

85-29-13481

2/86

GEOPHYSICAL REPORT

ON THE

CASSEL CLAIM GROUP

NTS 82E/23

GREENWOOD MINING DIVISION

LATITUDE 49 00'n

LONGITUDE 119 00'W

for

Grand National Resources Inc.

915 - 470 Granville Street

Vancouver, B.C.

January 15, 1985

Box 63

Westbridge, B.C.

Roy Kregosky

BSc. Geology

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13.481

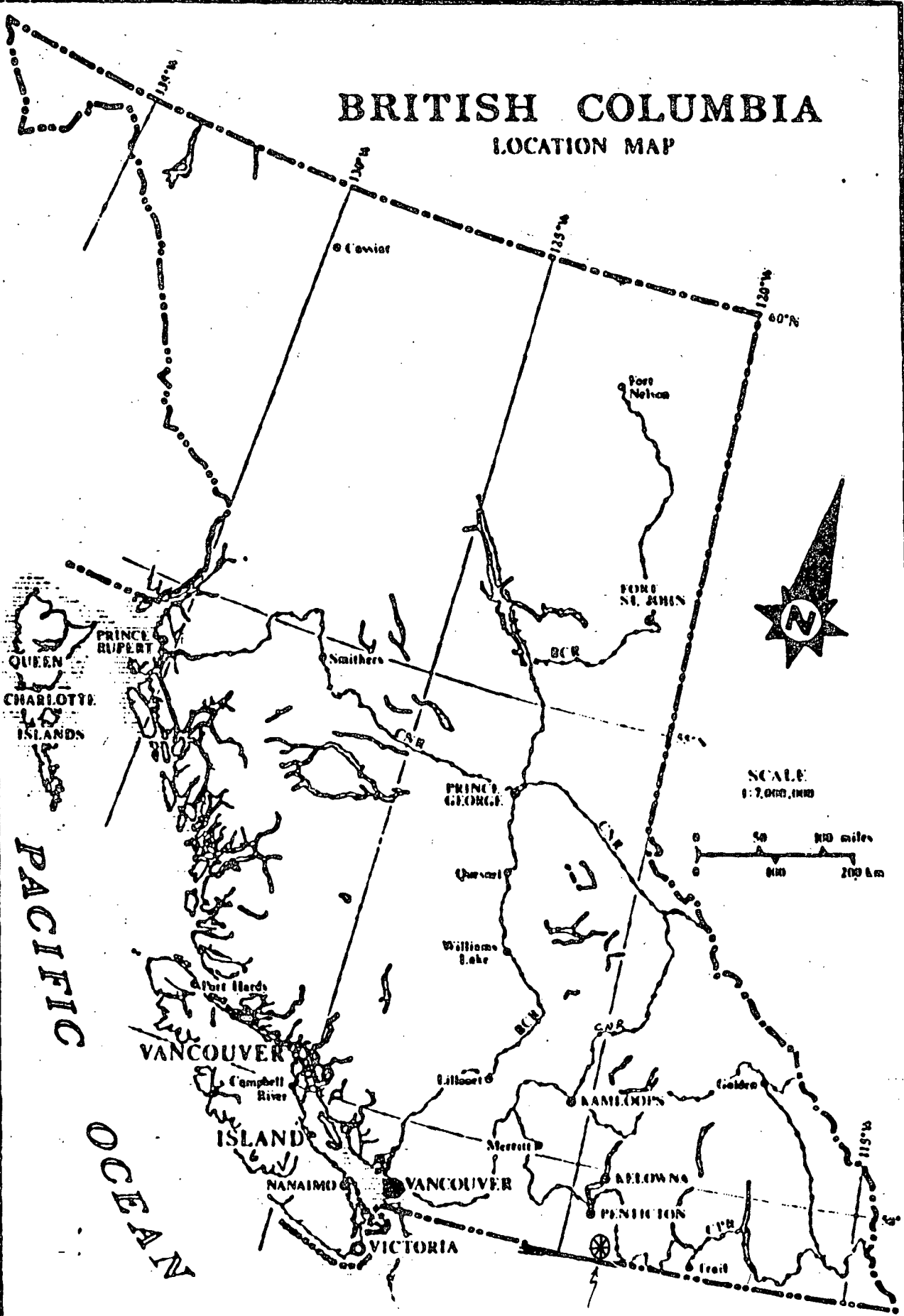
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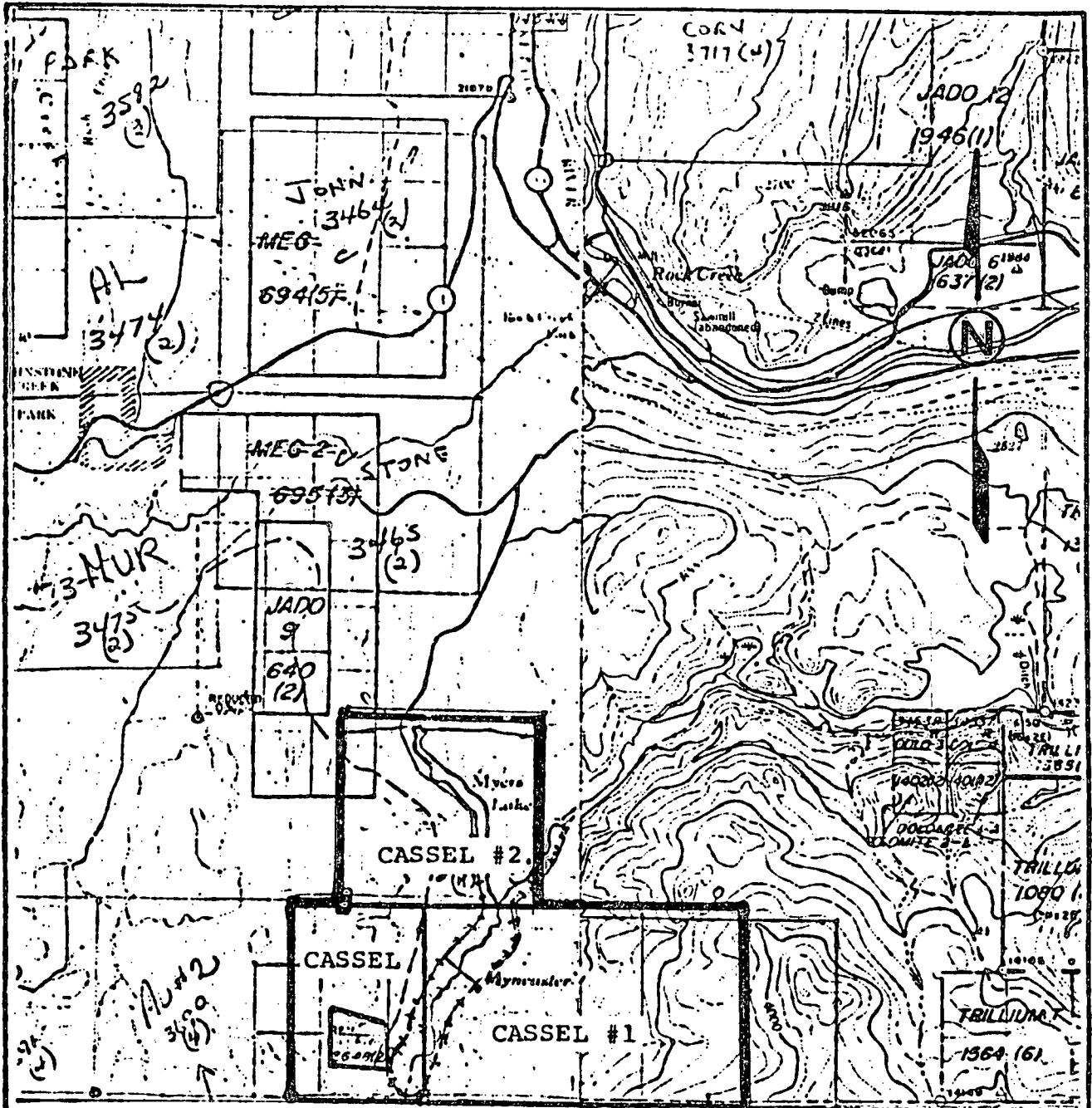
BRITISH COLUMBIA LOCATION MAP



Monashee
Geological
Services

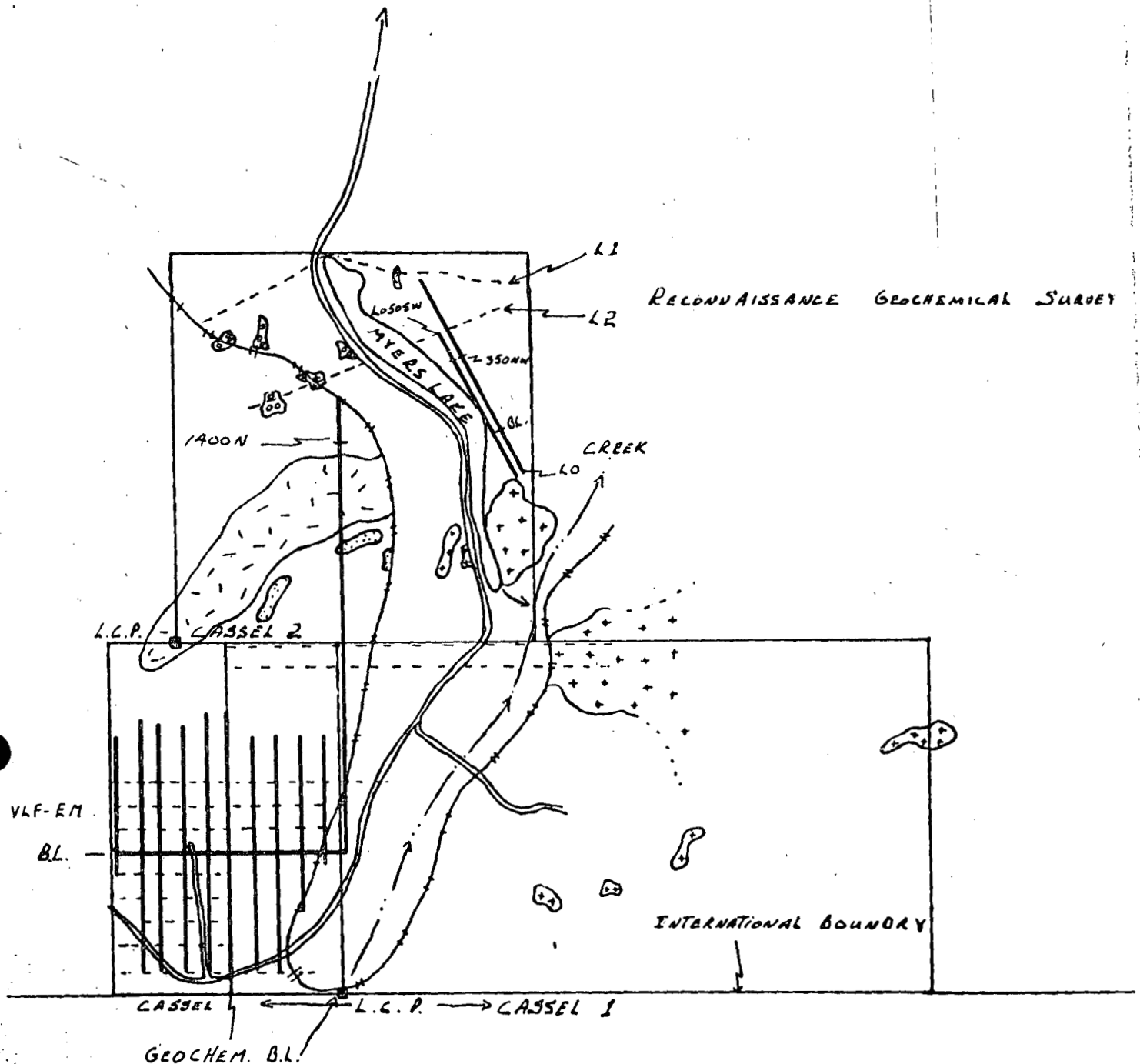
GRAND NATIONAL RESOURCES INC.
CASSEL PROPERTY

DATE
Jan. 15/85
FIG. No.
11



GRAND NATIONAL RESOURCES INC. CASSEL PROPERTY		
CLAIM MAP		
MONASH & GEOLOGICAL SERVICES	N.T.S. 82 E/263 Scale 1:50,000 January 15/85	FIG. No. 2

ROCK CREEK



RECONNAISSANCE GEOCHEMICAL SURVEY

INTERNATIONAL BOUNDARY

SURVEY LOCATION MAP

CASSEL CLAIM GROUP

— VLF-EM LINES - 1984

+ + + - GRANODIORITE

L L L - TRACHYTE

..... - QUARTZITE, ARGILLITES

□ □ □ □ - DACITE TUFF

----- - GEOCHEMICAL LINES - 1983

—+—+—+—+— - RAILWAY (ABANDONED)



PLATE 3

RECONNAISSANCE VLF-EM RESULTS

STN.	DA	FS	STN.	DA	FS	Q	STN.	DA	FS	Q
L5E 525N	+5	73	L050SW				LO			
550N	+8	71	200SE	+6	36		225SE	+4	35	
575N	+4	71	175SE	+1	36		200SE	+2	35	
600N	+5	71	150SE	+3	33		175SE	+4	30	
625N	+3	76	125SE	+4	35		150SE	+7	32	
650N	+4	70	100SE	+6	35		125SE	+7	32	
675N	+10	70	75SE	+9	32		100SE	+8	23	
700N	+10	65	50SE	+14	36		75SE	+15	28	
725N	+8	63	25SE	+20	35	+3	50SE	+20	30	
750N	+10	61	0	+28	50	+5	25SE	+24	40	
775N	+10	62	25NW	+10	57	+10	0	+17	61	
800N	+8	65	50NW	-7	56	+8	25NW	+10	60	
825N	+8	60	75NW	-10	57		50NW	+6	57	
850N	+8	65	100NW	-2	58		75NW	+3	51	
875N	+6	55	125NW	-5	56		100NW	+3	47	
900N	+10	53	150NW	-7	56		125NW	+4	44	
925N	+10	57	175NW	-4	57		150NW	+5	43	
950N	+8	67	200NW	-12	55		175NW	+6	43	
975N	+10	70	225NW	-7	56		200NW	+4	44	
1000N	+12	78	250NW	-12	59		225NW	-6	47	
1025N	+5	78	275NW	-14	61		250NW	-7	51	
1050N	+8	67	300NW	-12	71	+5	275NW	-5	56	
1075N	+4	62	325NW	-13	84	+7	300NW	-7	60	
1100N	+6	68	350NW	-18	90	+11	325NW	-10	61	+6
1125N	+4	72	375NW	-25	91	+13	350NW	-20	60	+5
1150N	+3	72	400NW	-32	76		375NW	-25	50	+4
1175N	+1	62	425NW	-36	58		400NW	-20	44	
1200N	+4	53	450NW	-35	52		425NW	-20	45	
1225N	+2	49	475NW	-30	52		450NW	-16	47	
1250N	+8	50	500NW	-26	53		475NW	-14	47	
1275N	+6	48					500NW	-12	47	
1300N	+6	32								
1325N	+5	29								
1350N	+7	55								
1375N	+2	65								
1400N	0	68								
1425N	-2	70								
1450N	-4	70								
1475N	-6	74								
1500N	-4	67								
1525N	0	67								
1550N	-6	85								
1575N	-8	55								
1600N	-5	50								

DA - DIP ANGLE

FS - FIELD STRENGTH

Q - QUADRATURE

Fig. 4

INTRODUCTION

The 'Cassel' claim group is located approximately seven kilometers south of Rock Creek, B.C. (Plate 1) near the old Myncaster Railroad Station. Access is via B.C. Highway #3 east of Rock Creek for a distance of 1 kilometer to the Rock Creek-Bridesville secondary road. After an additional two kilometers, a branch road to the left leads past Myers Lake and the Harpur's Ranch and on to the property. Numerous ranch roads plus the abandoned railway grade provide good access to the claims.

Myers Lake and Myers Creek effectively bisect the property and forms the most prominent physiographic feature. In general, the area is of a dry grassland nature broken by occasional rock bluffs with secondary growth coniferous forests in more sheltered areas. There is sufficient timber and water resources for exploration and development purposes.

PROPERTY HISTORY

The 'Cassel' group consists of the following claims:

<u>Claim</u>	<u>No. of Units</u>	<u>Record Number</u>	<u>Expiry Date</u>
Cassel	6	3687	March 31, 1987
Cassel #1	15	3720	April 27, 1986
Cassel #2	9	3721	April 27, 1987

The claims are currently in good standing and registered to Grand National Resources Inc. of #915 - 470 Granville St., Vancouver, B.C. Located on the 'Cassel' claim group are several old diggings which were driven on quartz veins containing pyrite with minor galena and some marcasite. This development work was most likely undertaken in the early 1900's during active exploration of the placer gold deposits

located in the Rock Creek area. Due to the proximity, both geographically and geologically, of the 'Cassel' group to an area of known placer deposits plus the occurrence of mineralized quartz veins on the claims, the development potential of the property is considered to be good.

During the summer of 1983, a reconnaissance geological and geochemical program was conducted by the author on the 'Cassel' property. Results have been documented in the appropriate assessment reports.

PROPERTY GEOLOGY

The western portions of the 'Cassel' property, according to G.S.C. Map 15 -1961 based on H.W. Little's observations, is underlain by Triassic metasedimentary and metavolcanic rocks of the Anarchist Group. The eastern portions are underlain by the intrusive granitic rocks of the Cretaceous Nelson Batholith. Paleocene sediments and acid volcanics rocks of the Kettle River Formation occur as scattered inliers and outliers on the claims. Eocene intermediate volcanic rocks of the Phoenic Volcanic Group cap the older rocks in the northern portion of the claims.

During the 1983 geological and geochemical reconnaissance surveys, two modes of mineralization were observed on the property. The first type occurs in wide (0.50 to 2.0 meter) quartz veins cutting through the granitic rocks in the eastern area. It consists of quartz, marcasite, pyrite with negligible amounts of gold and silver.

The second mode occurs in narrower (20 to 75 cm.) quartz veins intruding the Anarchist Group rocks in the western part of the property. Mineralization consists of pyrite with minor galena but containing significant amounts of precious metals.

GEOPHYSICAL SURVEY

The VLF-EM Survey (fig. 3-5) on the Cassel property was conducted by the author and one field assistant from November 21 to December 11, 1984. A total of 10 days were spent on the program which included grid, as well as, reconnaissance surveying.

The first portion of the program consisted of establishing a north-south grid (fig. 3&5) in the vicinity of the 1983 geochemical survey. Originally, the grid from the 1983 program was to be used for the geophysical lines but these proved to be very poorly oriented with respect to the VLF transmitters available on the field instrument. As a result, a new grid was established which was oriented north-south. In order to maintain a degree of control between the two grids, line 0+00 from the 1983 grid was used as the new baseline for the VLF-EM survey. Along this new east-west baseline, north-south crosslines were established at 100 meter intervals with survey stations located every 25 meters on the crosslines. In all, a total of 10.6 line kilometers were surveyed.

In addition to the surveyed grid lines, a total of 2.7 line kilometers were ran on reconnaissance surveys. These reconnaissance lines (fig. 3&4) were conducted on separate portions of the Cassel property to test for conductive inhomogeneities which might be associated with the volcanic and intrusive rocks located near Myers

Lake in the Cassel #2 claim. One line consisted of extending the grid line 5+00E an additional 1.1 kilometers to the north. Two other reconnaissance lines were established NW\SE next to Meyers Lake to test the basically overburdened granitic contact at this location.

For the geophysical survey, a Sabre VLF-EM (Model 27) receiver was utilized. It was tuned to the Seattle, Washington transmitter (24.8 Khz) for the north\south lines and to the Annapolis, Maryland (21.4 Khz) transmitter for the NW\SE reconnaissance lines. The Sabre VLF-EM measures the dip angle (in phase) of secondary electromagnetic field as well as changes in the field strength or amplitude of the field. A quadrature (out of phase) component is available as a residual reading when measuring the dip angle. Field procedure requires a "gain" adjustment to provide suitable relative field strength measurement.

TECHNICAL DATA AND INTERPRETATION

The geophysical survey on the Cassel property was conducted in order to obtain more exploration information in the area covered by the previous years surveys.

The VLF-EM survey (fig. 5) outlined a number of primary and secondary conductors. These conductors have a generally northeasterly trending attitude with steep southerly dips. The dip angles show a smooth rolling background characteristic of mountainous terrain. In general, inflection responses are low to moderate indicative of the largely metasedimentary bedrock. It is only on occasion that strong responses are recorded at localized specific stations (L1W 125S, L3W

400N, L1W 450N and L5E 400N). These primary anomalous sites are usually limited in extent though the structure with which they are associated do seem to have broad and long offset trends as secondary conductive zones. The more notable of these primary conductors are located from L4W 400N to L1W 450N; L050W 250N to L050E 275N and BL 3W to L2W 50N. These zones were also the only sites in which cross-overs, though weak, were located. The greatest field strength measurements are also recorded at these zones as gradually increasing values towards the anomalous site (up to +90 at L2W 25N from a background of +55) with a corresponding gradual decrease after traversing over the conductor. One quadrature reading (+4) was obtained at L1W 125S which also coincides with a strong dip angle inflection and field strength value.

From the previous years programs it appears that a number of conductive zones (L2W 100S to L1W 100S and L3W 425S to L4E 350N) are possibly associated with an intrusive felsite (probably a serpentized ultrabasic) and/or the tuffaceous greenstone which are in contact with the metasedimentary rock types. The anomaly at L050W 250N is probably an expression of a shear zone which is exposed in a shaft and trench near L1W 300N.

The VLF-EM reconnaissance lines (fig. 3 & 4) also indicated areas of interest within the Cassel property. The extension of L5E located one conductive zone at 1400N at which a weak 'cross-over' was also recorded.

The two other reconnaissance lines on the east bank of Myers Lake were surveyed to test the overburdened granitic contact at this

location. As can be seen from fig.4 a number of strongly conductive zones were located as indicated by the strong dip angle inflections, 'cross-overs', field strength values and residual quadrature readings. The strongest of these zones correspond to both L0 and L050SW at 25NW and 350 NW. Due to the proximity of Myers Lake, some of the readings may be of a spurious nature and it is recommended that this area be surveyed using geochemical methods.

CONCLUSION

The geophysical survey conducted on the Cassel Property outlined a number of electromagnetically conductive zones. These zones are generally of low conductivity with primary anomalies being expressed as narrow (50-150 M.) and limited linear (50-300M.) features. The anomalies have a northeasterly trend with steep southerly dips.

The reconnaissance lines were successful in outlining areas of additional interest, especially the overburdened granitic - metasedimentary contact in the vicinity of Myers Lake.

Due to the normally positive results of the survey, it is recommended that the areas of interest, both from the 1983 and 1984 surveys, undergo more extensive geochemical and geological examination. In addition, Myers Lake should be geochemically sampled and analyzed.

ITEMIZED COST STATEMENT

1. R. Kregosky, Geologist: 10 days @ \$200.00/day.....	\$2,000.00
2. Field Assistant: 10 days @\$85.00/day.....	\$ 850.00
3. Food and Accommodation: 10 days @ \$75.00/day.....	\$ 750.00
4. Transportation: 400 km. @\$0.25/km.....	\$ 100.00
5. VLF-EM Rental: 10 days @ \$50.00/day.....	\$ 500.00
6. 3 days report preparation @ \$200.00/day.....	<u>\$ 600.00</u>
	\$4,800.00

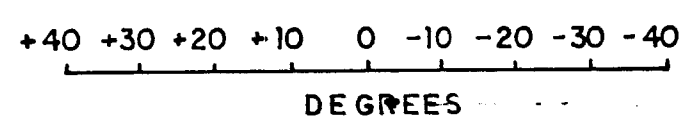
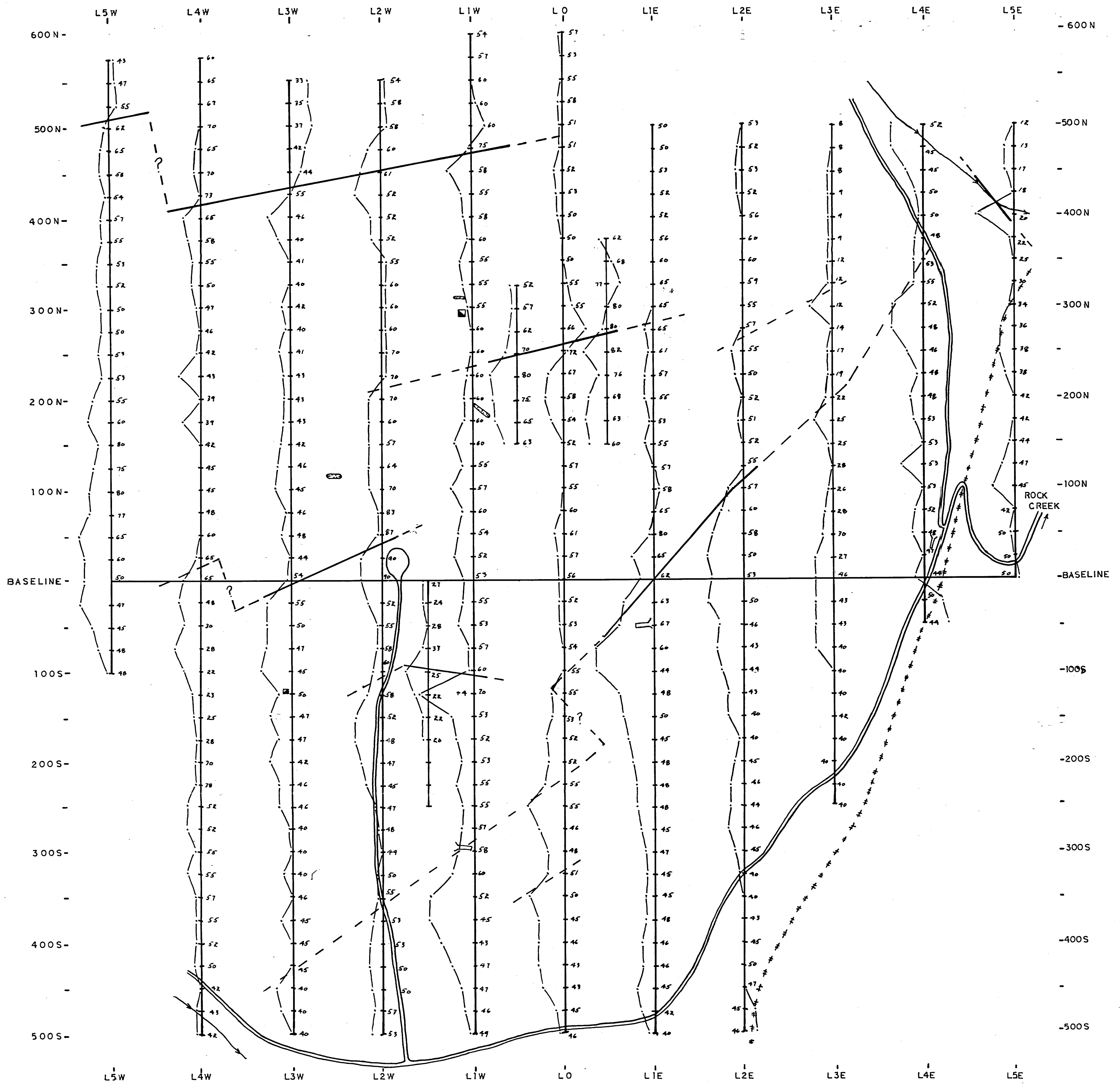
AUTHOR'S QUALIFICATIONS

I declare, that I, Roy D. Kregosky am a practicing Geologist having graduated from the University of Calgary in 1971 with a Bachelor of Science degree in Geology.

January 15, 1985



R. Kregosky, BSc.



- PRIMARY CONDUCTOR
- - - - SECONDARY CONDUCTOR
- 55 FIELD STRENGTH
- +5 QUADRATURE
- ~~~~~ CREEK
- * * * * * RAILROAD - ABANDONED

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

GRAND NATIONAL RESOURCES INC.

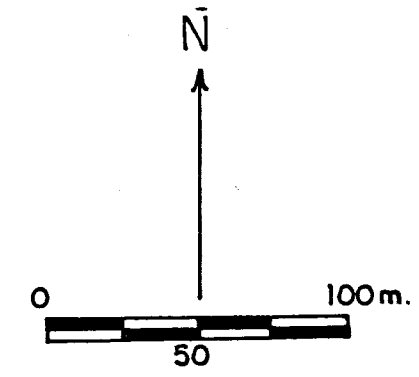
CASSEL GROUP GREENWOOD MINING DIVISION

13,481

VLF-EM SURVEY

DIP ANGLE PROFILES

JANUARY 15, 1985	MONASHEE GEOLOGICAL SERVICES	FIG. 5
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- ⊞ TRENCH
- SHAFT
- ┌ ADIT