently, the regional geological interpretation has been continually changing. Most recently Struik (1982) has shown that the lithologies on the west side of the Pleasant Valley Fault show little or no correlation with the lithologies on the east side. Previously units on both sides of the fault were considered members of the Cariboo Group. Struik has now defined an East and West Cariboo Group (Figure 1).

Lithologically, the Western Cariboo Group consists of a belt of NW-SE trending metasedimentary sequences which include Permian, Carboniferous, Devonian, and Hadrynian quartzites, micaceous quartzites, conglomerates, breccias, limestone, calcareous phyllites and phyllites. Lesser amounts of volcanic metatuffs along with mafic and ultramafic intrusives do occur. In the Yanks Peak Area Holland (1954) divided these into the Yankee Belle, Yanks Peak, Midas and Snowshoe Formations. On the east side of the thrust Struik (1980) defined the Isaac, Cuningham, Yanks Peak, Midas, Mural and Dome Creek formations. These consist of Cambrian and Hadrynian quartzites, phyllites limestones and dolostones. Stratigraphically above these are the Black Stuart, Guyet and Antler formations. The Black Stuart and Guyet consist of slate, conglomerate, quartzite greywacke limestone and some basic volcanics. The Antler Formation is made up of pillowed basalts, breccia chert, greywacke and gabbro sills.

Struik (1982) was able to find little or no correlation between the Yankee Belle, Yanks Peak and Midas Formations as defined by Holland (1954) on the west side of the fault and the same named units on the east side of the fault. This is the basis for the division of the Cariboo Group into east and west segments. The Tables of Formations for the east and west sides of the fault have been modified after Struik (1982) Campbell et al, (1973) and Brown (1963).

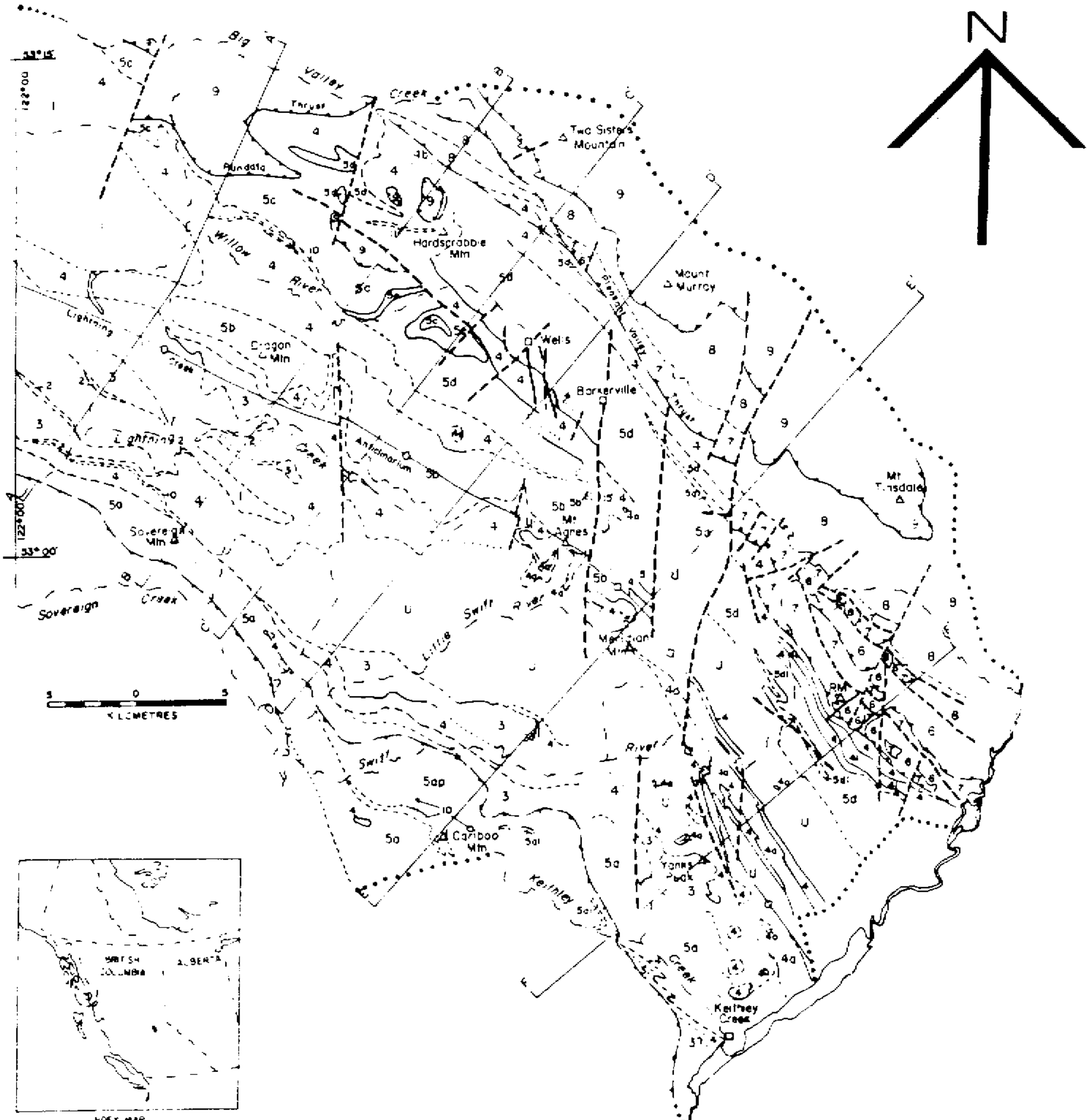


FIGURE 1: REGIONAL GEOLOGY
(FROM STRUIK 1982 GSC PAPER 82-1B, PAGE 118)

ROUNDTOP MOUNTAIN
RD84-229-N

REGIONAL STRUCTURE

Structure in the area is dominated by three features. First, as mentioned, the east dipping Pleasant Valley Thrust Fault separates the East and West Cariboo Groups (Figure 1). The thrust trends NW-SE and is extended to the west at its north end by the Pundata Thrust. The second feature is the Lighting Creek Anticlinorium which lies to the south west of and essentially parallel to the thrust. In the project area the axis of the anticlinorium passes about 2 kilometers northeast of Yanks Peak. The third and economically most important structural feature is the N-S trending faults that displace both the anticlinorium axis and the Pleasant Valley Thrust Fault. The faults have influenced mineralization in the Wells - Barkerville area at Island Mountain, Cariboo Gold Quartz, and Mosquito Creek. It is a northerly striking shear which hosts the mineralization at the Cariboo Hudson Mine at Roundtop Mountain.

TABLE OF FORMATIONS
CARIBOO LAKE AREA
WEST SIDE OF PLEASANT VALLEY THRUST

PERIOD	GROUP	FORMATION	LITHOLOGY	THICKNESS
Permian?	WESTERN		Unit(5) micaceous quartzite, phyllite, limestone, slate calcareous sandstones metavolcanics, amphibolite	?
		Snowshoe Fm		
Devonian?	CARIBOO	(Midas Fm)*	Unit(4) black siltite, phyllite, micaceous quartzite limestone, conglomerate breccia.	?
Hadrynian?	GROUP	(Yanks Peak Fm) (Yankee Belle Fm)	Unit(3) siltite, quartzite phyllite, micaceous quartzite. Unit(2) marble, calcareous sandstone, quartzite calcareous phyllite, phyllite. Unit(1) micaceous quartzite phyllite, schist.	?

*Formations in brackets are old terms, new terms have not been established.

TABLE OF FORMATIONS
CARIBOO LAKE AREA
EAST SIDE OF PLEASANT VALLEY THRUST

PERIOD	GROUP	FORMATION	LITHOLOGY	THICKNESS
Pennslvanian and Permian	SLIDE	Antler Fm.	Diorite, pillowed basalt chert, argillite, greywacke.	1100+ m
Ordovician	MOUNTAIN GROUP	Black Stuart and Guyet Fm	Slate, conglomerate quartzite, greywacke, limestone, dolostone, basalt, metatuff.	350-450m
Cambrian and Hadrynian	EASTERN CARIBOO GROUP	Mural Fm	Limestone, dolomite.	300+m
		Midas Fm	Grey to black fine grained quartzite, limestone argillaceous schist, phyllite conglomerate.	300+m
		Yanks Peak Fm	Grey white silicified quartzite, conglomerate, rare limestone.	0-370m
		Yankee Belle Fm	Light grey brown phyllite quartz-chlorite schist, metasiltstone.	300-750m
		Cunningham Fm	Fine grained grey to black limestone.	450-900m
		Issac Fm	Grey calcareous phyllite, limestone.	300-600m

LEGEND

LOWER PERMIAN

11 bioclastic limestone

PERMIAN

10 diorite, amphibolite, may include parts of 5e

PENNSLVANIAN AND PERMIAN

9 Antler Formation; diorite, basalt, chert greyewack, serpentinite, gabbro

CARBONIFEROUS? AND PERMIAN?

5 a, Ramos Creek Succession; micaceous quartzite, pelite, limestone, metatuff? al, limestone, calcareous sandstone ap, phylite, quartzite, amphibolite b, Dragon Mountain Succession; micaceous quartzite, phylite c, Tom Creek Succession; micaceous quartzite, phylite d, Downey Creek Succession; micaceous quartzite, slate, limestone, metatuff? dl, marble, limestone, diorite, metavolcanic e; amphibolite

DEVONIAN? AND MISSISSIPPIAN?

4 black siltite, phyllite, micaceous quartzite, limestone a; conglomerate, quartzite b; breccia, muddy conglomerate 1; limestone, may be equivalent to 5dl

HADRYNIAN?

3 siltite, quartzite, phyllite a; quartzite

2 marble, calcareous sandstone, quartzite, calcareous phylite, phyllite

1 micaceous quartzite, phyllite, schist

U undifferentiated 1-5, mainly 48.5

ORDOVICIAN TO PERMIAN

8 Black Stuart and Guyet Formations; quartzite, phyllite, limestone

HADRYNIAN AND CAMBRIAN

Eastern Cariboo Group

Hadrynian and Cambrian

7 Yanks Peak, Midas and Mural Formations; quartzite, phyllite, limestone

Hadrynian

6 Isaac, Cunningham and Yankee Belle Formations; phyllite, limestone, dolostone, quartzite

Geological contact (defined, approx., assumed)
Fault (defined, approx. and assumed)
Thrust (defined, approx. and assumed)
RM

Figure 2: Legend to accompany Regional Geology (From Struik 1982, GSC Paper 82-18 Page 119)

PROPERTY GEOLOGY

Two and one half days were spent mapping on the eastern portion of the grid. The objective of the geological mapping was to delineate lithological units and structural features which would affect the geochemical and geophysical surveys. All mapping was at a scale of 1:5000.

Three distinct lithologies were established in the area mapped. These lithologies, especially the black quartzite, micaceous quartzite and silicified quartzite may be broken into finer smaller units.

The black graphitic phyllite mapped as unit 1 tends to show good correlation with the VLF Conductors.

GEOCHEMISTRY

A total of 1004 soil samples was taken on the Yanks Peak property. The sample locations and numbers are displayed on Map 230-D. All soil samples were analysed for gold, silver, zinc and lead. Seven rock samples were taken from within the grid. These location numbers and results are on Map 230-C. All rock samples were assayed for gold, silver, lead, and zinc. A list of all samples and results is included in the Appendix.

Soil samples were collected every 25 meters on grid lines and where possible the B horizon sample was taken at a depth of 4-10 cm. Samples were collected in Kraft 4" X 10" semi water proof paper sample bags and partially air dried prior to shipment. Samples were sent to Chemex Labs at 100, 2021 - 41st Avenue N.E. in Calgary. The analytical methods used on both the soil and rock samples are supplied in the Appendix. The analyses were performed or supervised by Mr. Ron Pang of Chemex Labs, Calgary.

CONCLUSIONS AND RECOMMENDATIONS

The 1984 program has revealed one area which requires further exploration. Strong gold and flanking silver geochemical anomalies occur on line 2N on the east side. This trend continues northwest to line 19N. The geochemical anomaly is strongest on lines 7, 8 and 9. These lines should be covered with 1 P. and Max Min Surveys. If results prove positive in this area then the surveys should be conducted over the anomalous portions of the lines further to the north.

Lines 8, 9, 11, should be extended to the east by at least 300 meters. Lines 13,1 5, 17, 19 may also be extended eastwards by at least 500 meters.

In order to facilitate an accurate evaluation of the western half of the grid soil, samples should be taken on lines 9, 13, 17, 20 and 22. A fault has been mapped through the west side of the grid, Snowshoe Gold Mines is coincident with this fault.

REFERENCES

Campbell, R. B., Mountjoy, E. W., Young, F. G. 1973

Geology of the MacBride Area
British Columbia
GSC Paper 72-35

Hawkins, P. A., 1982

1982 Exploration Activities of Yanks Peak
Cariboo Lake Area, B.C.
Suncor Report #9172

Hawkins, P. A., Armstrong, D. K., Lawrence C., 1982

1982 Exploration Activities on the Astride Mineral Claim
Cariboo Lake Area, B.C.
Suncor Report #9154

Hawkins, P. A., 1981

A Geological and Geochemical Report on Yanks Peak
Property - Cariboo Lake Area, B.C.
June - August 1981
Suncor Report #9051

Holland, S. S., 1954

Geology of the Yanks Peak-Roundop Mountain Area, Cariboo
District, B.C.
B.C. Department of Mines, Bulletin No. 34

Struik, L. C., 1982

Snowshoe Formation (1982), Central British Columbia
in Current Research Part B
Geological Survey of Canada Paper 82-1B

REFERENCES

Struik, L. C., 1981

Snowshoe Formation Central British Columbia
in Current Research Part A
Geological Survey of Canada Paper 81-1A

APPENDIX

1. Claim Listing
2. Author's Qualifications
3. Field Staff List and Contractor
4. Daily Wage Calculation and Time Imput
5. Geochemistry Analysis Costs
6. Total Property Expenditure
7. Sample Analysis Methods
8. Rock Assay Results
9. Soil Geochemistry Results
10. Report Maps

YANKS PEAK PROJECT

CLAIM LISTING

CARIBOO LAKE AREA

Cariboo Mining Division

RECORD #	CLAIM NAME	LOT #	UNITS	ANNIVERSARY DATE	IN GOOD STANDING UNTIL	HECTARES	/ ACRES
282	Old Timer	11337	1	Nov. 17/76	1984 (1986)	12.76	31.52
283	Jane	11338	1	Nov. 17/76	1984 (1989)	19.45	48.07
510	Junior	11341	1	Oct. 19/77	1984	20.83	51.47
511	Little Robert	11340	1	Oct. 19/77	1984 (1990)	16.69	41.23
512	Indian Broom	11333	1	Oct. 19/77	1984	18.07	44.66
512	Bella Coola	11342	1	Oct. 19/77	1984 (1990)	13.16	32.51
513	Frill Fraction	4676	—	—	—	—	—
513	Tri Fraction	11346	—	—	—	—	—
513	Junior Extension	11343	—	—	—	—	—
568	Bertha	11332				11.38	28.12
602	Betty	11335				23.63	58.40
602	Betty Fraction	11334	—	—	—	—	—
603	Janes Extension No. 1	11331	1	Feb. 20/78	1985	17.86	44.12
654	Janes Extension No. 2	11345	1	April 12/78	1985	20.90	51.65
655	Junior Fraction	11336	1	April 12/78	1984 (1988)	4.69	11.58
656	Old Faithful	11339	1	April 12/78	1984 (1985)	18.73	46.27
1611	Rose	--	10	April 30/80	1983 (1985)	250.00	617.80
1611	Cone		18	April 30/80	1983 (1985)	450.00	1 112.04
2003	Astride Peak		4	Sept. 22/80	1983	100.00	247.12
4049	Placer Lease		2	Dec. 9/80	1982	41.80	103.30
					TOTAL	1,039.95	1,458.82

AUTHOR'S QUALIFICATIONS

David L. Safton, B.Sc. (Geol.)
204 - 39th Avenue S.W.
Calgary, Alberta
T2S 0W5

B.Sc. (Geol.) University of Saskatchewan 1984

Work History

May 1984 - December 1984 Suncor Inc., Geologist
May 1983 - September 1983 Selco Inc., Assistant Geologist
May 1982 - September 1982 Suncor Inc., Assistant Geologist
April 1981 - September 1981 Suncor Inc., Field Assistant

David Safton

PROJECT STAFF LIST

Don Cross (B.Sc.)	Project Geologist	Calgary, Alberta
David Safton (B.Sc.)	Geologist	Calgary, Alberta
Tim Donnelly (B.Sc.)	Geologist	Edmonton, Alberta
Ron Smith	Prospector	LaRonge, Saskatchewan

CONTRACTOR

Highrock Contracting Ltd.
P.O. Box 450
LaRonge, Saskatchewan

President: R. H. Spooner

DAILY WAGE CALCULATION

	Salary/28 Days	Benefits as % Salary	Daily Wage Including Benefits
David Safton	2290.00	38%	113.00
Tim Donnelly	3300.00	38%	162.00
Ron Smith	3000.00	38%	148.00
Don Cross	4760.00	38%	235.00

Work Input

Activity	Crew			
	David Safton	Ron Smith	Tim Donnelly	Don Cross
Mobilization and demobii-zation	1			
Field work	11	4	1	
Field office and support work	2			
Report pre-paration	20			
Supervision				1
Total	34	4	1	1

GEOCHEMISTRY ANALYSIS COSTS

Rock Samples

Sample bag 8" X 13" plastic	0.20
Rock preparation	3.75
Au, Ag, Pb, Zn assay	16.30
Total cost per sample	20.25

Soil Samples

Kraft 4" X 6: hi-wet strength soil bags	0.08
Soil sample preparation	.80
Geochem Analysis Au, Ag, Pb, Zn	5.20
Total cost per sample	6.08

TOTAL PROPERTY EXPENDITURES

Salaries	34 days @ 113.00/day	3842.00
	4 days @ 148.00/day	592.00
	1 day @ 162.00/day	162.00
	1 day @ 235.00/day	235.00
Linecutting	49.0 km @ 325.00/km	15,925.00
Magnetic Survey	47.75 km @ 95.00/km	4,536.25
VLF Survey	46.0 km @ 110.00/km	5,060.00
Mobilization-Demobilization	(5000.00 ÷ 2)*	2,500.00
Truck Rental	20 days @ 30.00/day	600.00
Fuel	783.00 ÷ 2)*	391.50
Accommodation	(890.00 ÷ 2)*	445.00
Food		300.00
Office supplies plus freight	(223.81 ÷ 2)*	111.91
Typing		
Drafting and Reproduction		
Geochemistry and Assay Analysis	Soils 1004 X 6.08	6104.32
	Rock 7 X 20.75	141.75
	TOTAL PROJECT EXPENSES	40,946.48

*Item expenditure divided between Yanks Peak and Roundtop properties.

GEOCHEM BASE METALS

Procedure:

Sample wt. .5 gms into 18 X 150 mm test tube. Test tubes are placed into Aluminum Blocks 3 mls HCL plus 2 mls HNO_3 are now added. Blocks are placed on hot-plate at low heat for 1 hour, then medium heat for 1 hour more. Blocks are cooled and 1 ml of 20% Ammonium Acetate solution is added. Volume is now brought up to 10 mls with distilled water. Samples are then vortexed and allowed to settle for two hours. Base metals are run on Varian 475 Atomic Absorption Spectrometer.

Silver must be run two hours after settling.

METHOD FOR THE DETERMINATION OF GOLD BY FIRE ASSAY

PRECONCENTRATION AND ATOMIC ABSORPTION ANALYSES

1. A 1 assay ton (29.166g) sample is weighted 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 an 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 HNO_3, 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.

Sample Preparation

<u>Rocks</u> - crushed in jaw crusher, then through cone crusher, reducing size to 1/4 inch, mechanically split. Minimum 200 grams taken and pulverized to -200 mesh.

<u>Soils</u> - screened to -80 mesh, if insufficient material then entire sample must be pulverized to -200 mesh.

ROCK ASSAY RESULTS

Sample	Results							
	Au		Ag		Pb		Zn	
	PPB	Oz/Ton	PPM	Oz/Ton	PPM	%	PPM	%
DS 326	11,486	0.342	1.3		61		26	
DS 327	7,714	0.222	57.2	1.47		1.24	12	
DS 334		0.045		6.73		10.3		26.8
DS 335		0.003		1.21		6.35		0.02
DS 336		0.004		0.40		2.86		0.06
DS 337		0.006		17.57		19.6		0.07
DS 338		<0.003		0.67		3.74		<0.01

REPORT ON

GEOPHYSICAL SURVEYS

ROUND TOP MOUNTAIN AND YANKS PEAK AREAS

CARIBOO MINING DISTRICT, BRITISH COLUMBIA

for

SUNCOR INC.

JANUARY, 1985

F. DALIDOWICZ, P. ENG.

SUMMARY

A geophysical programme consisting of total field magnetometer surveys and VLF electromagnetic surveys was conducted over two areas known as "Round Top Mountain" and "Yanks Peak", both located in the Cariboo Mining District of British Columbia.

As a result of the magnetometer survey, both areas were found to be overall magnetically quiet reflecting the presence of non-magnetic sediments. There are, however, isolated "pockets" of erratic magnetic activity present on both grids. They do not correlate well with the anomalous distribution of gold in soils or with the numerous VLF-EM conductors.

As a result of the VLF-EM surveys, numerous conductive linears were outlined. They are found to inhabit all the mapped geological units within both areas. Some of these conductors are believed to relate to graphite. A minority of the conductors are suspected to be caused by topographic effects or operator error.

From the limited soil geochemical data obtained from the Round Top Mountain area, the VLF-EM conductors do not correlate with the anomalous gold distribution in soils.

Within the Yanks Peak Area, there are three clusters of soil samples anomalous in gold. Two are related to previous workings. Contamination is suspected to produce a portion of these anomalies. Both have VLF-EM conductors in the immediate area. These conductors continue for some distance beyond the influence of these workings.

A third cluster is not associated with any previous workings. A strong VLF-EM conductor also cuts across this area of interest.

There is a case presented for the emplacement of gold mineralization being structurally controlled and the intersection of north-south east-west structures is considered an important exploration target.

Before any drilling is to be undertaken, a programme of induced polarization, horizontal loop and VLF electromagnetic surveys is recommended to cover selected portions of areas within both survey grids.

TABLE OF CONTENTS

PAGE

1. INTRODUCTION

A ground geophysical programme consisting of total field magnetics and VLF-electromagnetics was completed during the month of August, 1984 on two of Suncor's mineral exploration areas known as "Yanks Peak" and "Round Top Mountain". Both areas are located in the Cariboo Mining District of British Columbia.

The purpose of these geophysical surveys was to see if it is possible to correlate geophysical anomalies with the known gold occurrences in rock and to see if there is a direct correlation with soil geochemistry. Hopefully, these geophysical anomalies will aid in locating strategic drill targets.

The line cutting and the implementation of the geophysical surveys was undertaken on contract by R. Spooner of La Ronge, Saskatchewan.

Direct field supervision on Suncor's behalf was carried out under the direction of D. Safton, B.Sc. The overall project management was under the direction of D.B. Cross, B.Sc., (Senior geologist for Suncor Inc.).

This report discusses the interpretation of the geophysical data and specific recommendations are given.

This is part of an overall report that includes the discussions of the results of the soil geochemical survey and the geological mapping as authored by D. Safton, B.Sc., on behalf of Suncor Inc.

2. LOCATION AND ACCESS

The locations of the geophysical survey grids are presented in the report by D. Safton.

3. INSTRUMENTATION

For the ground magnetometer survey, a Geometrics model G-816 proton precession total field magnetometer was used.

The diurnal variations in the earth's magnetic field were monitored with the aid of a Canadian Mining Geophysics CMG-MR20 base station magnetometer.

The VLF electromagnetic survey was carried out using a Geonics VLF-EM 16 unit.

4. SURVEY PROCEDURES

4.1 Magnetics

At the start of each operating day, the base station's internal quartz clock is syncronized with the operator's watch. The base station prints out, on paper, the time of reading and the reading value. This value is taken at frequent intervals, usually between 10 to 30 seconds.

At each station along traverse, the operator records the reading value and the time of reading. This reading value is corrected for diurnal variations using the base station data. The amount of correction depends upon how much the field varied from a base station datum.

The magnetic readings are taken along lines at 25 meter intervals. Intermediate readings were also taken when there was a sudden change in the local magnetic relief.

4.2 VLF Electromagnetics

For the electromagnetic survey, both the dip angle (i.e. the vertical inphase component which is the tilt angle of the polarization ellipsoid) and the vertical out-of-phase component (ellipticity i.e. the short axis of the polarized ellipsoid as compared to the long axis) were taken.

For this survey, two transmitting stations were used, i.e. Seattle, Washington, NLK, transmitting at 24.8 kHz and Cutler, Maine, transmitting at 24.0 kHz.

Along traverse lines, readings were taken at 25 meter intervals. In places the operator took intermediate readings in order to discriminate between the presence of several near surface closely spaced conductors.

5. PRESENTATION OF DATA

All maps accompanying this report are presented at a scale of 1:5000. All stacked VLF-EM profile maps are plotted at a vertical scale of 1 cm = 25%. All Fraser Filter Data is contoured at and above the 20 unit level at an interval of 20 units.

For the Yanks Peak Area there are 11 accompanying geophysical maps.

Drawing # __________ contains the corrected posted magnetic data with magnetic contours superimposed and contoured at various intervals dependent upon the magnetic gradient.

Drawing #'s __________ and __________ contain the raw VLF-EM stacked profile data obtained using the Seattle, Washington transmitting station and the interpreted conductor axis.

Drawing #'s __________ and __________ contain the three point moving average stacked profiles obtained from data using the Seattle, Washington transmitting station and the interpreted conductor axis.

Drawing # __________ contains Fraser Filter data obtained using the Seattle, Washington transmitting station.

Drawing #'s __________ and __________ contain the raw VLF-EM stacked profile data obtained using the Cutler, Maine transmitting station and the interpreted conductor axis.

Drawing #'s __________ and __________ contain the three point moving average stacked profiles from data obtained using the Cutler, Maine transmitting station and the interpreted conductor axis.

Drawing # __________ contains the Fraser Filter data obtained using Cutler, Maine transmitting station.

For the Round Top Mountain area, there are also 11 accompanying geophysical maps.

Drawing # __________ contains the corrected posted magnetic data with magnetic contours superimposed and contoured at various intervals dependent upon the magnetic gradient.

Drawing #'s __________ and __________ contain the raw VLF-EM stacked profile data obtained using the Seattle, Washington transmitting station and the interpreted conductor axis.

Drawing #'s __________ and __________ contain the three point moving average stacked profiles obtained from data using the Seattle, Washington transmitting station and the interpreted conductor axis.

Drawing # __________ contains the Fraser Filter data obtained using the Seattle, Washington transmitting station.

Drawing #'s __________ and __________ contain the raw VLF-EM stacked profile data obtained using the Cutler, Maine transmitting station and the interpreted conductor axis.

Drawing #'s __________ and __________ contain the three point moving average stacked profiles obtained from data using the Cutler, Maine transmitting station and the interpreted conductor axis.

Drawing # __________ contains the Fraser Filter data obtained using the Cutler, Maine transmitting station.

6. GENERAL COMMENTS

6.1 Quality of VLF-EM Data

The raw VLF-EM data as presented on the stacked profile maps for both "Yanks Peak" and "Round Top Mountain" grids is considered noisy.

There are several reasons that noise in data would occur.

1. There is an inherent instrument noise, i.e. some instruments are harder to read than others. The audio nulls can be broader on some instruments.

2. If the instrument batteries are low, the signal is noisier which results in broader audio nulls.

3. There are always operator reading errors involved. Normally, a small error occurs dependent upon the skill of the operator. However, if the operator is careless or does not know how to properly read the instrument, then a larger more significant error can occur.

4. There is always the problem of geological noise. Some areas are harder to read than others.

Of the several stated variables, the two most important sources of error here are: 1) Geological Noise, 2) Operator reading error.

Both areas under study contain numerous interpreted conductors. In consultation with D. Safton, he commented that several of the VLF-EM conductive trends do follow graphitic units. They conform to the local geology and appear to be intercalated with the sedimentary sequence. As these graphitic units are in places exposed on surface, they influence the primary magnetic field over short distances along traverse. If several close-spaced conductors are present, the data may appear noisy, especially, if the geological environment is already hard to read.

Where there is an indication that several conductive bodies are present, the operator did at times tighten up the reading interval for better definition.

Visual examination of the raw stacked profile data shows that there are numerous one point "spikes" present that are observed as either "peaks" or "troughs". A one point anomalous value does not necessarily represent a response to a conductive body. Normally there is a "flow" rather than a "spike". The flow would represent a change of trend normally observed over several readings. These one point "spikes" are believed to be due primarily to operator error. This operator problem was magnified when the contractor re-read portions of lines that his operator initially read. The new data at times was found to be significantly different. In fact the dip angle readings had differences up to 30%. This information was obtained from the field books supplied by the contractor. This example is an extreme case as most of the data after filtering was found to be useable.

6.2 Three Point Moving Average

In order to eliminate or decrease the influence of these one point dip angle "spikes", a three point moving average filter

was applied to all VLF-EM data for both the dip angle and quadrature information.

This filter averages the values of three consecutive data points and assigns this filter value to be positioned at the middle point.

This filter does two things. First, it minimizes one point spikes. Secondly, it lowers the anomaly amplitudes (both peaks and troughs). This effect makes the interpreted VLF-EM conductors appear deeper.

This filter manipulation is summarized by the following formula:

$$F(I=1) = \frac{V(I) + V(I=1) + V(I=2)}{3}$$

where V is the raw data reading at the position I and F is the three point moving average value at the position I=1.

6.3 Fraser Filter

The Fraser Filter is a mathematical manipulation of raw dip angle data developed by D.C. Fraser (D.C. Fraser, Geophysics Vol. XXXXIV, No. 6, 1969) in order to present data in a contour format where the "crossover" or change of slope is emphasized as an anomalous positive contour "high".

This Fraser Filter is represented by the following formula:

$$F\frac{(I+1 + (I=2)}{2} = V(I=3) + V(I=2) - (V(I) + V(I=1))$$

where F is the Fraser Filter value at the plotting position $\frac{(I=1)+(I=2)}{2}$ and V is the raw dip angle reading and I is the station position.

There are two major weaknesses in the Fraser Filter formatted data.

1. The filter emphasizes the presence of strong VLF-EM conductors and has a tendency to filter out weaker ones especially when they are in the vicinity of the stronger VLF-EM conductors.

2. This filter is only used for inphase (dip angle) readings and ignores the quadrature information available.

This filter should only be presented in association with the stacked raw profile VLF-EM data.

6.4 Computer Contouring

The Z-Map software computer package made available through Virtual Computing Services of Calgary has been used by Suncor Inc. for the past two seasons to contour ground magnetic data. This package does not adequately take into account the presence of high frequency linear magnetic data.

This software package was also used to contour the Fraser Filter data.

The Fraser Filter contour trends should normally show some conductor continuity from line to line. The computer contouring however shows the presence of numerous discontinuous anomalies. They are generally represented as numerous "bulls-eyes".

Some of these computer contours were removed and portions of the grid was manually recontoured in order to establish conductor continuity.

7. INTERPRETATION

7.1 VLF-EM Survey

Visual examination of all VLF-EM maps accompanying this report for both "Round Top Mountain" and "Yanks Peak" grids show that the interpreted conductors do not honour any specific geological unit, but do follow the general geological trend.

These interpreted conductors can be broadly classified into 5 categories as follows:

1. Anomalies due to topographic effects,
2. One point "spikes" operator error?
3. Cultural effects due to water pipes, grounded fences, railway lines, etc.
4. Anomalies which have the anomalous quadrature profile following the anomalous inphase profile
5. Anomalies where the quadrature has a reverse shape to that of the anomalous inphase (dip angle profile).

Anomalies falling into categories 1 through 3 were screened on the initial raw stacked profile map.

The majority of the probable operator errors were one point anomaly "spikes" that were overall effectively eliminated by the "Three Point Moving Average Filter". The Fraser Filter also appears to effectively screen out these "spikes".

On the original raw data stacked VLF-EM maps, the anomalies interpreted to be probable operator error have a question mark assigned beside the anomaly location logo.

Topographic contour maps that contain both survey areas were inspected to see if some of the interpreted conductors were due to a change in topographic slope rather than due to genuine bedrock sources. On the raw stacked profile map, the word "topo" is written beside the anomaly logo. These are suspected to be due to topographic effects.

In the vicinity of old mine workings, there is always a possibility that the interpreted VLF-EM conductors may not be genuine, but are due to cultural effects such as water pipes, buried cables, railways, grounded fences, etc. These cultural effects were discussed with Mr. D. Safton. After examining the anomalies where potential contamination is believed to occur, it was concluded that the majority of the interpreted VLF-EM conductors are genuine and that probable cultural contamination is minimal.

The anomalies representing categories 4 and 5 dominate the Three Point Moving stacked profile data and the Fraser Filter Data.

There is a high probability that the interpreted conductors with a reported "reverse quadrature profile" can represent a significant increase in conductivity.

In the "Round Top Mountain" Area, mapped geological units #1, 2, 3 and 5 contain local concentrations of graphite.

In the "Yanks Peak" Area, Unit #1 is reported to contain graphitic sshists.

It is therefore postulated that there is a strong probability that the majority of the #5 conductors are due to the presence of stringer to massive graphitic sources.

On the raw and the three point average stacked profile maps, these anomalies are identified by the symbol Q.R. (quadrature reversal).

The VLF-EM receiver picks up signals within the 24 kHz range. It operates at a much higher frequency than the horizontal loop system and as a result this system can respond to a much larger range of conductivity contrasts. The #4 classified anomalies may be representative of the lower spectrum of these conductivity contrasts. Here the conductor sources could originate from such sources as faults or shears, geological contacts, poorer conducting sulphides and graphite.

7.2 Round Top Mountain - VLF-EM Soil Geochemistry

The soil geochemical data as presented for the "Round Top Mountain" survey grid does not cover the total grid area and therefore it is not possible to correlate all VLF-EM conductors with the geochemical data.

Examination of the soil geochemical data in conjunction with the electromagnetic data indicates that there is no direct correlation between anomalous gold in soils and the location of the interpreted conductors.

The majority of the VLF-EM conductors may not have any significant concentration of gold.

If gold is associated with sulphides, these sulphides may be disseminated and therefore will not be detectable with the electromagnetic system.

7.3 Round Top Mountain - Magnetics

Within this generally quiet magnetic area are isolated "pockets" of magnetic disturbances. Generally these magnetic features are narrow in width, of short strike length and at times irregular in shape. In many instances, they are one line one station anomalies. Overall, they do not correlate directly with either the longer more continuous VLF-EM conductors or with the geochemical data that is anomalous in gold.

7.4 Round Top Mountain - Structural Considerations

There is no direct correlation found between anomalous gold in soils with both the VLF-EM conductors or the magnetic anomalies. For this area, it appears that the VLF-EM conductors may not be the geophysical targets sought after.

There is some evidence to suggest that the emplacement of gold may be structurally controlled.

In the vicinity of the old Cariboo Hudson Mine, there are reported north-south east-west structures. The location of this old mine is near the intersection of two orthogonal fault systems (Refer to Round Top Mountain - Geology Map).

There are two old trenches reported within this area. One trench is located between Lines 3+00S and 4+00S. Here some sulphides are reported. The second is just north of Line 7+00N. Both trenches strike in a general east-west direction.

The only concentration of anomalous gold in soils located to the east of the base line is on Line 2+00N. This location is just north of an east-west trending fault.

If east-west structures are important in controlling gold emplacement, then it is probable that the traverse lines are not at an optimum orientation.

7.5 Yanks Peak VLF-EM Soil Geochemistry

Within the Yanks Peak Survey Grid, there are three areas that have a cluster of soil samples anomalous in gold (See Gold In Soil - Location Map).

There are two clusters associated with previous mine workings. One is in the vicinity of the old Snowshoe Gold Mine, while the second is near Jim Adit (Location on the Geological Map). The geochemical data presented from both locations may have been contaminated due to earlier mining activities.

There is a "reverse quadrature" VLF-EM conductor mapped using the Seattle, Washington transmitting station located very near the old Snowshoe Gold Mine. There is a possibility that the anomalous concentration of gold in soils may have originated from a portion of this conductive trend. However, its location may be a coincidence rather than a direct correlation. Firstly, the whole survey area is riddled with conductors and there is always the possibility that one conductor may be in an area containing higher gold values in soil. Secondly, the conductive trend, as indicated on the Three Point Moving Average Stacked Profile Map and on the Fraser Filter Map, continues for some distance to the north and to the south of the mine area. There is no soil geochemical gold anomlies on adjacent lines to suggest that this conductor contains significant concentration of gold over any significant strike length.

Just to the west of the Jim Adit, there is another Seattle, Washington VLF-EM conductor that also shows a quadrature reversal. This conductor does not appear to continue to the north beyond this adit, but it does continue southwards beyond the boundaries of the survey area. Here, the same argument can be used as discussed for the conductor located near the Snowshoe Gold Mine.

The third sample cluster containing anomalous gold in soils is not associated with previous workings. On the Gold In Soil Location Map, this area is located east of the base line between Lines 7+00N and 9+00N.

A major "reverse quadrature" VLF-EM conductor mapped using the Seattle, Washington transmitting station cuts through this area (See Three Point Moving Average Stacked Profile and Fraser Filter Maps). This conductor continues to the north and to the south for some distance beyond the influence of the area containing anomalous gold in soils.

Again as discussed for the two other areas, the location of the VLF-EM conductor may be a coincidence, but as always there is no valid reason why significant concentration of gold may be localized within a conductor of long strike length.

7.6 Yanks Peak - Magnetics

Very little magnetic activity (relief) is present within this survey area. In fact, the area is predominantly featureless which reflects the presence of non-magnetic sediments.

There are several isolated, small, but erratically distributed magnetic bodies that are of short strike length and overall appear as one station, one line bullseye "highs". They do not correlate with the more continuous VLF-EM conductors.

There is a possible correlation with the two known mineral occurrences. Firstly, there is one magnetic anomaly present and is centered at Line 5+00N, Station 10+25W. This magnetic anomaly is at or very near the old Snowshoe Gold Mine. Cultural contamination is suspected to cause this anomaly.

There is one magnetic linear along the base line between Lines 2+00S and 3+00N. A portion of this linear is in the vicinity of the Jim Adit.

7.7 Yanks Peak - Structural Considerations

As with the "Round Top Mountain" Area, the emplacement of gold mineralization may be structurally controlled.

The old Snowshoe Gold Mine is near the intersection of two north-south east-west fault systems. These faults as shown on the Geological Map, continue for some distance across the survey area.

The third cluster of soil samples anomalous in gold are south of the east-west structure mentioned.

At this stage of the exploration programme, there is not enough evidence to say that some of the VLF-EM conductors correlate directly with soil geochemical information.

7.8 Structural Interpretation from Geophysical Data

Although numerous shears and faults were geologically mapped on both the "Round Top Mountain" Area and "Yanks Peak", the interpretation of the geophysical data did not establish or confirm the majority of these structures.

There are several reasons why the majority of faults and shears were not observed and interpreted from the geophysical data.

1. There are just too many conductors present in both areas and it is hard to correlate any specific conductor from line to line. It is therefore difficult to observe any major offset of the major conductors along strike.

2. The magnetic data is no help. The magnetic anomalies are too erratically distributed and are of limited strike length.

3. For faults and shears oriented in an east-west direction, the grid orientation is wrong. For the VLF-EM survey the survey grid should be read north-south in order to pick them up.

One east-west structure is interpreted to be present in the "Yanks Peak" Area. The location is shown on the Three Point Moving Average Stacked Profile Map obtained from data using the

Cutler Maine transmitting station. This interpreted structure is located between Lines 7+00N to 11+00N and is in good agreement with the fault geologically mapped.

8. RECOMMENDATIONS

Two senarios are proposed. First, if gold is associated with non-magnetic disseminated to stringer sulphides, then the VLF-EM system may not respond. Secondly, if the emplacement of gold mineralization is structurally controlled, the line orientation may not be optimal. It appears that several known gold occurrences are near the intersection of several shears or faults. East-west structures may be of importance.

The following recommendations are made:

1. Soil geochemistry should be carried out over the remainder of lines not previously surveyed.

2. Four subgrids should be established with all traverse lines spaced at 100 meters and oriented in both an east-west and north-south direction. All stations should be picketed at 10 meter intervals. These four subgrids are located as follows:

Yanks Peak Area:

Subgrid A from Line 2+00N to 8+00N and from Station 7+00W to 13+00W

Subgrid B from Line 0+00N to 4+00N and from Station 3+00E to 3+00W

Subgrid C from Line 6+00N to 11+00N and Station 2+00E to 7+00E

Round Top Mountain Area:

Subgrid D from Line 0+00N to 4+00N and from Station 3+00W to western boundary.

3. An induced polarization survey would aid in locating subsurface distribution of disseminated sulphides. As there are numerous VLF-EM conductors outlined, these conductors would effectively mask lower amplitude I.P. responses if a large electrode array is used. Such a case is presented when disseminated sulphides are located in the vicinity of massive VLF-EM conductors. Here an I.P. array with good resolution should be used. Proposed is a dipole-dipole array with an array spacing of "a" = 10 meters and n = 1, 2, 3, 4.

   This survey should be carried out on all 4 subgrids along both north-south and east-west line orientations.

4. A Max-Min survey should be carried out on all four subgrids along east-west traverse lines with station intervals at 10 meters. A cable separation of 50 meters and frequencies of 3555 and 888 Hz is recommended. The Max-Min survey would give information on the VLF-EM conductors such as conductor quality, depth to the top of the conductor and conductor dip. This basic information is difficult to obtain from VLF-EM surveys. This HEM survey would help in collaring potential drill targets.

5. A VLF-EM survey should be carried out on all subgrids along the north-south traverse lines. Both transmitting stations should be used. This survey may help to outline east-west structures.

9. CONCLUSIONS

The VLF electromagnetic survey showed that both "Round Top Mountain" and "Yanks Peak" survey areas are riddled with conductors. These conductors are located within all mapped geological units. Some of these conductors are suspected to be caused by operator error. The majority of the conductors mapped are believed to be genuine. Concentrations of stringer to massive graphite is suspected to be one of the conductive sources.

Magnetically, both areas are generally quiet reflecting the non-magnetic sedimentary environment. There are, however, isolated pockets of magnetic activity. These anomalies are erratic, of short strike length and do not correlate well with either the soil geochemical data anomalous in gold or with the more continuous VLF-EM conductors.

In the "Round Top Mountain" survey area, there is no direct correlation between the anomalous gold in soils and the VLF-EM conductors.

In the "Yanks Peak" survey area there are three clusters of soil samples anomalous in gold. Two are associated with previous workings. All three have strong VLF-EM conductors in the vicinity.

As the gold mineralization may be associated with disseminated to stringer sulphides, this mineralization may not be detectable with the VLF-EM system.

If the emplacement of gold mineralization is structurally controlled, it may not follow the local geological trend. If this is the case, then the traverse lines are not optimally oriented.

Four subgrids within both survey grids have been recommended for further geophysical work that consists of induced polarization surveys, Max-Min and VLF electromagnetic surveys.

Respectfully submitted,

F. Dalidowicz, P.Eng.

CERTIFICATE

I, F. Dalidowicz of Group 12, Box 50, R.R. #3, Bowmanville, Ontario, certify that:

1. I hold a Bachelor of Applied Science Degree from Queen's University in Kingston, Ontario and a Master of Science (Applied) degree in Mineral Exploration from McGill University in Montreal, Quebec.

2. I am a Member of the Association of Professional Engineers of the Province of Ontario and I have practised my profession continuously since graduation.

3. I have based my conclusions and recommendations on my experience and knowledge of interpretation and application of geophysical methods.

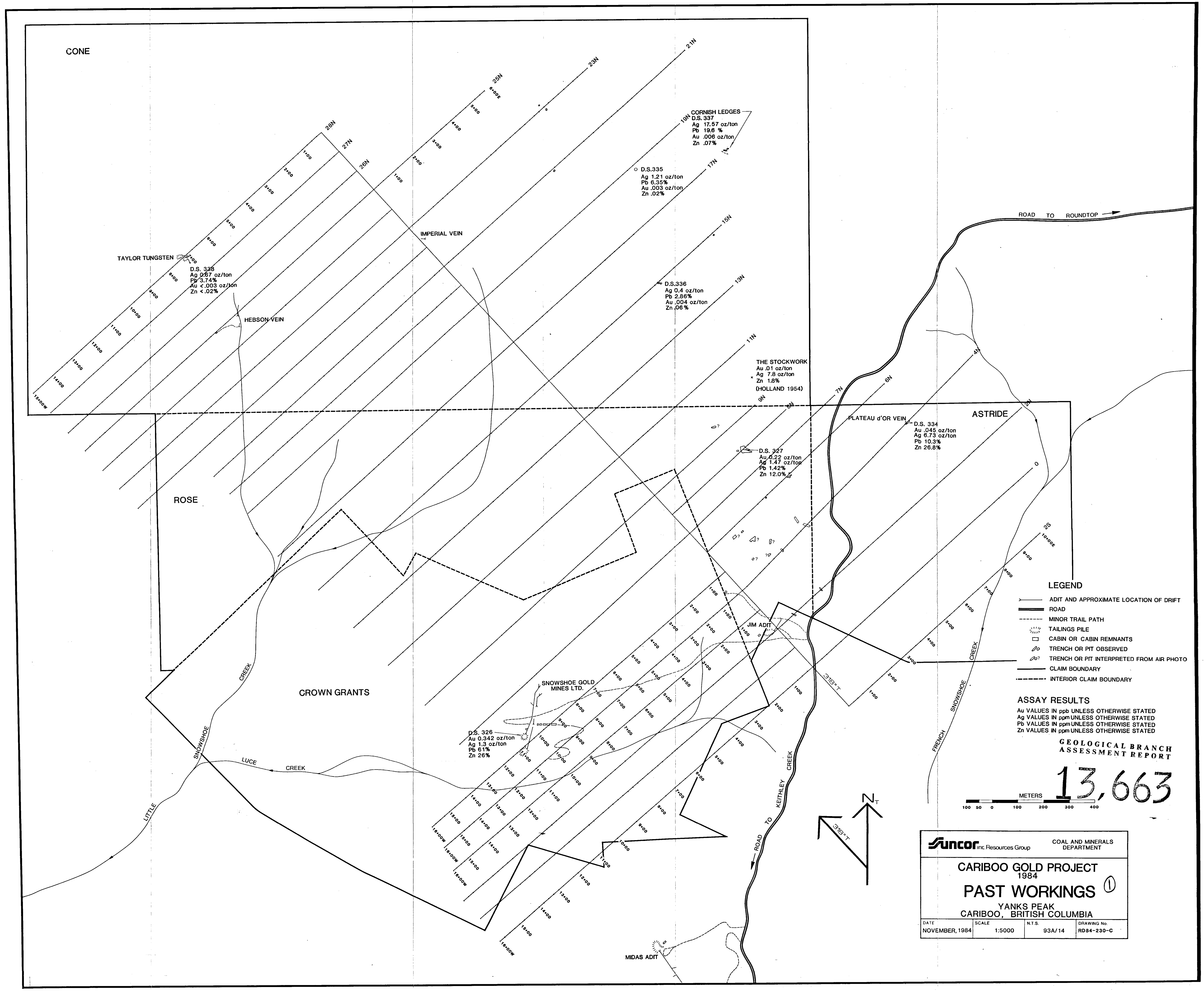
4. I hold no interest, directly or indirectly in these properties, other than professional fees, nor do I expect to receive any interest in these properties or in Suncor Inc., or any of its subsidiary companies.

Jan. 10, 1985

F. Dalidowicz, P.Eng.

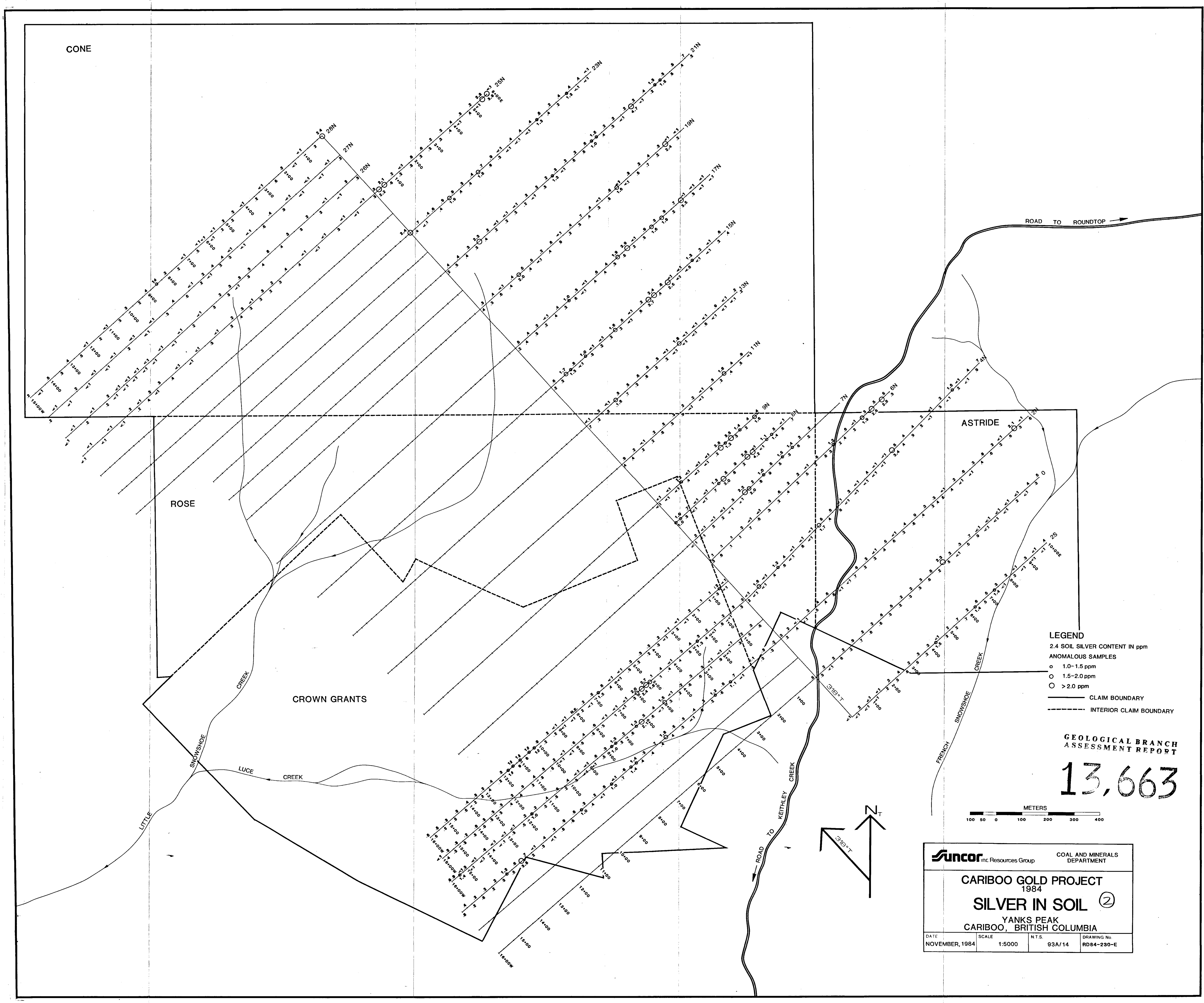
RD84-230-C

IRON MAIDEN®
U. S. A. DESIGN PATENT 4139248 1979
CANADIAN IND. DESIGN REG. NO. 42524
CANADIAN PATENT 1065729 1979
RD 1977
IRON MAIDEN® SYSTEMS CALGARY, ALBERTA, CANADA
IM 42

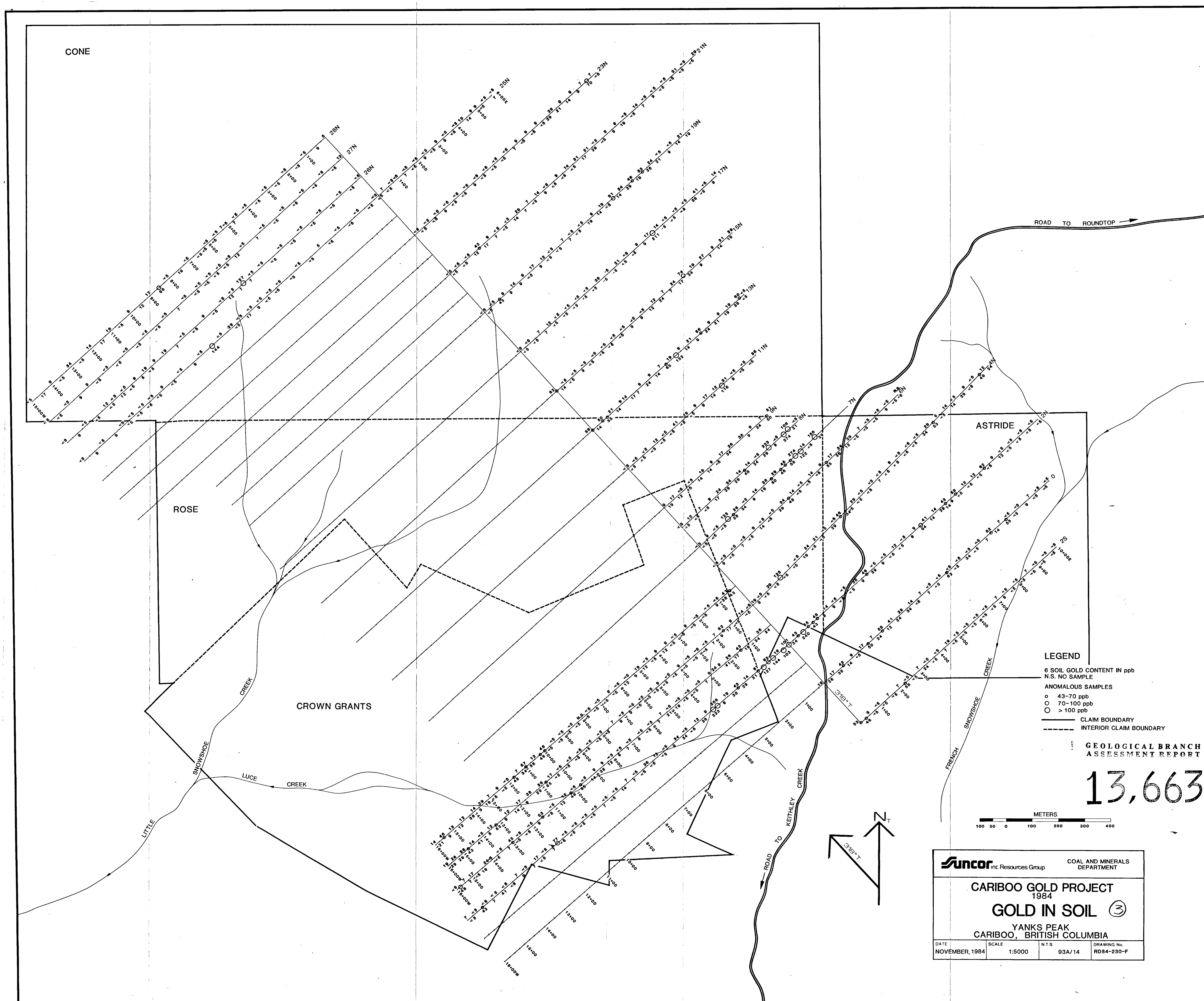


RD84-230-E

IRON MAIDEN® U.S.A. DESIGN PATENT 4139248 1979 CANADIAN IND. DESIGN REG. NO. 42524 CANADIAN PATENT 1065729 1979 (RD) 1977 IRON MAIDEN® SYSTEMS CALGARY, ALBERTA, CANADA



RD84-230-F



GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,663

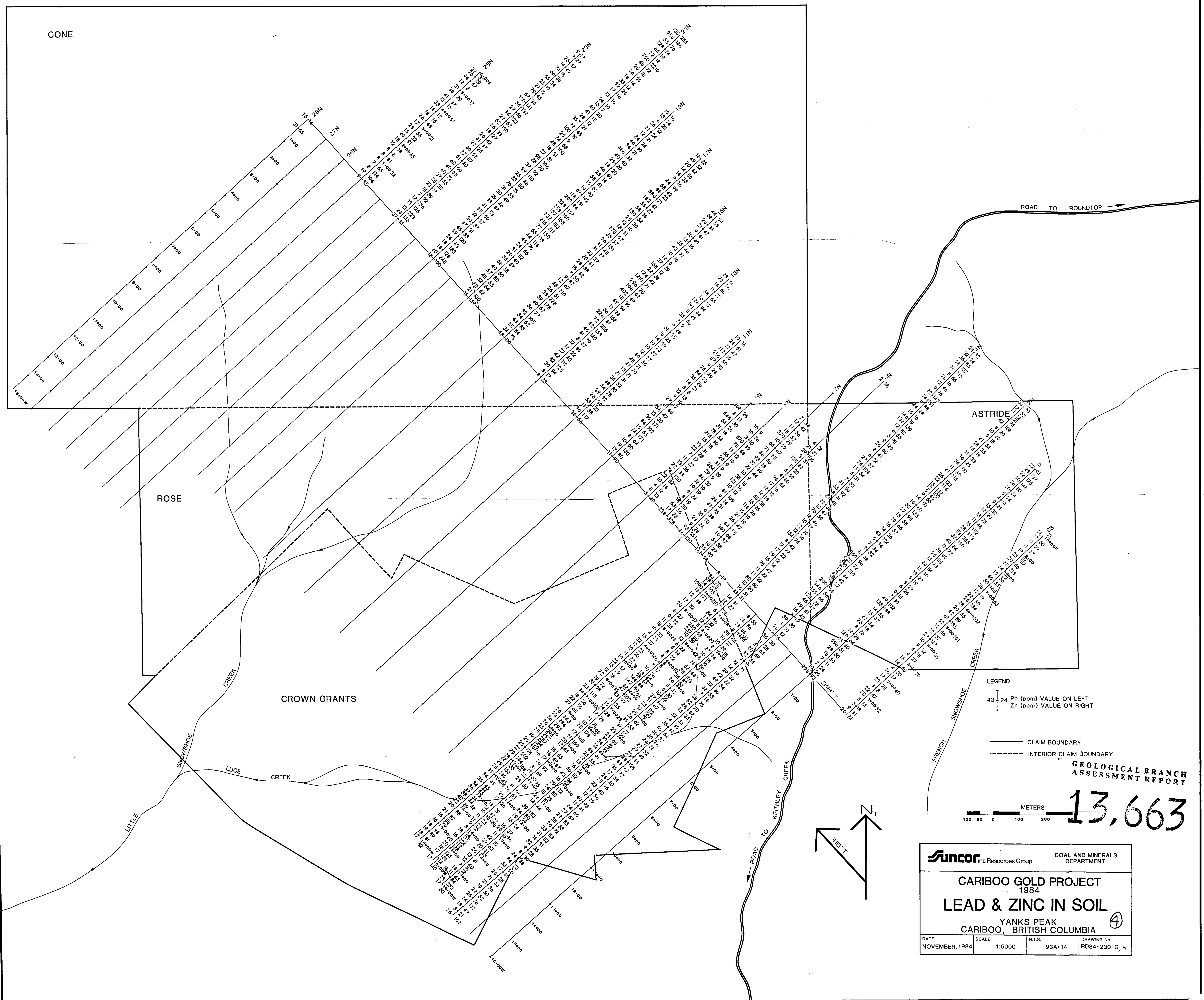
Suncor inc. Resources Group — COAL AND MINERALS DEPARTMENT

CARIBOO GOLD PROJECT
1984

GOLD IN SOIL ③

YANKS PEAK
CARIBOO, BRITISH COLUMBIA

DATE	SCALE	N.T.S.	DRAWING No.
NOVEMBER, 1984	1:5000	93A/14	RD84-230-F



GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,663

Suncor inc. Resources Group

COAL AND MINERALS DEPARTMENT

CARIBOO GOLD PROJECT
1984

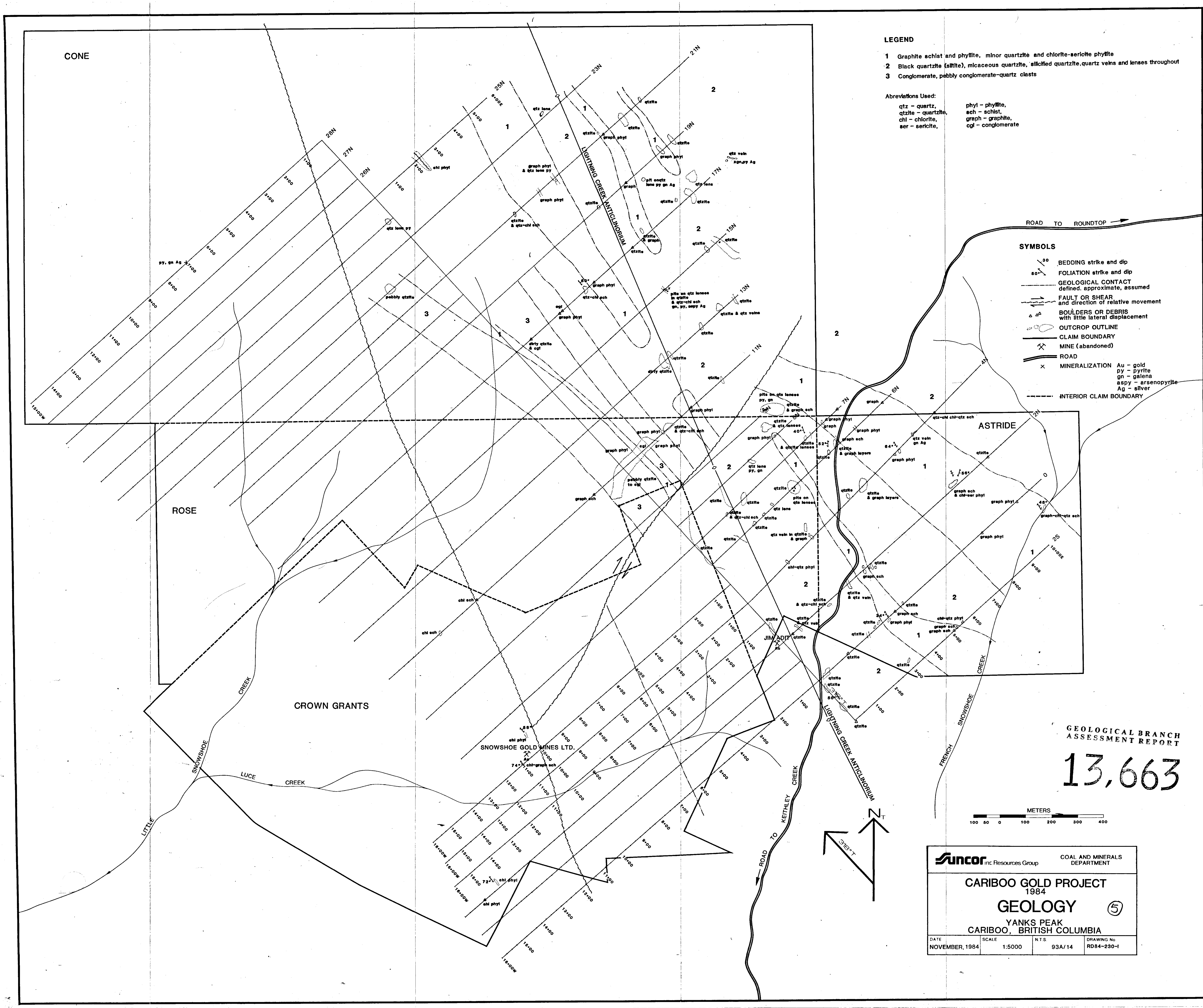
LEAD & ZINC IN SOIL

YANKS PEAK
CARIBOO, BRITISH COLUMBIA

④

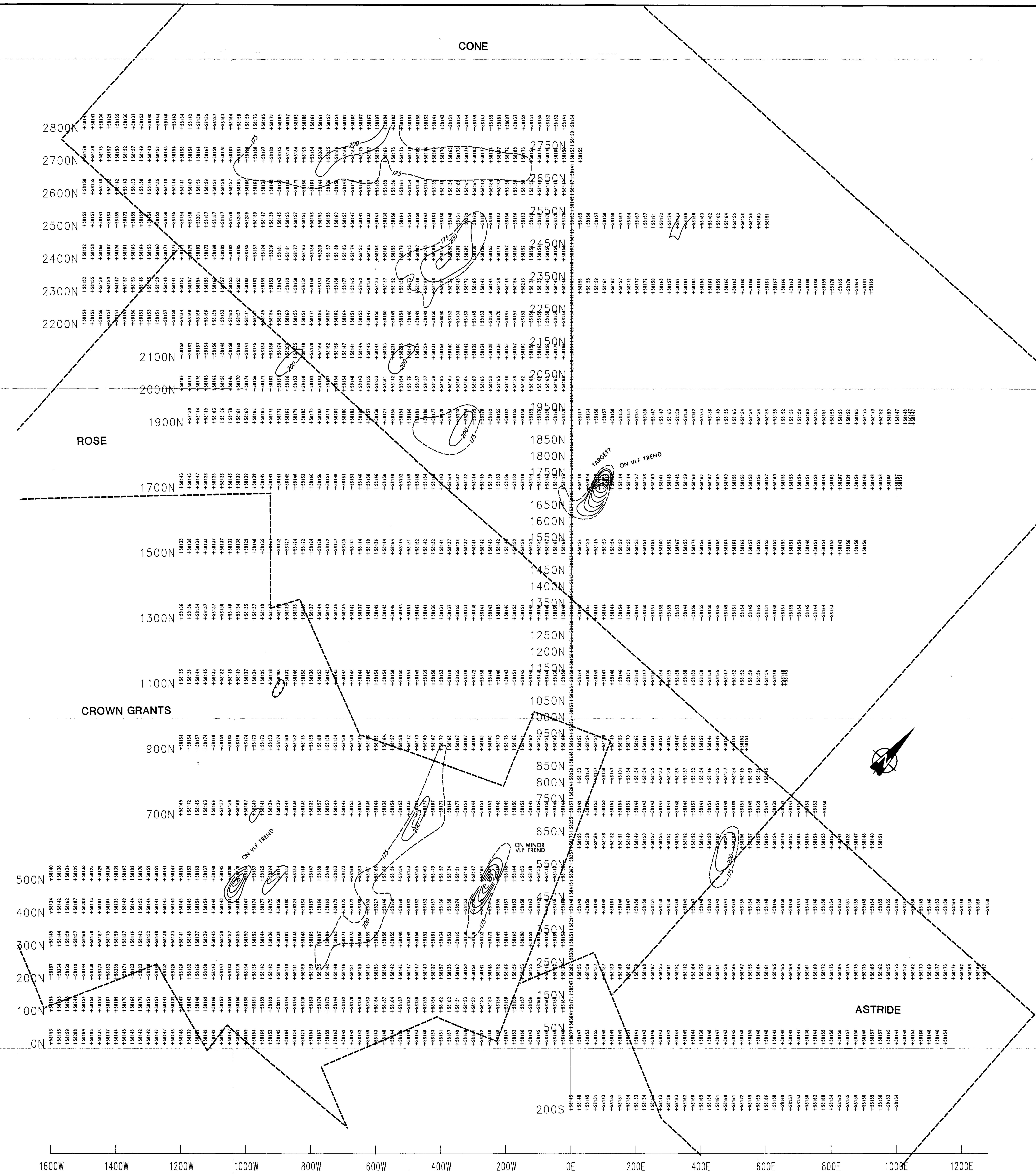
DATE	SCALE	N.T.S.	DRAWING No.
NOVEMBER, 1984	1:5000	93A/14	RD84-230-G, H

RD84-230-I


LEGEND
1 Graphite schist and phyllite, minor quartzite and chlorite-sericite phyllite
2 Black quartzite (siltite), micaceous quartzite, silicified quartzite, quartz veins and lenses throughout
3 Conglomerate, pebbly conglomerate-quartz clasts
Abreviations Used:
qtz - quartz,
qtzite - quartzite,
chl - chlorite,
ser - sericite,
phyl - phyllite,
sch - schist,
graph - graphite,
cgl - conglomerate
SYMBOLS
BEDDING strike and dip
FOLIATION strike and dip
GEOLOGICAL CONTACT defined, approximate, assumed
FAULT OR SHEAR and direction of relative movement
BOULDERS OR DEBRIS with little lateral displacement
OUTCROP OUTLINE
CLAIM BOUNDARY
MINE (abandoned)
ROAD
MINERALIZATION Au - gold py - pyrite gn - galena aspy - arsenopyrite Ag - silver
INTERIOR CLAIM BOUNDARY
CONE
ROSE
CROWN GRANTS
ASTRIDE
SNOWSHOE GOLD MINES LTD.
JIM ADIT
LIGHTNING CREEK ANTICLINORIUM
ROAD TO ROUNDTOP
ROAD TO KEITHLEY CREEK
LUCE CREEK
LITTLE SNOWSHOE CREEK
FRENCH SNOWSHOE CREEK
GEOLOGICAL BRANCH ASSESSMENT REPORT
13,663
METERS
100 50 0 100 200 300 400
Suncor inc. Resources Group
COAL AND MINERALS DEPARTMENT
CARIBOO GOLD PROJECT 1984
GEOLOGY 5
YANKS PEAK
CARIBOO, BRITISH COLUMBIA
DATE NOVEMBER, 1984
SCALE 1:5000
N.T.S. 93A/14
DRAWING No. RD84-230-I

IRON MAIDEN®
U.S.A. DESIGN PATENT 4139248-1979
CANADIAN IND. DESIGN REG. NO. 42524
CANADIAN PATENT 1065729-1979
(RD) 1977
IRON MAIDEN® SYSTEMS CALGARY, ALBERTA, CANADA

IM-42



LEGEND

Magnetic Low
+58153 Corrected Magnetic Reading
+58153 Isomagnetic Contour Line
Claim Boundary
Contour Interval 100gammas

INSTRUMENTS

Base Station CMG-20
Field Magnetometer Geometrics G-816

329°
N_T
B.L. BEARING

METERS
100 0 100 200 300 400

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,663

Suncor Inc. Resources Group — COAL AND MINERALS DEPARTMENT

CARIBOO PROJECT
GMAG CORRECTED (6)

TOTAL FIELD MAG-SURVEY
YANKS PEAK
CARIBOO MINING DISTRICT B.C.

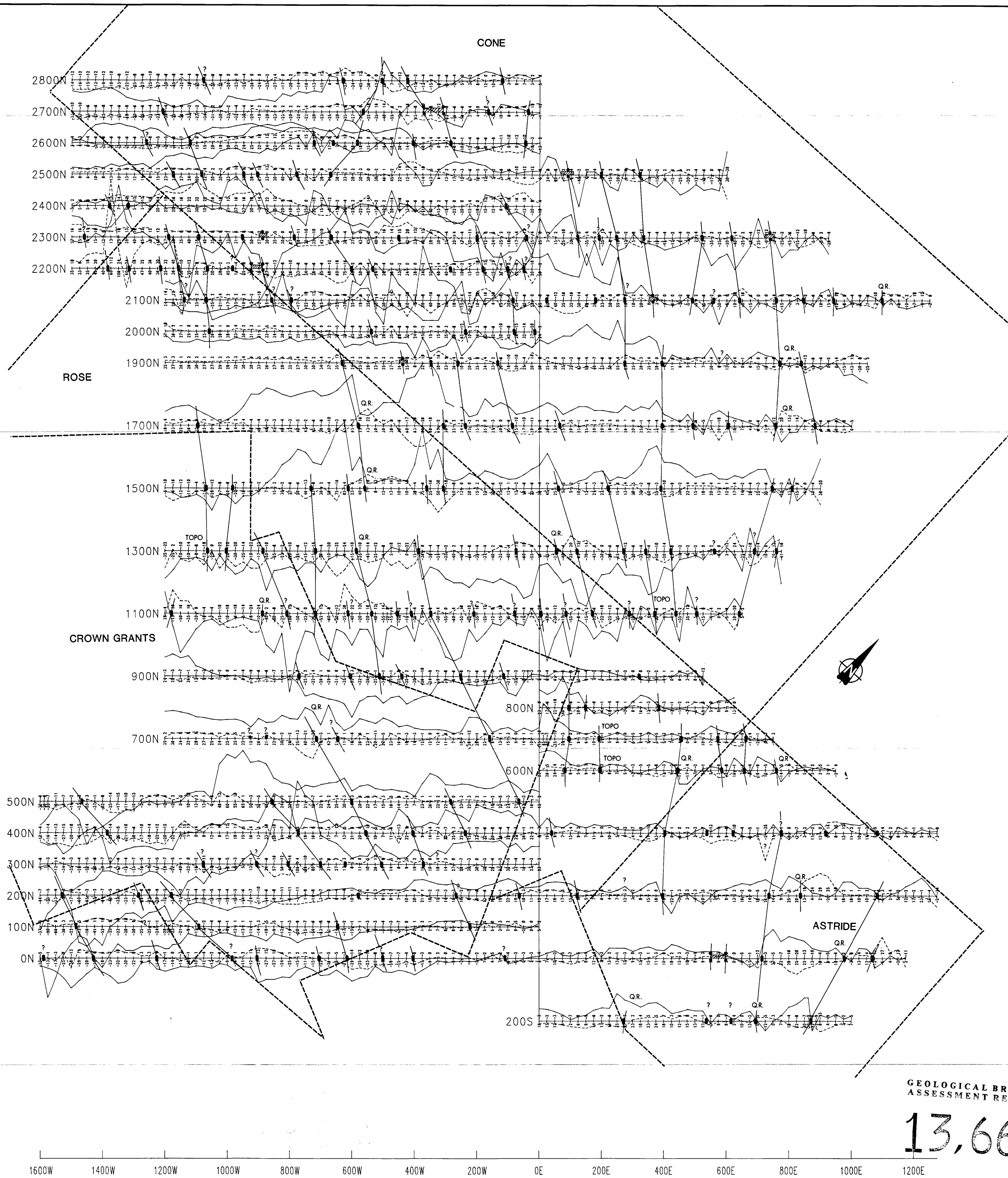
DATE:	SCALE:	N.T.S.	HP85 FILE:	DRAWING #
841107	1:5000	93A/14	YANG16	RD84-230-J

IRON MAIDEN®

U. S. A. DESIGN PATENT 4139248-1979
CANADIAN IND. DESIGN REG. NO. 42524
CANADIAN PATENT 1065729 1979
(RD) 1977

IRON MAIDEN® SYSTEMS CALGARY, ALBERTA, CANADA

IM 42



GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,663

LEGEND

o——o	Inphase
x- - -x	Quadrature
	Interpreted Conductor Axis
	Interpreted Conductor Width
TOPO	Topographic Effect
?	Operator Error
Q.R.	Quadrature Reversal

TRANSMITTING STATION: NAA Cutler, Maine - 17.8 kHz
INSTRUMENT: Geonics VLF-EM-16
VERTICAL SCALE: 1cm. = 20%

N
DIRECTION OF READING
TRANSMITTER STATION

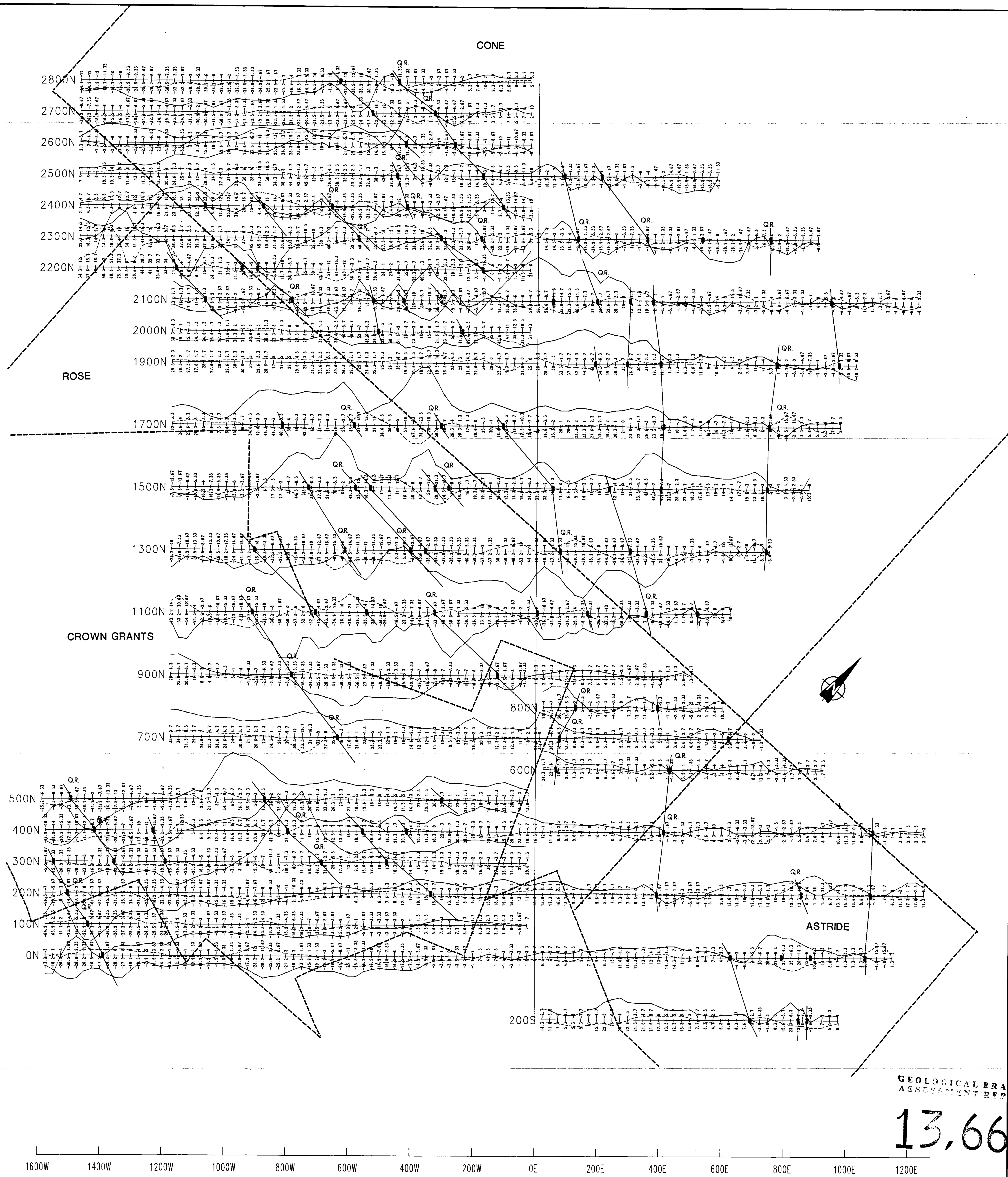
METERS
100 50 100 200 300 400

Suncor Inc. Resources Group — COAL AND MINERALS DEPARTMENT

CARIBOO PROJECT
RAW DATA
(7)

VLF—EM SURVEY —CUTLER
YANKS PEAK
CARIBOO MINING DISTRICT B.C.

DATE:	SCALE:	N. T. S.	HP85 FILE:	DRAWING #
841101	1:5000	93A/14	YANV27	RD84-230-K-1



GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,663

LEGEND

- o——o INPHASE
- x– – –x QUADRATURE
- INTERPRETED CONDUCTOR AXIS
- INTERPRETED CONDUCTOR WIDTH
- TOPO TOPOGRAPHIC EFFECT
- ? OPERATOR ERROR
- Q.R. QUADRATURE REVERSAL

TRANSMITTER STATION: NAA Cutler,Maine - 17.8 kHz
INSTRUMENT: Geonics VLF EM-16
VERTICAL SCALE: 1cm. = 25%

N
DIRECTION OF READING
TRANSMITTER STATION

METERS
100 50 100 200 300 400

Suncor Inc. Resources Group — COAL AND MINERALS DEPARTMENT

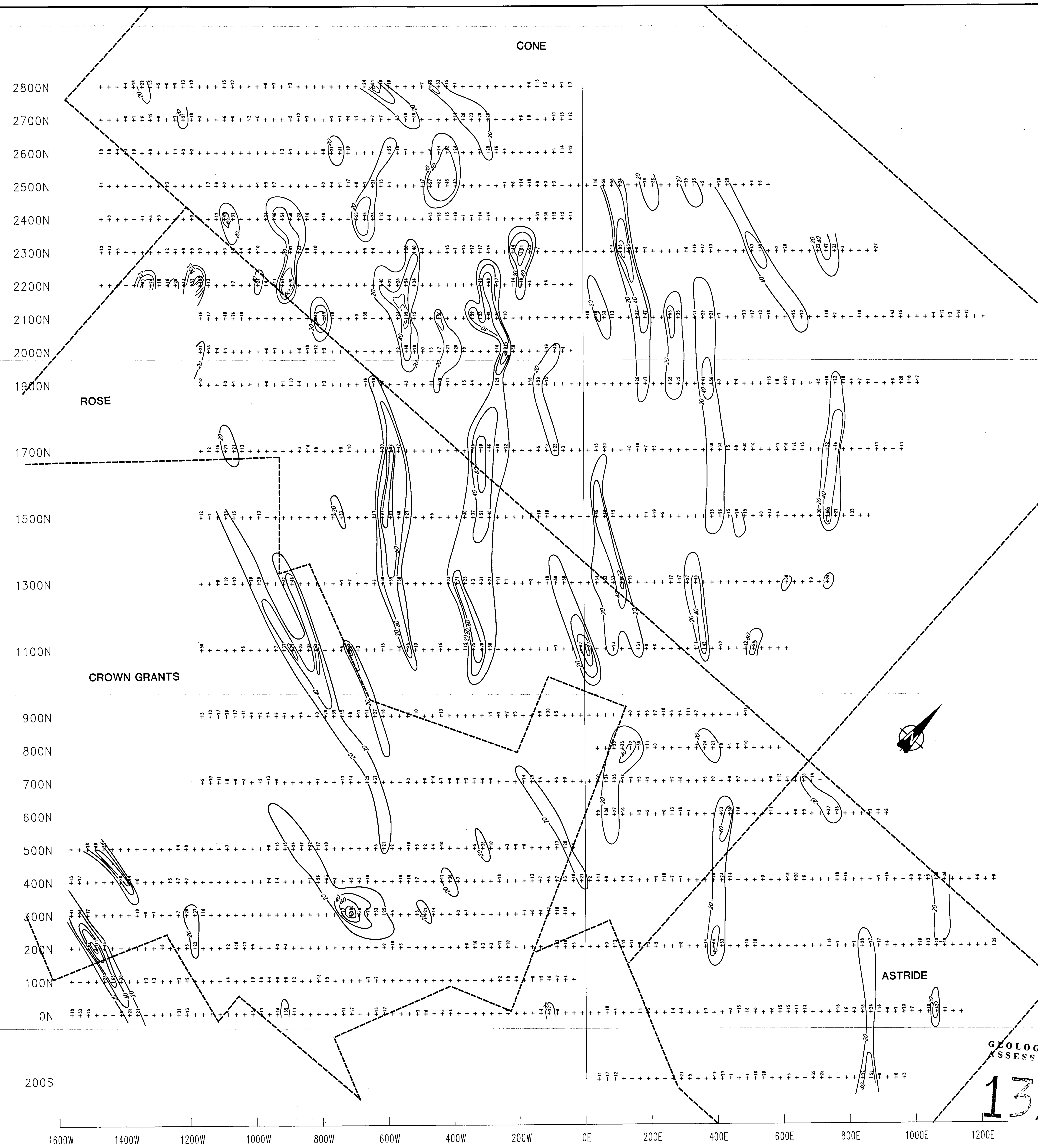
CARIBOO PROJECT
3 POINT MOVINGAVERAGE (8)

VLF–EM SURVEY –CUTLER
YANKS PEAK
CARIBOO MINING DISTRICT B.C.

DATE:	SCALE:	N.T.S.	HP85 FILE:	DRAWING #
841101	1:5000	93A/14	YANV2P	RD84-229-K-2

IRON MAIDEN®
U.S.A. DESIGN PATENT 4139248-1979
CANADIAN IND. DESIGN REG. NO. 42524
CANADIAN PATENT 1065729-1979
RD 1977
IRON MAIDEN® SYSTEMS CALGARY, ALBERTA, CANADA

IM 42



GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,663

METERS
100 50 100 200 300 400

LEGEND

+23 Station and filtered dip reading
Fraser Filter contour line
Claim Boundary
Contour Interval 20%

TRANSMITTING STATION: Cutler, Maine
Instrument - Geonics VLF-EM-16

329°
N_T
B.L. BEARING

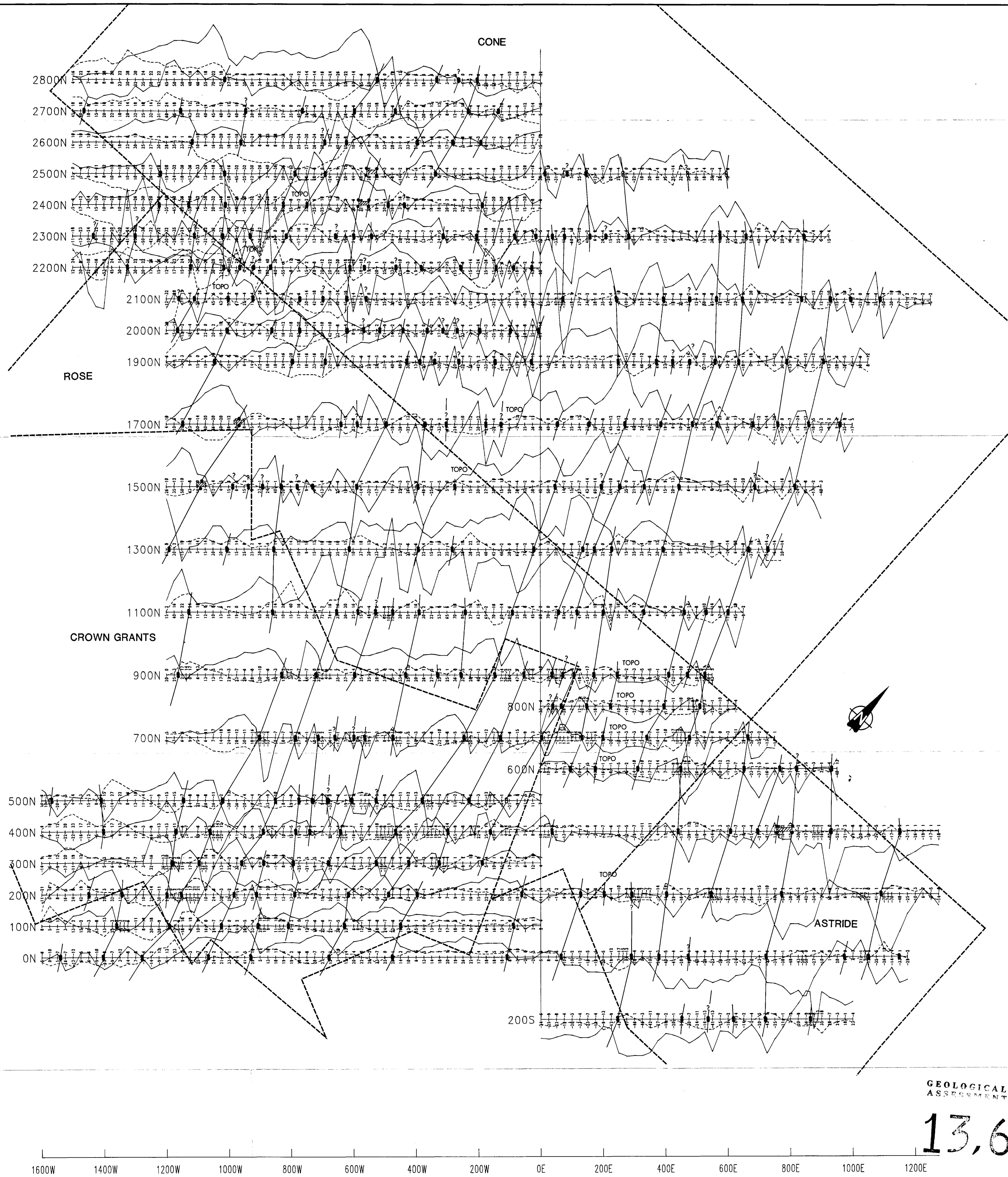
Suncor Inc. Resources Group
COAL AND MINERALS DEPARTMENT

CARIBOO PROJECT
VLF-EM SURVEY CUTLER TX

FRASER FILTER
YANKS PEAK
CARIBOO MINING DISTRICT B.C.

9

DATE:	SCALE:	N.T.S.	HP85 FILE:	DRAWING #
841101	1:5000	93A/14	YANF21	RD84-230-K-3



LEGEND

- Inphase
- Quadrature
- Interpreted Conductor Axis
- Interpreted Conductor Width
- TOPO — Topographic Effect
- ? — Operator Error
- Q.R. — Quadrature Reversal

TRANSMITTING STATION: NLK Seattle, Washington - 24.8kHz
INSTRUMENT: Geonics VLF-EM-16
VERTICAL SCALE: 1cm. = 20%

N — DIRECTION OF READING — TRANSMITTER STATION

METERS 100 50 100 200 300 400

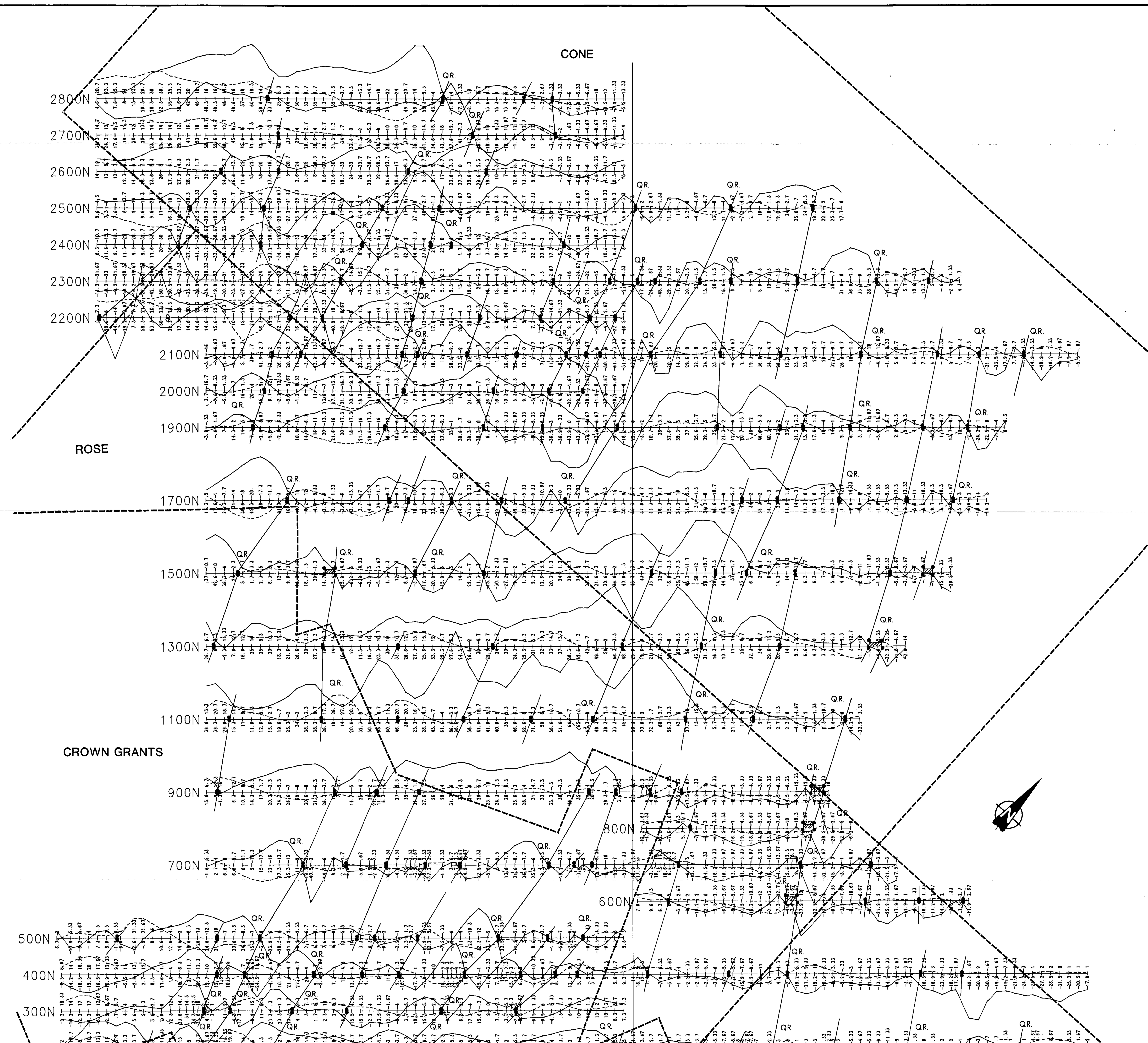
Suncor Inc. Resources Group — COAL AND MINERALS DEPARTMENT

CARIBOO PROJECT
RAW DATA PLOT (10)

VLF-EM SURVEY -SEATTLE
YANKS PEAK
CARIBOO MINING DISTRICT B.C.

DATE:	SCALE:	N.T.S.	HPB5 FILE:	DRAWING #
841005	1:5000	93A/14	YANV15	RD84-230-L-1

RD84-230-L



METERS
100 0 100 200 300 400

LEGEND

- Inphase
- Quadrature
- Interpreted Conductor Axis
- Interpreted Conductor Width
- TOPO Topographic Effect
- ? Operator Error
- Q.R. Quadrature Reversal

TRANSMITTING STATION: NLK Seattle, Washington - 24.8 kHz
INSTRUMENT: Geonics VLF-EM-16
VERTICAL SCALE: 1cm. = 20%

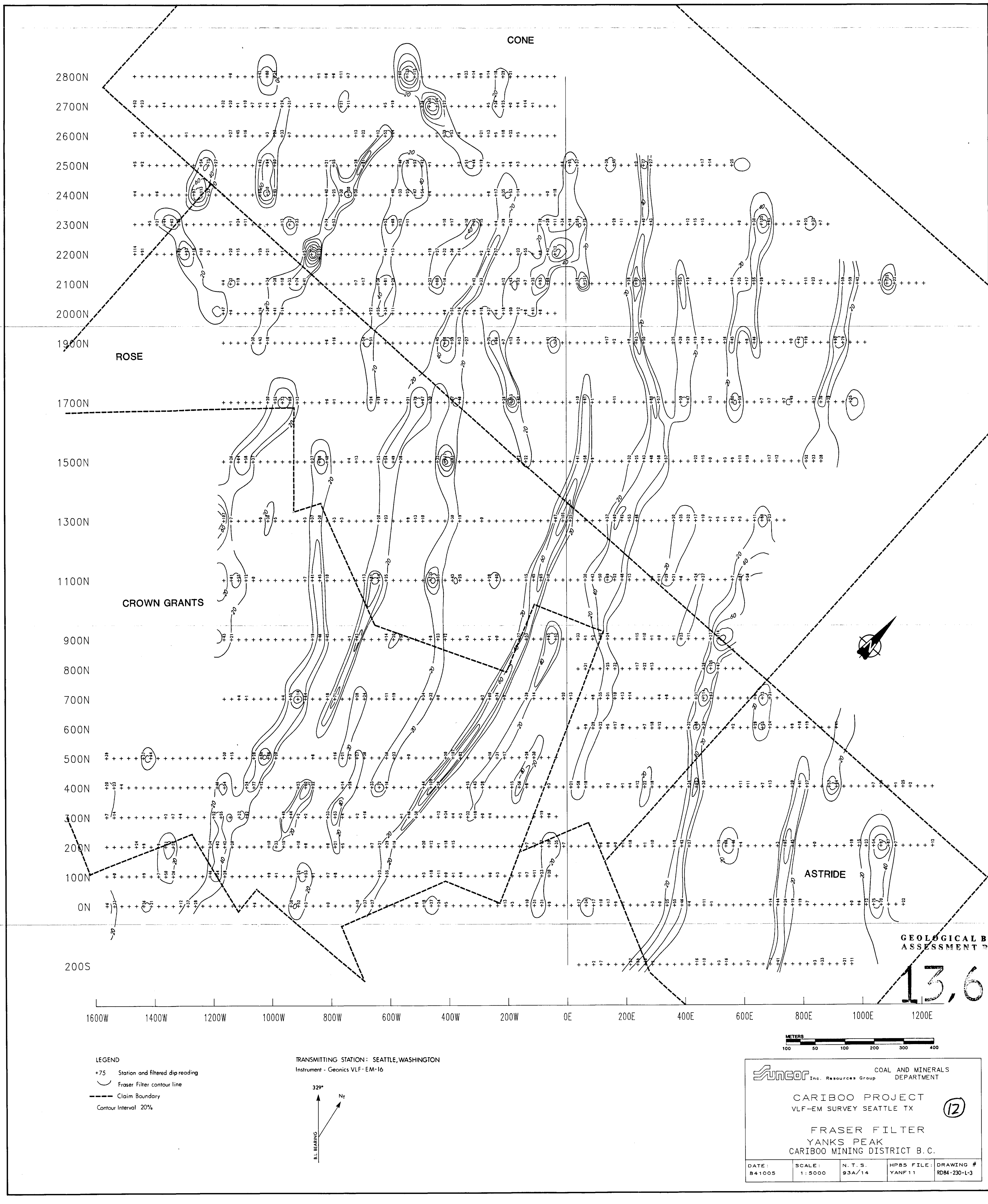
N
DIRECTION OF READING
TRANSMITTER STATION

Suncor Inc. Resources Group — COAL AND MINERALS DEPARTMENT

CARIBOO PROJECT
3 POINT MOVING AVERAGE (11)

VLF-EM SURVEY -SEATTLE
YANKS PEAK
CARIBOO MINING DISTRICT B.C.

DATE:	SCALE:	N.T.S.	HP85 FILE:	DRAWING #
841005	1:5000	93A/14	YANVPT	RD84-230-L-2


CONE
ROSE
CROWN GRANTS
ASTRIDE
2800N
2700N
2600N
2500N
2400N
2300N
2200N
2100N
2000N
1900N
1700N
1500N
1300N
1100N
900N
800N
700N
600N
500N
400N
300N
200N
100N
0N
200S
1600W
1400W
1200W
1000W
800W
600W
400W
200W
0E
200E
400E
600E
800E
1000E
1200E
GEOLOGICAL BRANCH
ASSESSMENT REPORT
13,663
METERS
100 50 100 200 300 400
LEGEND
+75 Station and filtered dip reading
Fraser Filter contour line
Claim Boundary
Contour Interval 20%
TRANSMITTING STATION: SEATTLE, WASHINGTON
Instrument - Geonics VLF-EM-16
329°
N_T
B.L. BEARING
Suncor Inc. Resources Group
COAL AND MINERALS DEPARTMENT
CARIBOO PROJECT
VLF-EM SURVEY SEATTLE TX
(12)
FRASER FILTER
YANKS PEAK
CARIBOO MINING DISTRICT B.C.
DATE: 841005
SCALE: 1:5000
N.T.S. 93A/14
HP85 FILE: YANF11
DRAWING # RD84-230-L-3