85-721-14677

GEOLOGICAL REPORT

ON THE

D.P. 1,2,3 AND CANDY CLAIMS

REE - Ba - F - P CARBONATITE PROSPECT

GOLDEN MINING DIVISION
SOUTHEASTERN BRITISH COLUMBIA
NTS 82J/3E

LATITUDE: 50°13'N
LONGITUDE: 115°08'W

BY

C. GRAF, P.Eng.

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SUMMARY

The D.P.-Candy Claim Group covers a large carbonatized alteration zone within Middle Devonian evaporite and platformal carbonate rocks in the southern Rocky Mountains of British Columbia. The alteration consists of pyritization, ankeritization accompanied by abundant flourite, barite, phosphate, and rare earth element mineralization. A >1000 ppm flourine soil anomaly has been outlined which is 1.8 km long by .1 to .4 km wide and open to the northwest. The zone of flourite-REE mineralization and high gama radiation continues along strike to the northwest for over 1 km from the soil sample grid.

Numerous diatreme breccias, and dioritic sills and dikes occur several kilometers along strike off the claims, and float boulders of diatreme breccia occur on the claims. Carbonatites and diatremes commonly occur together in cratonic rift zones similar to the Rocky Mountain Trench, and the well known Ice River Carbonatite Complex lies along strike 125 km northwest.

Reconnaissance Gamma Ray Spectrometer traverses made across the claims in 1985 outlined six areas larger than 300 m^2 which are over 4 times background within which local areas over 80 times background occur. High gamma radiation areas consistently contain abundant purple flourite mineralization in sub-crop. Neutron activation analyses of six individual rock samples showed total REE contents up to 2.3% (1% cerium, 1% lanthanum, .3% neodymium), but low uranium, thorium and potassium levels.

One sample assayed 5.8 oz. silver and .023 oz/ton gold, but contained low lead, zinc and copper values. A subsequent electron microprobe study identified an entirely new silver-tellurium bearing mineral species $(Ag_8Sn(TeS_2)_2$.

An XRD spectrographic analysis of seven purple flourite-bearing rock samples, identified the F-Ba-P-REE minerals bastnaesite, gorceixite and prosopite, in addition to dolomite, fluorite, calcite, barite, k-Feldspar, pyrite, rutile and illite.

A separate thin section petrographic study of five samples identified dolomite and fluorite as the major minerals, with lesser amounts of barite,

goyazite, anatase, synchysite, apatite and pyrite. The F-REE minerals, synchysite and goyazite are closely related to bastnaesite and gorceixite and may have been misidentified in the previous XRD analysis.

It appears that a late Middle Devonian age rift-type fault system, analogous in some ways to the present day Rocky Mountain Trench, trended northwesterly along the axis of the southern Rocky Mountains of British Columbia. This structural break followed a line of weakness that had undergone subsidence since Early Middle Cambrian time as evidenced by the numerous well documented regional shale-carbonate (basin-platform) facies boundaries across the Kicking Horse Rim.

In mid-Devonian time the rift faulting was very active, producing shallow water sub-basins in which accumulated large, thick evaporite (gypsum-anhydrite) deposits. Contemporaneous carbonatite magmas were intruded, which vented REE-F-Ba-P enriched carbonate tuff and exhalite into the sub-basins. A weak phase of submarine basic volcanism, associated with diatremes and dioritic dikes and sills, occurred along the rift axis where carbonatite plugs were intruded at greater depth. On the DP-Candy claims, a carbonatite intrusive body is thought to lie at shallow depth. The large carbonatized area with associated REE-F-Ba-P mineralization may represent fenitization of the hangingwall country rocks.

Much rock sampling assaying and cat trenching is necessary to determine whether the mineralized zones contain economic concentrations of REE-F-Ba-P-Nb-Zr minerals. The mineralized area is large 2 km long by .1 to .4 km wide, has easy access for drilling via the logging trails, and probably could be mined by open pits. As the mineralogy and geology are somewhat unusual, careful mineralogical and metallurgical studies will be necessary to design proper recovery and processing systems if an orebody is discovered.

CLAIMS INFORMATION

The property consists of four mineral claims; D.P. 1 (4 units), D.P. 2 (1 unit), D.P. 3 (1 unit) and Candy (2 units). They are located on NTS Map 82J/3E at Latitude 50°13'N and Longitude 115°08'W. They are owned 100% by the writer, and have been grouped in 1985 as the Candy Group # 781. There are no liens or third party interests against the claims, and they have sufficient work recorded to maintain them in good standing until July 1987.

LOCATION AND ACCESS

The property lies near the headwaters of the east fork of the White River on a tributary called Canyon Creek. It is accessible via a well maintained logging road from the town of Canal Flats, 50 km west. The Canadian Pacific Railroad connects Canal Flats to the main Trans Canada rail line at the town of Golden, 150 km north, and to the southern Trans Canada rail line near the mining town of Kimberley 60 km south.

The main mineralized area lies between 4500 feet and 6000 feet elevation in a forest fire-burned valley that has subsequently been logged completely bare. As a result, exposure is excellent and numerous logging cat roads run at various elevations contouring the hillsides.

An adequate supply of water occurs year round in Candy and Canyon Creeks to support drilling programs from late May until October.

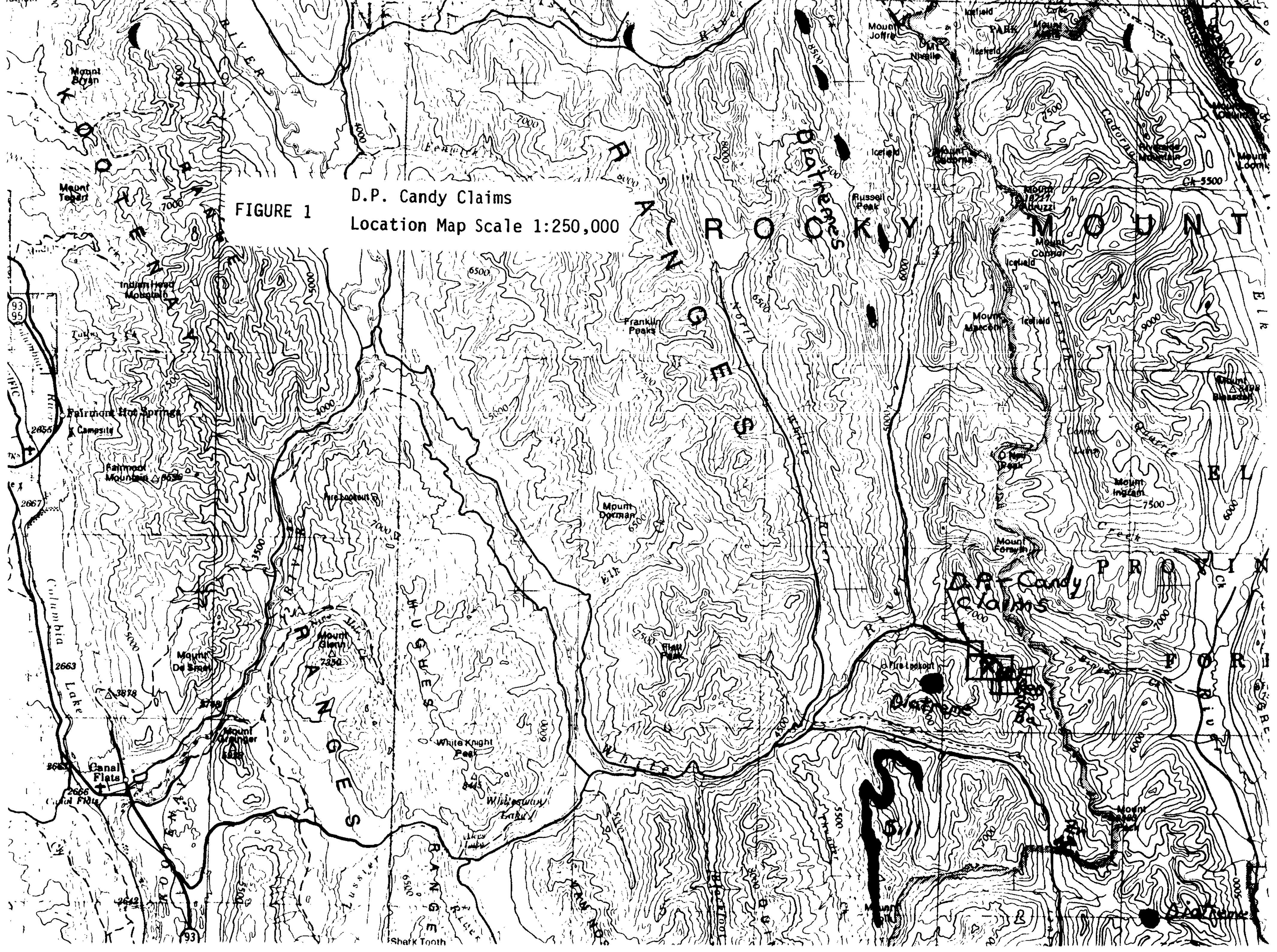
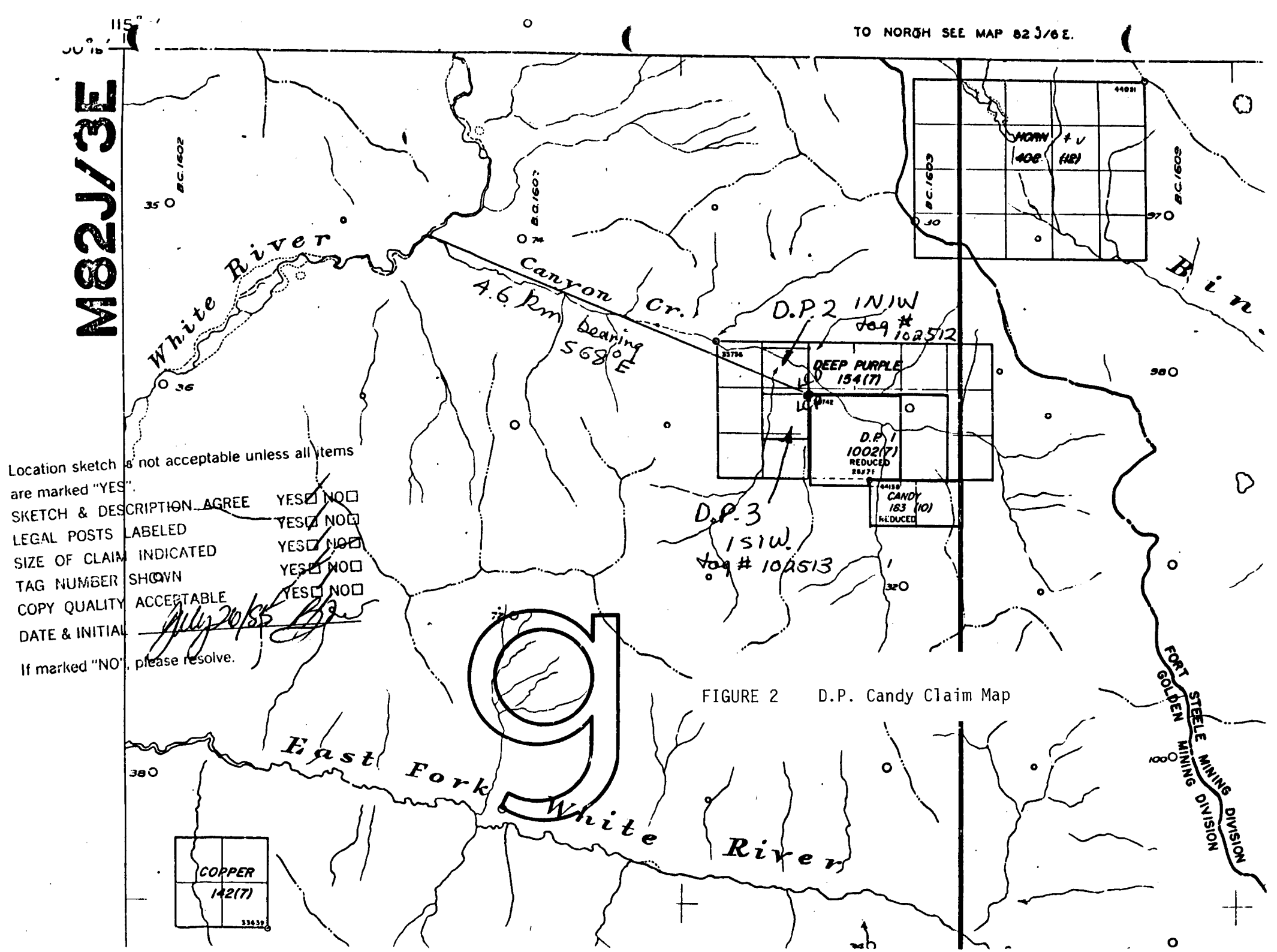


FIGURE 1 D.P. Candy Claims Location Map Scale 1:250,000



Location sketch is not acceptable unless all items are marked "YES".

SKETCH & DESCRIPTION AGREE	YES☒ NO☐
LEGAL POSTS LABELED	YES☒ NO☐
SIZE OF CLAIM INDICATED	YES☒ NO☐
TAG NUMBER SHOWN	YES☒ NO☐
COPY QUALITY ACCEPTABLE	YES☒ NO☐
DATE & INITIAL	July 20/85

If marked "NO", please resolve.

FIGURE 2 D.P. Candy Claim Map

WORK DONE IN 1985

For accessibility, much roadwork, including filling in washouts and sawing out windfalls, was necessary.

The claims were prospected with a gamma radiation detector (GIS-4 spectrometer), for the first time, which outlined large areas of significant gamma radiation. Twenty rock samples were analyzed by neutron activation and found to be consistently anomalous in REE content.

An XRD study was done on 7 rock samples and 2 heavy mineral stream sediment samples collected in 1985. This work identified the REE-bearing minerals, bastnaesite and gorceixite, in addition to flourite, dolomite, calcite, barite, prosopite, apatite, K-feldspar, pyrite and rutile. A separate geochemical petrographic study was made on 4 samples which identified the REE minerals synchysite and goyazite, but not the similar bastnaesite and gorceixite.

One sample assaying 5.8 oz/ton silver was electron microprobed and found to contain an entirely new silver-tin-tellurium bearing mineral species.

The entire geological setting has been re-interpreted to reflect the probability of a carbonatite associated syngenetic F-Ba-REE-P mineral deposit rather than the MVT F-Zn model previously held by Riocanex.

HISTORY AND PREVIOUS WORK

The prospect was discovered by the writer in 1977 during a regional MVT zinc-lead mineral exploration program funded by Riocanex. Further work by Riocanex included mapping, soil sampling, and 250 m of cat tenching in 1978 and 300 m of backhoe trenching in 1979. This work was solely concerned with exploring for flourite and zinc mineralization. In 1980 Riocanex became disinterested in flourite and the property was returned to the writer. No drilling was done on the claims.

The Geological Survey of Canada published the Open File Map 634 Kananaskis Lakes Map area in 1980, which covers NTS 82J and the claims area.

REGIONAL GEOLOGY

The mineralized-radioactive zone ~~property~~ lies near the base of a 1 km thick Middle Devonian red bed-evaporite-carbonate sequence which correspond ~~reasonably~~ regionally to the basal Devonian Unit, Burnais Formation and Harrogate Formation ~~of Leech.~~ Several large gypsum deposits are being mined from the Burnais Formation at Windermere (Henderson, 1954) 57 km northwest and Lussier River, 36 km west where the basal Devonian Unit is called Cedared Formation (Belyea and Norford, 1967). Several clusters of contemporaneous dioritic intrusions (diatremes, dikes, sills, breccias) occur throughout an area extending 20 km to the south, north and west of the claims. A number of diatreme breccia float boulders occur on the Candy claim east of Candy Creek, but have not been traced to source.

A regional fault structure, probably the southern extension of the McConnell Thrust, trends along the west boundary of the property and has thrown Ordovician-Silurian Beaverfoot limestones eastward against and overturning the lower units of the Devonian sequence. This fault follows the gypsum beds in the Burnais Formation, and along Bull River to the south has been named the Gypsum Fault. In doing so, it also follows the basal Devonian redbeds and the sub-Devonian unconformity. The fault structure of the Bull River Valley is complicated (Leech 1962), and southward the sub-Devonian unconformity cuts rapidly downward from the Silurian to the Middle Proterozoic across a distance of 15 km. It may be that significant displacement took place along this fault in Devonian time, which has previously gone unrecognized but may help explain the complexities.

PROPERTY GEOLOGY

The claims are underlain by a north striking sequence of well bedded Middle

Devonian age carbonate dominated sediments as well as highly fossiliferous limestones, dolostones and shale of the Fairholme Groups. The recessive reddish colored basal Devonian unit can be easily traced north of Canyon Creek as it passes over the ridge separating the White River. Eastward along the ridge the entire Devonian through Mississippian section is exposed, and the Palliser Formation caps the highest ridge east of Canyon Creek. South of Canyon Creek the sequence is hard to follow, on the ground as well as on air photos. This is unexplained, but is in part due to scree, glacial deposits and the recessive nature of the formations.

On the accompanying geology map (Figure 7), rock units 1L, 2D1 and 2D2 belong to the Ordovician-Silurian Beaverfoot Formation. The Middle Devonian (Pine Point age) Harrogate Formation is tentatively assigned to rock units 2D3, 2D4, and 3L1. Rock unit 8EB, which forms a more extensive layer than presently mapped, correlates with the Middle Devonian Burnais evaporite formation. Rock units 3L2, 3L3, 4D4, 4DL2, 4DL3, 4DL4, 5FD and 5BNL are all part of the Upper Middle Devonian Fairholme Group. The Upper Devonian Palliser Formation is represented by rock units 6L3, 6L4 and 7L.

A zone of intense carbonatization of the basal Devonian and Burnais Formation sediments occurs on the claims over an area 5 km north-south by 1 km east-west. This alteration event (fenitization) has produced a pronounced orange weathering to red color anomaly in the soil and rock due to pyrite-ankerite mineralization and weathering products, limonite and hematite. The color anomaly-alteration zone is most extensive on both sides of Candy Creek from its mouth to 2 km up stream. On the west side of Candy Creek it extends up slope to the ridge crest, and downstream along the west side of Canyon Creek all the way to the mouth of the first large tributary from the west. This main mineralized-altered zone appears to be within the basal Devonian and Burnais Formations and may have formed along the required thrust fault separating the Devonian sequence from the Beaver Foot Formation. On the lower north end of the ridge east of Candy Creek, a similar altered-mineralized zone apparently occurs in Upper Devonian Fairholme Group fossiliferous limestones and dolostones which strike southward into the ridge across Canyon Creek. Outcrop is sparse on the lower north slope where the

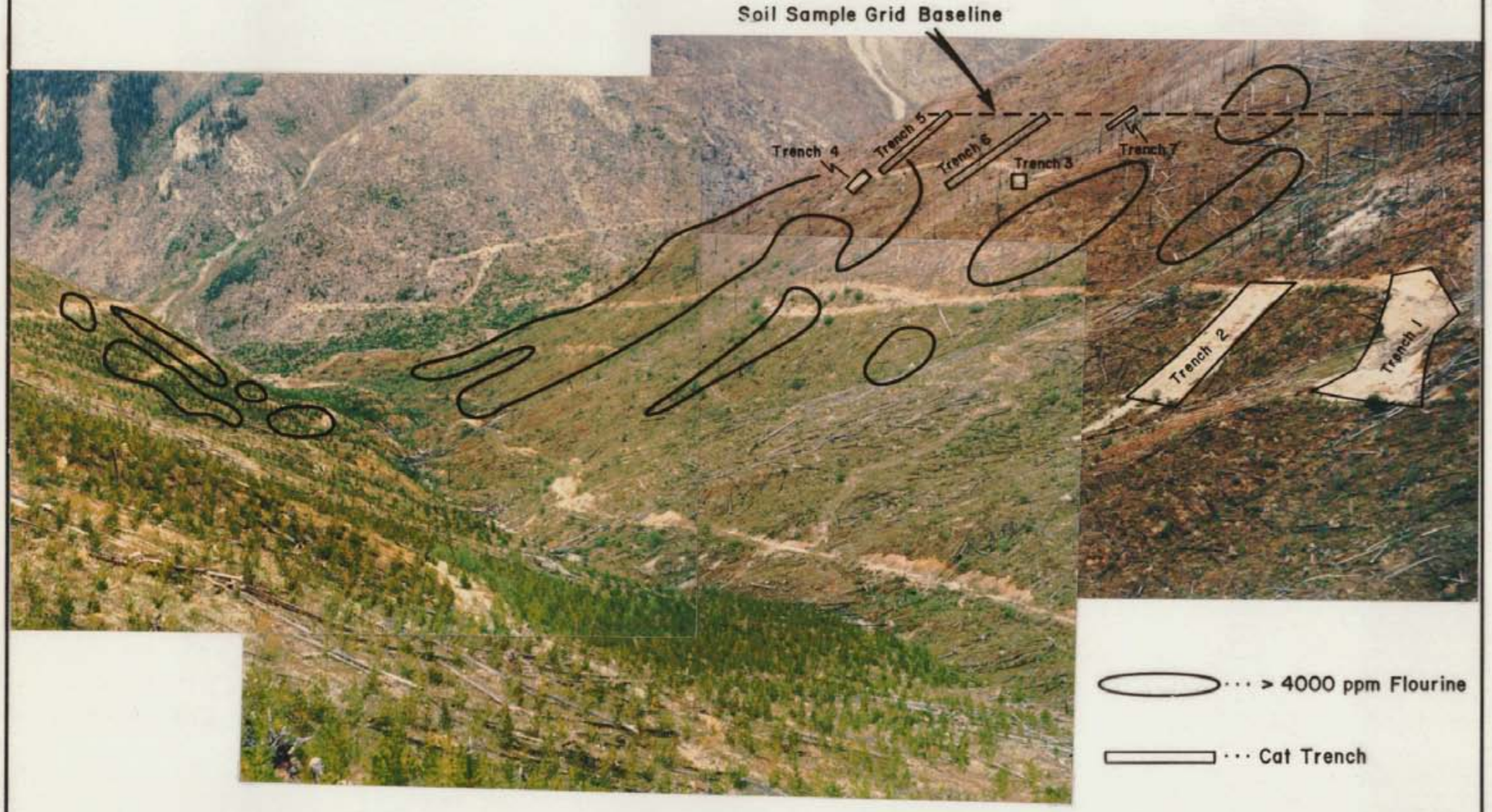


Photo I : View down Candy Creek looking northeast

mineralized zone occurs which makes it difficult to confidently assign the rocks there to the Fairholme Group. If the altered zone actually occurs in basal Devonian-Burnais rocks instead, it would imply that major displacement (south side up) will have occurred across Canyon Creek.

Valley glaciers existed in both Candy and Canyon creeks, and have left prominent end moraines in both valleys just upsteam from their junction. Side moraines also occur in both valleys and are a problem because they cover bedrock and contain dislodged flourite mineralization which has been transported from bedrock sources up to 1 km downstream.

The entire claim has been burned and logged off and many cat roads are strewn with purple flourite-barite bearing float boulders up to .5 m across. Assays show flourite contents between 2.5% and 70%, and barite from .1% to 5%.

In 1985 a number of flourite-bearing rock samples were found to be radioactive by a GIS-4 Gamma Ray Spectrometer, and were subsequently assayed by neutron activation for rare earth elements. Six of the samples contained between .8% and 2.3% total rare earth elements. The highest sample (D.P. 1A) contained 1% cerium, .98% lanthanum, .3% neodymium, .03% samarium, 76 ppm europium, 190 ppm yttrium. Thorium contents ranged up to 750 ppm, but uranium values were consistently below 10 ppm.

It is believed that a carbonatite body underlies the claim group and has produced the extensive carbonatization, pyritization and rare earths-fluorite-barite mineralization around its margin. The fact that the property lies near the centre of a regional area which contains numerous dioritic dikes, sills and diatremes, some of kimberlitic affinity, supports the possibility of a buried carbonatite plug occurring on the claims. The well documented Ice River carbonatite complex occurs 125 km north also near the Rocky Mountain Trench and along the Lower Paleozoic facies change. Throughout the world, carbonatites and kimberlitic diatremes usually occur together in districts along intra-cratonic rift valley fault systems. In Mid-Devonian time, the depressions along the fault zone (White

River Trough) were submarine and at times contained shallow, possibly isolated basins of seawater into which exhalitive type F-Ba-P-REE, and gypsum-anhydrite deposits formed. Contemporaneous basic volcanic activity with associated intrusions of dioritic diatremes, sills and dikes was also largely submarine. Widespread basal Devonian red beds indicate that horsted land areas existed. The well documented discoveries of Early Devonian fossil fish at Mt. Joffre and elsewhere indicate contemporaneous bodies of water existed in the adjacent graben depressions.

MINERALIZATION AND GEOCHEMISTRY

A previous soil grid of 950 samples outlines a >1000 ppm flourine anomaly 1.8 km long by 1.4 km wide and open to the northwest. An adjacent portion of the grid contains a >100 ppm zinc, >50 ppm lead anomaly 800 m x 400 m that is open to the west. Two soil lines (67 samples) were previously analyzed for barium, by Riocanex, of which 30 were found to contain over 5000 ppm barium. These high barium samples also contained high (>4000 ppm) flourine contents. No further work was done to assess the potential of barite mineralization on the claims.

A limited amount of cat trenching (500 m) has been carried out in 5 areas by Riocanex, but failed to reach bedrock in most places. Two of their trenches (#4,5) contained a large percentage of flourite bearing talus but could not penetrate an accompanying hardpan layer.

The flourite mineralization occurs as three main types (Figure 6). The most widespread is disseminated and fine fracture filling purple fluorite in a dirty, (sooty) dark brown to orange weathering recrystallized carbonate rock. Disseminated pyrite is a common accessory, as is an increase in gamma radioactivity and rare earth element content. (Samples R85 DP 1A, 1B, 2A, 2B, 3, 8). This type of mineralization possibly belongs to the outer zone of carbonatization around an hypothetical buried carbonatite.

An XRD spectrographic analysis of 7 purple flourite-bearing rock samples, by the B.C. Department of Mines, identified the REE-bearing minerals bastnaesite (REE CO_3F) and gorceixite [Ba,Ca,REE] Al_3 $(PO_4)_2(OH)_5.H_2O$]. Other minerals identified by this analysis included flourite, dolomite, barite, calcite, K-feldspar, rutile, illite, prosopite [$CaAl_2$ $(F_1OH)_8$] and pyrite. A similar XRD spectrographic analysis of two heavy mineral samples from Candy and Canyon Creeks identified allanite and apatite in addition to the above suite of minerals. (Appendix V)

Cominco Ltd. carried out a petrographic and geochemical study of 5

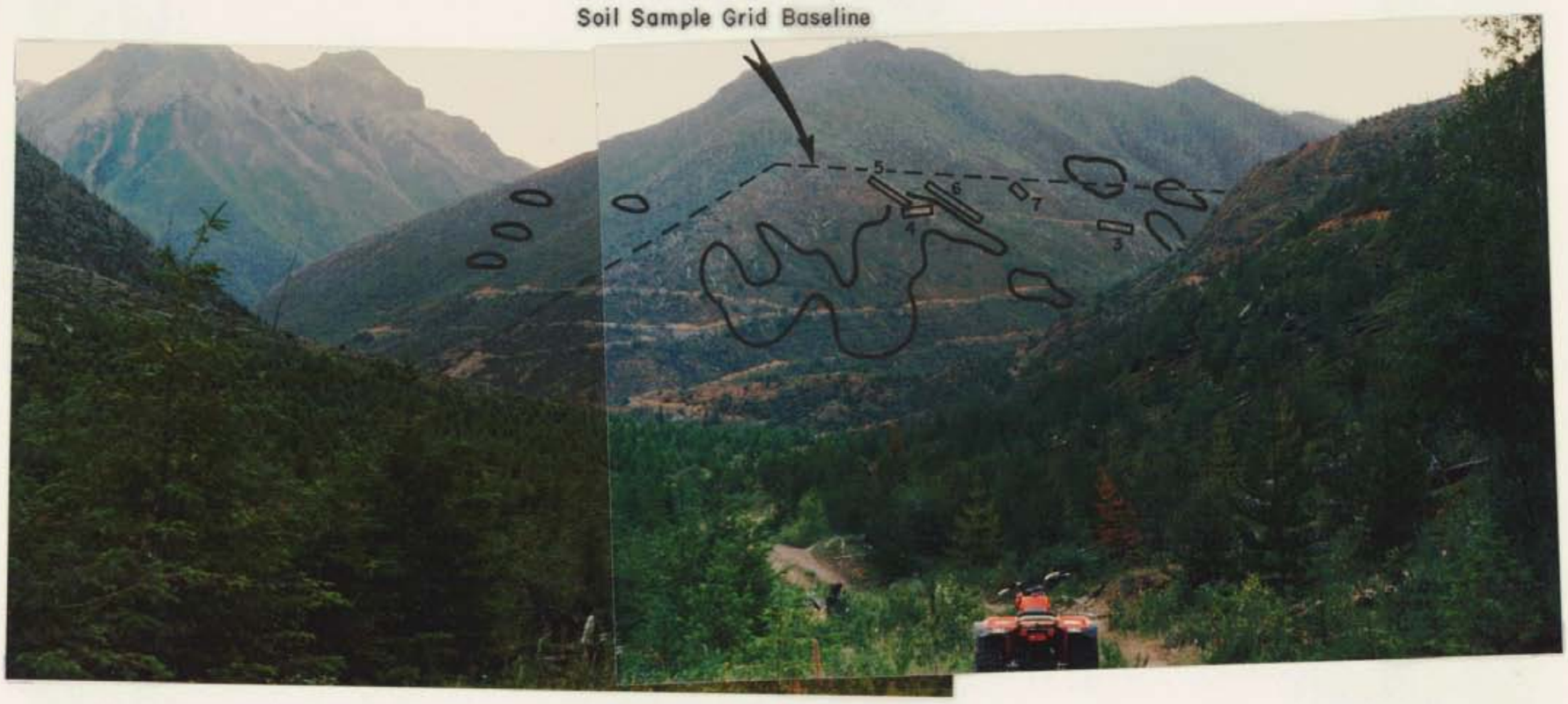
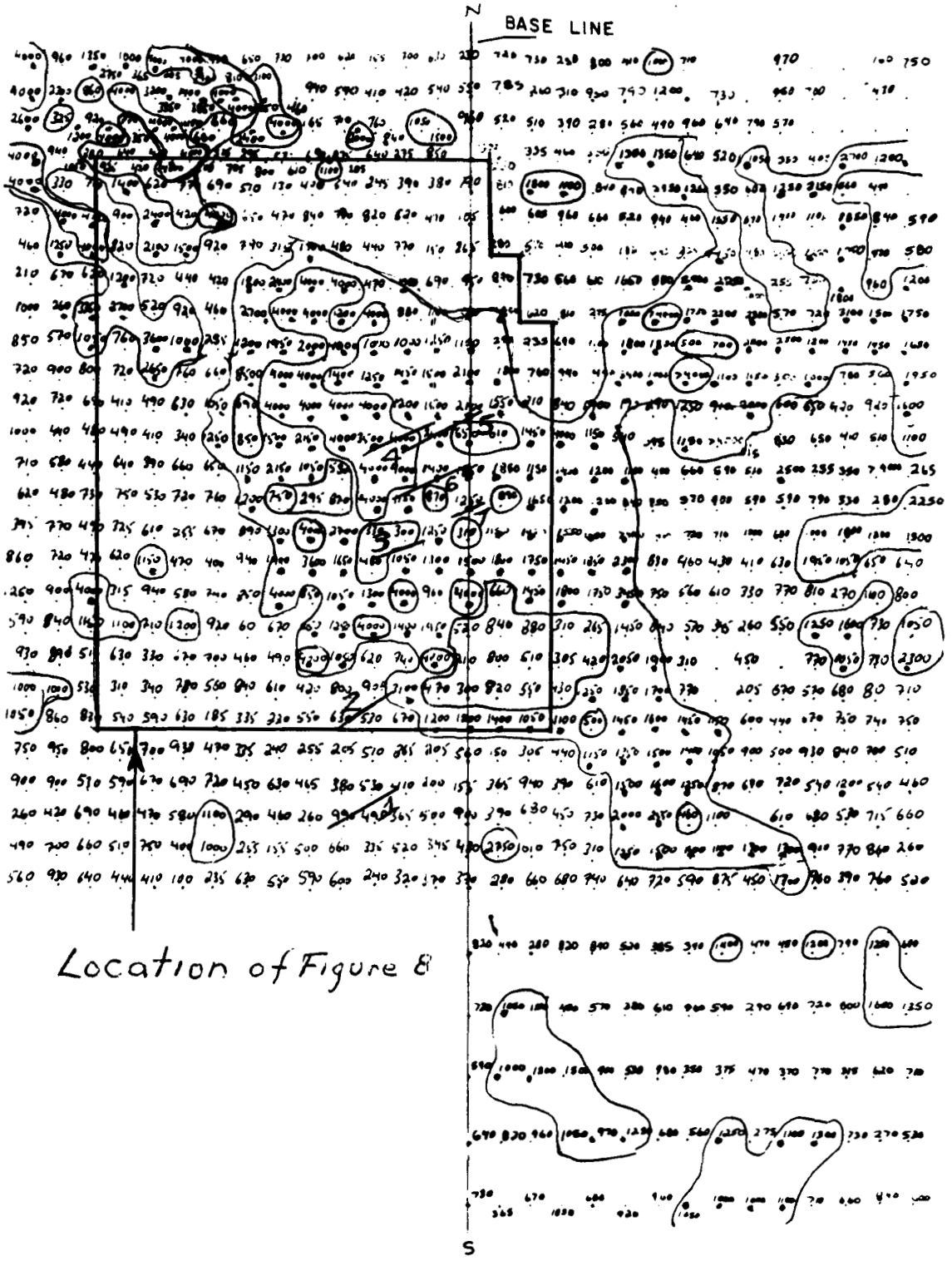


Photo 2 : Junction of Candy and Canyon Creek looking southeast



N.T.S. 82 J/3

450 700 ppm F

> 1000 ppm F

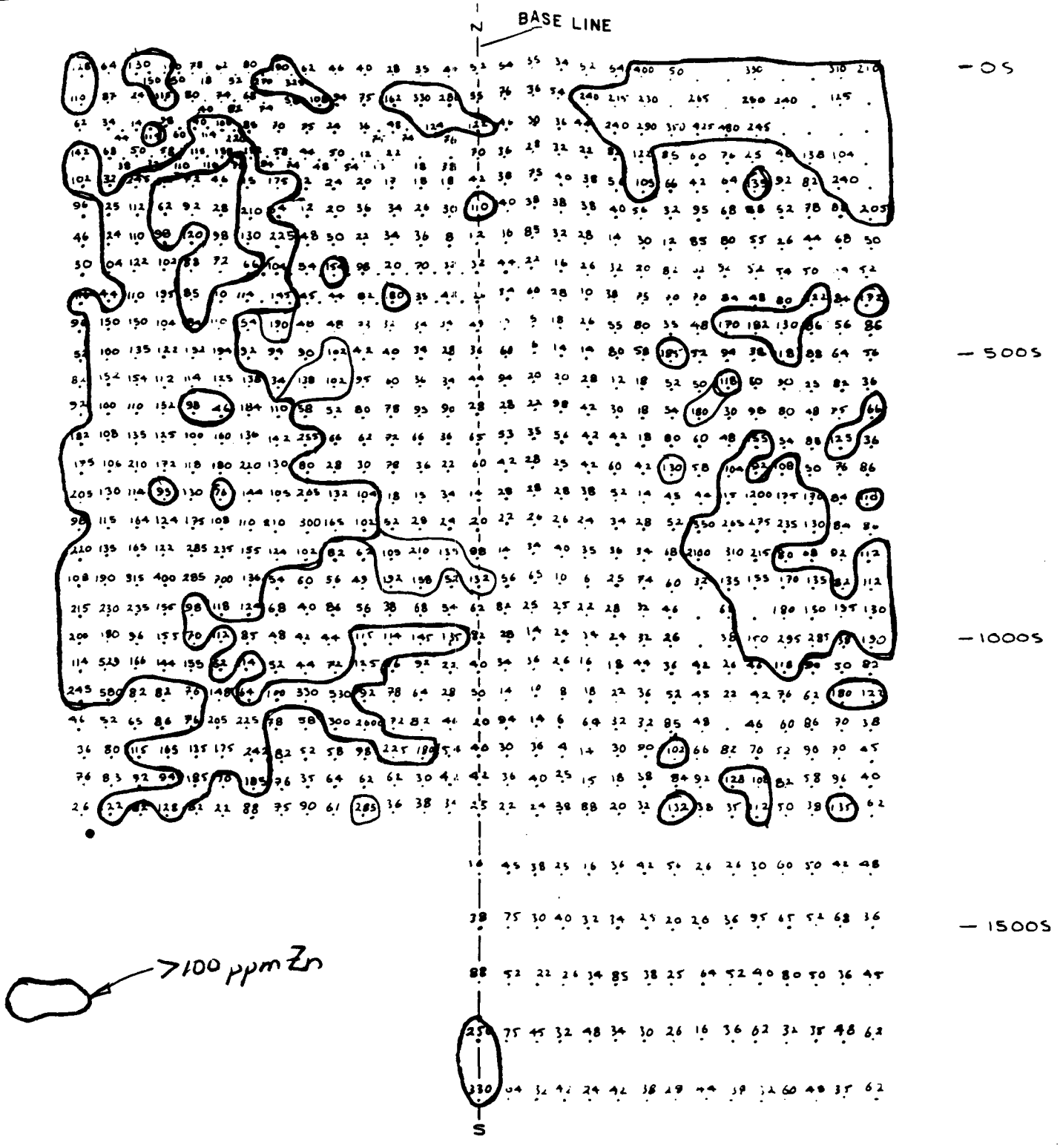
SCALE 1:10,000

100 0 200 400 600 800 Metres

FIGURE 3 Flourine Soil Geochemistry

FLUORITE CLAIMS

GEOCHEMICAL RESULTS - FLUORINE



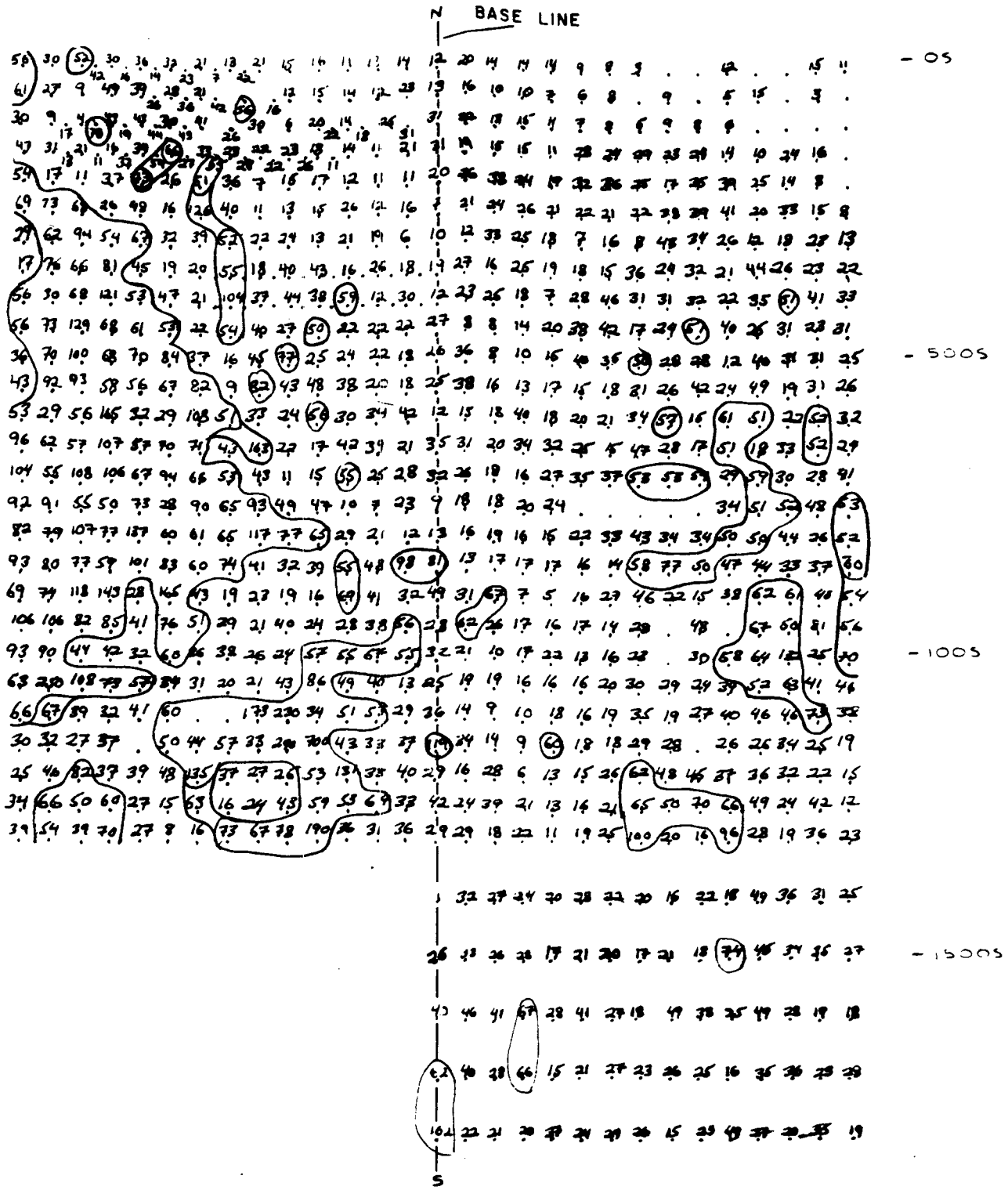
N.T.S. 82 J/3

200 400 600 800 Metres

FIGURE 4 Zinc Soil Geochemistry

FLUORITE CLAIMS

GEOCHEMICAL RESULTS - ZINC



N.T.S. 82 J/3

SCALE 1: 10,000

0 0 200 400 600 800 Metres

○ >50 ppm lead

FIGURE 5 Lead Soil Geochemistry

FLUORITE CLAIMS

GEOCHEMICAL RESULTS - LEAD

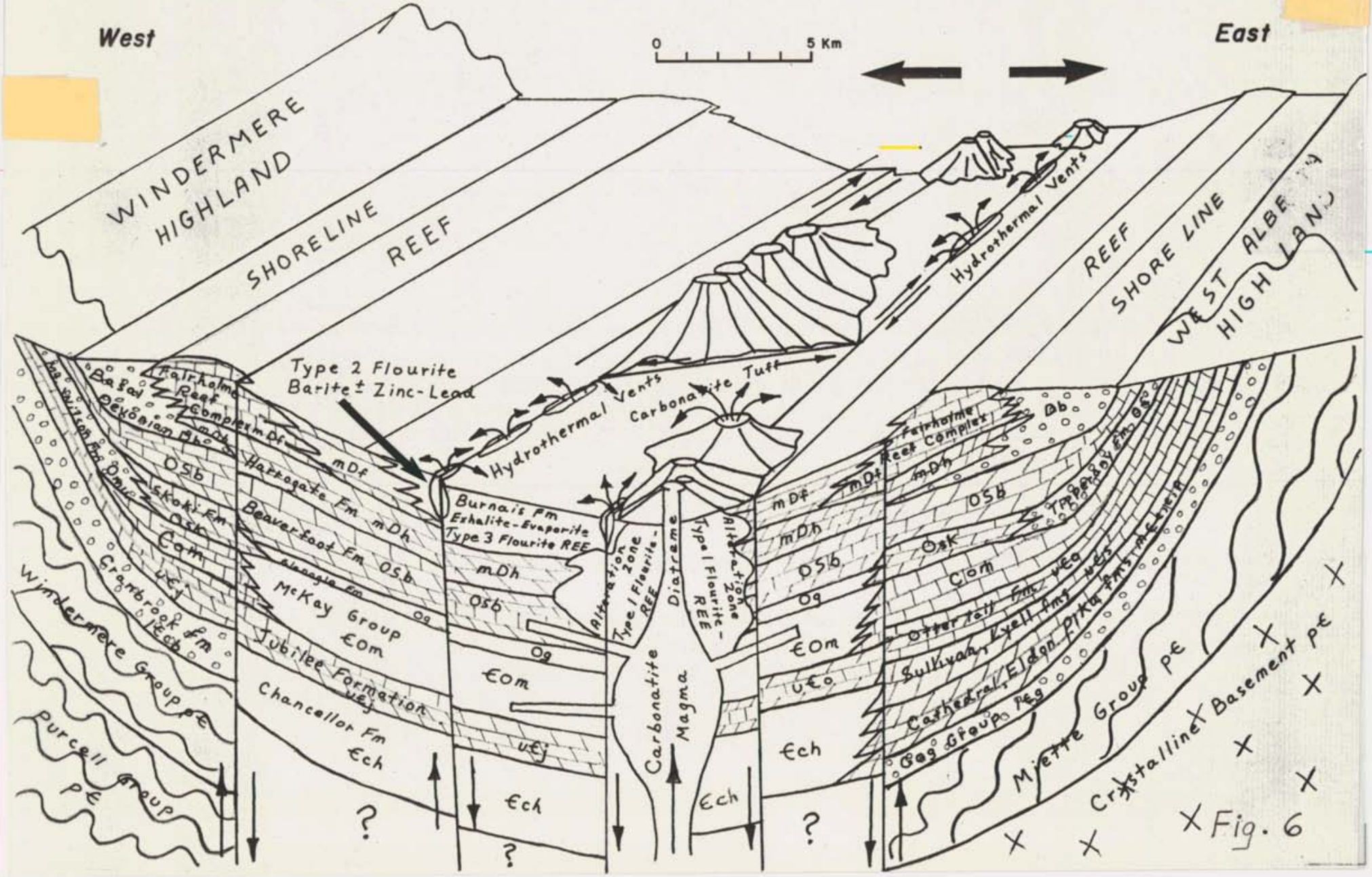
fluorite-bearing rock samples and identified the REE-bearing minerals synchysite (REE $FCO_3.CaCO_3$) and goyazite (REE $SrAl_3[PO_4]_2(OH)_5.H_2O$) rather than the closely related bastnaesite and gorceixite. Other minerals identified were dolomite, flourite, barite, quartz, apatite, and limonite (Appendix IV). Their corresponding geochem results showed values up to 1419 ppm niobium, 10,000 ppm Sr, 1539 ppm Th, 102,700 ppm P_2O_5, 3948 ppm Zr and and 450 ppm Y, in addition to the previously recognized anomalously high contents of F, Ba and REE. Their conclusion was that the suite of rocks were from a carbonatite, or were carbonatite derived.

The second type of mineralization is a massive, but fine-grained, purple and white flourite breccia with accessory barite. The gamma radioactivity, rare earth elements and pyrite contents are all relatively low (Samples # R85 DP 4, 5, 6 7). One such sample also contained 5.8 oz./ton silver and .02 oz./ton gold. (R85 D.P. 6). As the sample contained low copper, lead and zinc contents, it was unclear what silver-bearing mineral was present. Personnel of Newmont Mines, through an electron microprobe study (average of 8 microprobes) were able to determine a formula $Ag_8Sn(TeS_2)_2$. This is a new unnamed mineral species according to the International Mineralogical Association. (Appendix III).

The third type is a fine-grained purple flourite mineralization, disseminated and apparently bedded in a white weathering, creamy textured chalky carbonate-evaporite exhalite unit 10 m thick. This unit also shows extensive infraformational brecciation possibly due to solution brecciation of evaporite (anhydrite gypsum) minerals. This type of mineralization also is weakly enriched in rare earth elements and suggests a syngenetic origin for the flourite within the exhalitive evaporite bearing Burnais Formation.

The massive breccia (Type 2) and the widespread disseminated (Type 1) flourite may represent exhalitive centres for the Type 3 syngenetic bedded mineralization. A submarine, mid-Devonian carbonatite volcano may have formed above an intruding carbonatite magma. An extensive zone of carbonatization would have formed as an outer shell or halo in the intruded mid-Devonian carbonate rocks, and with it the type 1 flourite-REE mineralization.

MIDDLE DEVONIAN PALEOGEOLOGY OF THE WHITE RIVER TROUGH



The massive flourite-barite breccia mineralization could have formed within hydrothermal vents near the volcanic centre, through which a large volume of flourine rich fluids would have escaped into the overlying seawater. As these mineralized fluids cooled, carbonate, flourite, gypsum, $\pm$ barite, $\pm$ REE, $\pm$ zinc-lead would have precipitated and deposited in beds or layers on the seafloor forming type 3 mineralization. (Figure 6)

Extensive areas anomalous in gamma radiation occur on the claims. This is apparently due to thorium and not uranium as the neutron activation analyses show very low contents for U and K.

Reconaissance spectrometer traverses made in 1985 were very useful in locating flourite - REE mineralization. They outlined many broad areas (>200 m across) that were over 10 times background, including several narrower zones (10 m across) that were up to 50 times background. In every case, abundant purple flourite mineralization (Type 1) could be seen, often as float, but occasionally as outcrop.

Background radiation values, measured just off the north boundary of DP 2 claim, were recorded as 450 counts per 10 seconds on a GIS-4 Gamma Ray Spectrometer. The highest reading obtained on the property was 80,000 counts per 10 seconds, on the D.P. 1 claim, 300 m north of the Candy LCP. Very high gamma radiation (15,000 counts per 10 seconds) also occurs on the D.P. 1 claim adjacent to and within the >4000 ppm flourine geochem on the east side of Candy Creek.

RECOMMENDATIONS

The 950 soil samples as well as the rock chip samples taken from cat trenches by Riocanex, should be analyzed for rare earth elements- barium and phosphate. The highest REE containing samples should also be analyzed for niobium.

A gamma radiation contour map to outline target areas, should be made by

running a spectrometer survey along the cat roads and taking a reading every 25 m. It is not clear, however, that areas high in thorium (gamma radiation) will also be highest in REE content.

The soil sample grid should be extended to the northwest across the D.P. 1, D.P. 2, and D.P. 3 claims, as the present flourine soil anomaly is open in that direction, and Type 1 flourite - REE mineralization occurs in outcrop on the D.P. 3 claim over a substantial area.

An IP survey may outline mineralization as there is abundant disseminated pyrite in the Type 1 flourite- REE bearing rock.

A ground magnetic survey may be useful in outlining buried intrusive bodies, as most known carbonatite bodies have pronounced magnetic signatures due to associated mafic phases such as pyroxenite and amphibolite. The ground magnetometer survey could be run in conjunction with the ground radiometric (spectrometer) survey.

The bedrock geology should be re-mapped as previous mapping is incomplete and shows a large unmapped area running diagonally across the centre of the claims. The rock units should also be correlated with the regional Paleozoic stratigraphy (i.e. Beaverfoot, Burnais, Harrogate, Fairholme and Palliser Formations).

The surficial glacial geology should be mapped in order to outline the end and side moraines and determine their thickness, as the depth to bedrock is unknown along Candy Creek. Also, flourite glacial dispersion trains need to be traced to source.

Heavy mineral samples should be taken from all major drainages on the claims in order to locate mineralization and find indicator minerals (ilmenite, pyroclore, apatite) of a buried carbonatite body.

Any significant mineralized targets outlined by the geophysical and geochemical surveys should be subsequently cat trenched and chip sampled. Diamond or percussion drilling should follow if results from the trenching program are encouraging.

COST STATEMENT

1.	Air fare, Vancouver - Cranbrook return	$ 220.00
	- taxi	30.00
2.	Truck Rental + Gas - 1 day	61.79
3.	All terrain vehicle rental - 1 day	20.00
4.	11 Rock Geochem Analysis 26 Element ICP (+F, Ba Assay)	357.50
5.	2 Rock Assays (Au & Ag)	27.00
6.	Thin section preparation	54.00
7.	Rock Sample Shipping Cost	20.00
8.	Labour -2 field days @ $250.00/day	500.00
9.	Report Writing - 2 days @ $250.00/day	500.00
10.	Report typing and photocopying	50.00
11.	Drafting	200.00
		$ 2,040.29

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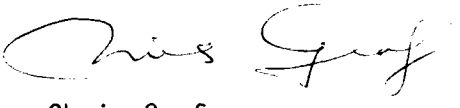
STATEMENT OF QUALIFICATIONS

I, Chris Graf, do hereby declare that:

(1) I graduated from the University of British Columbia, Vancouver, British Columbia in 1974 with a B.Ap.Sc. Degree in Geological Engineering.

(2) That I am a registered Professional Engineer in the Province of British Columbia.

(3) That I have practised my profession for ten years with numerous mining companies in British Columbia.



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APPENDIX I

1985 ROCK SAMPLE DESCRIPTIONS, ICP ANALYSIS REPORT, ASSAYS AND NEUTRON ACTIVATION ANALYSIS REPORT

D.P. FLOURITE ROCKS

R85 DP 001

- Dirty, rusty-ankeritic weathering, altered limestone rock with abundant dark, purple flourite in patches and as fracture fillings.
- some finely disseminated pyrite
- under the microscope there is some translucent light brown colored crystalline mineral (siderite?)

R85 DP 002A

- cleaner weathering (not rusty on surface) altered carbonate rock which appears to have been altered and re-crystallized.
- abundant dark purple flourites in patches and fractures
- $\sim$ 15% finely disseminated pyrite
- under the microscope there appears to be a black mineral (dark flourite? sphalerite?)
- two thin clear qtz bands (silica)

R85 DP 003

- fine-grained, pinkish cast to weathered and fresh surface (originally a Devonian platformal limestone unit)
- euhedral dark colored crystals $\sim$ 1 mm (probably limonite? coated pyrite)
- fine-grained with 2 mm patches of clear colored carbonate and patches of pinkish (carbonate? rhodochrosite?)
- also, similar sized patches of fine-grained dark colored flourite
- some of the pyrite crystals have a yellow color as though they were chalcopyrite
- the rock is slightly radioactive, $\sim$ 3 times background

R85 DP 004

- massive clean weathering flourite $\pm$ barite? vein sample mottled purple-white color, some hint of brecciation.

R85 DP 006

- massive clean weathering flourite-barite? vein. One dark band of fine-grained block flourite? $\sim$ 1/4" wide - white breccia fragments $\sim$ 1 cm across
- some fine-grained pyrite heavily disseminated in some of the blackest colored material

R85 DP 008

- dirty weathering altered re-crystallized limestone with abundant finely fracture filling dark purple flourite
- some fine-grained disseminated pyrite
- some fine-grained black mineral (flourite? sphalerite? rare earth mineral?)

D.P. - Candy Claims Heavy Mineral Samples

HM 85 DP 001	Candy Creek	200 m upstram from junction with Canyon Creek
HM 85 DP 002	Canyon Creek	~ 200 m up stream from junction with Candy Creek
HM 85 DP 003		Large creek from west ~ at north boundary of DP claim

COMPANY: ACTIVE MINERALS LTD. MIN-EN LABS ICP REPORT ACT:) PAGE 1 OF 1

PROJECT NO: D.P. FLUORITE 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 5-330

ATTENTION: CHRIS GRAF (604)980-5814 OR (604)988-4524 * TYPE ROCK GEOCHEM * DATE:JULY 17, 1985

(PPM)	R85 DP1A	R85 DP1B	R85 DP2A	R85 DP2B	R85 DP3	R85 DP4	R85 DP5A	R85 DP5B	R85 DP6	R85 DP7	R85 DP8
B	5.0	2.5	3.5	3.4	4.1	3.0	.4	21.2	166.6	1.6	7.8
AL	1080	900	1660	1160	4950	63750	77040	10240	78220	75120	4090
AS	1	1	1	1	1	77	85	1	87	82	1
B	129	302	443	853	1326	1277	2367	3481	1501	1737	1120
BA	498	298	1097	983	1315	4246	4675	5080	3959	205	846
BE	.1	.1	1.6	.1	6.8	1.3	1.0	2.7	6.5	12.6	2.9
BI	21	16	14	12	23	4	4	6	4	4	21
CA	149390	165850	162140	169440	163510	82170	113040	169770	122410	121580	171390
CD	3.2	3.5	2.7	3.0	2.7	1.6	2.0	2.5	2.0	1.6	3.4
CO	22	20	18	20	20	11	11	10	10	8	20
CU	15	8	9	10	13	186	14	59	33	12	12
FE	405780	192710	155620	183590	198180	13370	14590	20670	20360	21280	205470
K	560	280	310	150	320	2090	90	2000	130	100	180
LI	7	2	1	2	5	17	1	62	9	15	7
MG	60180	62410	57120	58040	51110	7180	610	600	640	380	50660
MN	9724	9743	5654	5100	6119	62	28	2	5	2	8307
MO	164	92	84	38	114	2	1	2	4	2	72
NA	380	500	490	850	1220	6890	1720	2610	1270	1290	1020
NI	24	22	20	23	23	17	17	15	15	14	24
P	3550	1590	820	390	2720	260	210	240	1290	1260	460
S	74	67	58	68	102	204	181	189	197	137	76
SB	20	1	6	1	5	96	82	80	122	62	16
SR	597	613	450	522	2178	250	182	237	1422	1471	888
TH	116	44	140	161	224	17	1	6	76	45	165
U	1317	497	463	579	668	4	1	1	59	66	552
V	9.8	20.8	35.5	22.3	75.5	3.2	1.2	8.1	1.8	4.3	149.1
ZN	102	114	48	83	88	137	55	25	30	30	43

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
[illegible] NORTH VANCOUVER, B.C. CANADA [illegible]

CERTIFICATE OF ASSAY

COMPANY: ACTIVE MINERALS LTD.
PROJECT: D.P.FLUORITE
ATTENTION: CHRIS GRAF

FILE: 5-330
DATE: JULY 15/85.
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

[illegible]	[illegible] %	[illegible] %	CaF_2 (x.451) %	$BaSO_4$ (.657) %
[illegible]	[illegible]	[illegible]	2.5	.15
[illegible]	[illegible]	1.5%	3.13	.11
[illegible]	[illegible]	[illegible]	5.58	2.4
[illegible]	[illegible]	[illegible]	7.14	1.49
[illegible]	[illegible]	[illegible]	12.43	2.57
[illegible]	[illegible]	[illegible]	53.48	3.01
[illegible]	[illegible]	[illegible]	46.93	4.11
[illegible]	[illegible]	[illegible]	52.35	2.77
[illegible]	[illegible]	[illegible]	70.65	2.63
[illegible]	[illegible]	[illegible]	48.47	.12
[illegible]	[illegible]	[illegible]	12.78	1.1

Certified by

MIN-EN LABORATORIES LTD.

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524 TELEX: 04-352828

CERTIFICATE OF ASSAY

COMPANY: ACTIVE MINERALS LTD.
PROJECT: D.P. FLUORITE
ATTENTION: CHRIS GRAF

FILE: 5-330R
DATE: JULY 20/85.
TYPE: PULP ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	AG G/TONNE	AG OZ/TON	AU G/TONNE	AU OZ/TON
R85-DP6	201.0	5.86	.80	0.023
R85-DP5B	26.5	0.77	.01	0.001

Certified by _____

MIN-EN LABORATORIES LTD.

NUCLEAR ACTIVATION SERVICES LIMITED

1280 MAIN STREET WEST, HAMILTON, ONTARIO, L8S 4K1

PHONE (416) 522-5666 TELEX 06-936947

CERTIFICATE OF ANALYSIS

TO: MIN EN LABORATORIES LTD
ATTN: J.J. GARANSO
705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
CANADA V7M 1T2

CUSTOMER NO. 4/01/01

DATE SUBMITTED
18-JUL-85

REPORT: 4414 FILE NUMBER: 6078

7 UNPREPARED SAMPLES

WERE ANALYZED AS FOLLOWS:

...MENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
)	5.0000	PPM	INAA	SC	0.1000	PPM	INAA
)	2.0000	PPM	INAA	SE	3.0000	PPM	INAA
)	10.0000	PPM	INAA	SR	500.0000	PPM	INAA
)	100.0000	PPM	INAA	TA	1.0000	PPM	INAA
)	1.0000	PPM	INAA	TH	0.5000	PPM	INAA
)	0.5000	%	INAA	U	0.5000	PPM	INAA
)	1.0000	PPM	INAA	W	3.0000	PPM	INAA
)	2.0000	PPM	INAA	Y	20.0000	PPM	XRF
)	0.5000	PPM	INAA	ZN	20.0000	PPM	INAA
)	0.0200	%	INAA	LA	0.5000	PPM	INAA
)	1.0000	PPM	INAA	CE	3.0000	PPM	INAA
)	3.0000	PPM	INAA	ND	3.0000	PPM	INAA
)	100.0000	PPM	INAA	SM	0.1000	PPM	INAA
)	200.0000	PPM	INAA	EU	0.2000	PPM	INAA
)	20.0000	PPM	INAA	YB	0.2000	PPM	INAA
)	0.2000	PPM	INAA	LU	0.0500	PPM	INAA

COMMENTS:

VALUES MAY BE LOW DUE TO SELF-SHIELDING, NOTE > 1% SAMPLE R85 DP 1A

DATE 13-AUG-85

NUCLEAR ACTIVATION SERVICES LIMITED

CERTIFIED BY .....

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD ALL SAMPLES ***
IRRADIATED SAMPLES AFTER 30 DAYS. ANY OTHER MATERIAL AFTER 120 DAYS.

NUCLEAR ACTIVATION SERVICES LIMITED

DATE 13-AUG-85 REPORT: 4414 FILE NUMBER: 8075 PAGE: 1

SAMPLE NUMBERS

ELEMENT / UNITS	R85 DP 1A**	R85 DP 1B**	R85 DP 2A**	R85 DP 2B**	R85 DP 5**	R85 DP 6**
PPM	<60	<60	<25	<25	<25	140
PPM	<50	15	12	<10	25	23
PPM	<50	<50	<60	<40	<40	910
PPM	<1000	<1200	14000	9000	14000	16000
PPM	<10	<8	<1	<1	<3	<1
	<22	<24	16	10	14	33
PPM	<10	<8	<8	<8	<3	<2
PPM	140	70	90	110	70	8
PPM	<7.0	<8.0	4.0	<3.0	<3.0	2.3
%	4.05	3.50	3.20	2.91	3.13	0.07
PPM	<4	2	<1	<4	<3	<1
PPM	<50	94	58	20	100	12
PPM	<1000	<400	<300	<300	<200	1900
PPM	<1300	<500	<400	<400	<700	<200
PPM	<200	<100	<70	<70	<60	<20
PPM	<3.0	3.0	10	10	21	120
PPM	57	56	60	40	50	3.8
PPM	<20	<6	<3	<10	<3	<3
PPM	<2200	<1400	<1100	<1000	5800	2400
PPM	<10	<8	<3	<3	5	<1
PPM	380	250	490	540	750	290
PPM	<10.0	<10.0	<4.0	<4.0	<5.0	1.0
PPM	<50	<8	<11	<10	<8	33
PPM	130	120	190	180	210	40
PPM	<400	<400	<150	<200	300	30
PPM	9800	3900	1600	1900	2900	100
PPM	10000	5100	3800	4600	5000	163
PPM	3000	1200	2000	2300	2000	61
PPM	300	140	240	260	240	17.5
PPM	76.0	34.0	60.0	68.0	55.0	4.3
PPM	11.0	8.2	7.6	7.5	9.0	1.7
PPM	1.40	1.30	1.40	0.90	1.04	0.20

SAMPLE NUMBERS

ELEMENT ! UNITS	! ROS DP ***
AG PPM	<25
AS PPM	36
AU PPB	350
BA PPM	5400
BR PPM	<5
CA %	<1.5
CL PPM	<5
CR PPM	52
CS PPM	<4.0
FE %	4.47
HF PPM	<2
MG PPM	<30
NA PPM	<400
NI PPM	<700
RB PPM	<30
SB PPM	15
SC PPM	100
SE PPM	<15
SR PPM	2300
TA PPM	<4
TH PPM	590
U PPM	<4.2
W PPM	<35
Y PPM	130
ZN PPM	190
LA PPM	3500
CE PPM	4900
ND PPM	1500
SM PPM	273
EU PPM	78.0
YB PPM	5.3
LU PPM	0.62

APPENDIX II

OFFICE SPECTROMETER TEST OF ROCK SAMPLES

D.P. - CANDY CLAIMS

OFFICE SPECTROMETER TEST OF ROCK SAMPLES

EQUIPMENT: SCINTREX GIS-4 GAMMA RAY SPECTROMETER

COUNT RATE: 10 SECONDS

BACKGROUND: Background values in the downtown Vancouver Office ranged from 500 to 700 counts per 10 seconds. Average background was 600 counts per 10 seconds.

The rocks tested are from 8 separate locations on the D.P. 1,3 and Candy Claims.

SAMPLE NO.	LOCATION	DESCRIPTION	TC	K + U + TH	U + TH	TH	BACK-GROUND
R85 DP001A	70 m south of D.P. 1,2,3, LCP	dirty weathered sfc, fine purple flourite on fractures	2648	90,75,72,69	60,52,42,45	2,4,7,6	646
R85 DP001B	70 m south of D.P. 1,2,3, LCP	dirty weathered sfc, fine purple flourite on fractures	1045,1078, 1067,1090	20,21,25,27,33	21,11,15,13,	4,4,2,4,3	628
R85 DP002A	130 m northwest of Candy Canyon creeks junction on west side of Candy Creek	fine-grained pyrite and purple flourite in carbonate breccia	2342	63,58,67,60	39,43,35,37	2,9,5,6,4	689
R85 DP002B	130 m northwest of Candy Canyon creeks junction on west side of Candy Creek	fine-grained pyrite and purple flourite in carbonate breccia	1389,1368 1397,1382, 1351	25,32,39,33,26	18,29,10,16,	6,3,5,16	623
R85 DP003	East side of Candy Creek on lowest road directly below large >4000 ppm flourine soil anomaly	dense massive altered carbonte rock with fine purple flourite on fractures	2092	59,52,66,62,68	42,36,29,37, 46	3,9,7,3,1, 6	659
R85 DP004	~ 100 m south of #3	massive purple flourite and flourite breccia	688,678,705, 738	13,12,14,10	12,7,13,4,8	5,7,2,5,7	643

SAMPLE NO.	LOCATION	DESCRIPTION	TC	K + U + TH	U + TH	TH	BACK-GROUND
R85 DP005A	~ 100 m south of #4	massive brecciated purple flourite	633	13,10,15,5,16	8,4,6,12,8	4,3,1,3,5	642
R85 DP005B	~ 100 m south of #4	whitish colored crystalline massive flourite with purple flourite fractures	703,697,672	13,17,15,8,11	9,6,10,9,8	2,1,5,2,6	
R85 DP006	west side of Candy Creek 200 m upsteam from mouth	massive dark purple flourite, some black veins	1093,1063, 1123,1138	17,29,24,25, 21	15,12,19,24, 13	8,7,2,4,3	684
R85 DP007	~ 50 m northeast of #6 on lowest cat road	massive dark purple flourite	876,920,911, 861	14,21,11,18, 16,21	11,10,11,17, 7	8,4,5,3,5	638
R85 DP008	on east side of Candy Creek ~ 100 m upslope from lowest road	fine fractures of purple flourite in sooty dirty altered carbonate rock in large soil anomaly	1358,1501, 1389,1440	28,39,38,31, 43	15,14,22,25, 19,23	3,5,6,2,4	634

APPENDIX III

EXAMINATION OF SILVER MINERALIZATION IN MATERIAL FROM THE DP CLAIMS, B.C., NEWMONT MINING CO. MEMORANDUM

ACTIVE MINERALS EXPLORATIONS LTD.

Suite 1013 - 837 West Hastings Street, Vancouver, B.C. V6C 1C4 (604) 681-4402

D.P. Claims
NTS 82J 3E
Latitude 50°13'N
Longitude 115°08'W

ROCK SAMPLE #R85DP6

This rock sample was collected from the D.P. Claims in southeastern British Columbia, and assayed 5.86 oz./ton silver, 0.023 oz./ton gold. The copper, lead and zinc values are too low to account for the silver content and therefore it is of interest to know how the silver occurs. The sample is of vein-type mineralization.

The claims cover a flourite-barite ± lead, zinc mineralized zone in pyritized Devonian limestones dolomites and evaporites (gypsum). Previous soil sampling has outlined a zone of flourine mineralization over 2 km long. The mineralization is strata form and likely controlled by a major northwest trending thrust fault. Flourite mineralization occurs both disseminated (in fractures) and in veins. Barite is commonly associated as is sphalerite and galena to a lesser extent.

No igneous rocks have been found on the claims although a number of diorite to Kimberlitic sills, dikes and diatremes occur nearby. The nearest exposed granitic intrusion lies 30 km southwest.

To: TNM

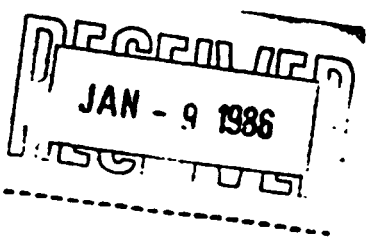
M E M O R A N D U M

January 2, 1986

TO: R. F. Sheldon

FROM: W. Mueller

SUBJECT: Examination For Silver Mineralization in Material From the D.P. Claims, British Columbia



INTRODUCTION

A rock sample submitted by C. Graf to R. F. Sheldon was examined for silver mineralization. This rock sample #R85DP6 is from the D.P. Claims in southeastern British Columbia, and assayed 5.86 oz Ag/ton and 0.023 oz Au/ton. The sample is of vein-type mineralization with low copper, lead and zinc values (<200 ppm).[1]

> "The claims cover a fluorite-barite ± lead, zinc mineralized zone in pyritized Devonian limestones, dolomites and evaporites (gypsum). Previous soil sampling has outlined a zone of fluorite mineralization over 2 km long. The mineralization is stratiform and likely controlled by a major northwest trending thrust fault. Fluorite mineralization occurs both disseminated (in fractures) and in veins. Barite is commonly associated as are sphalerite and galena to a lesser extent.
>
> No igneous rocks have been found on the claims, although a number of Ordovician to Devonian Age diorite to Kimberlitic sills, dikes and diatremes occur nearby. The nearest exposed granitic intrusion lies 30 km southwest."[1]

SAMPLE DESCRIPTION AND PREPARATION

Both crushed sample and one rock specimen were provided for examination. Heavy liquid concentrates (>3.3 Sp.G.) were obtained from the crushed material and prepared into a mount for microprobe examination. A polished thin section was prepared from the rock sample.

The bulk mineralogy of the sample consists of major fluorite (CaF_2) and prosopite [$CaAl_2(F,OH)_8$] with minor kaolin. Prosopite is less abundant than the fluorite. Microscopic examination showed the presence of trace pyrite.

The rock is a massive vein consisting of medium to fine grained anhedral crystals of fluorite and prosopite. Smaller veins (1-3 mm) cut the massive fluorite-prosopite. These smaller veins appear to contain the kaolin as well as most of the pyrite.

A minor amount of barite is detected by XRD in the heavy liquid concentrate.

SILVER MINERALIZATION

The heavy liquid concentrate was examined with the microprobe to determine the silver mineralization. The initial qualitative microprobe examination indicated a unique chemical composition which warranted further quantitative microprobe examination.

The quantitative microprobe examination showed a major silver phase containing silver, tin, tellurium and sulfur. The results of the microprobe examination are presented in Table I.

TABLE I

Microprobe Results of a Silver Phase From The D.P. Claims

Element	Microprobe Result (Average of 8) Wt.%	Calculated Wt.% For Theoretical $Ag_8Sn(TeS_2)_2$
Ag	64.8	63.2
Sn	7.3	8.7
Te	19.1	18.7
S	9.7	9.4
Total	100.9	99.9

These microprobe results suggest a composition of $Ag_8Sn(TeS_2)_2$. The calculated values for a theoretical $Ag_8Sn(TeS_2)_2$ are also shown in Table I and show excellent correlation with the microprobe results.

Communication with Dr. Michael Fleisher[2] of the International Mineralogical Association (IMA) indicates that this is probably a new mineral species.

Precise mineral association could not be established in this heavy liquid concentrate, but appears to be fluorite and prosopite. Opaque minerals are associated with some of this mineral, including a tin sulfide. As with most silver occurrences, additional less prevalent silver phases are present, but have not been characterized at this point of examination.

Traces of lead, zinc and copper are also associated in this sample, though they are not principal constituents in the Ag-Sn-Te-S phase.

Microscopic examination of the major silver phase in question shows a gray reflectivity with a slight blue tint (Fig. 1) and isotropic properties with no apparent light etching. An additional unidentified silver phase exhibits light etching.

FUTURE EXAMINATION

Additional material from this prospect has been received and will be incorporated in a low priority study to characterize this mineral as a new species which will be submitted to the IMA for review and possible publication.

W. Mueller

WM:klb
cc: D. M. Hausen
J. C. Yannopoulos

REFERENCES

1. Sheldon, R. F., Cover Letter to D. M. Hausen, September 3, 1985 With Enclosures Including D.P. Claim Description by C. Graf, August 14, 1985.

2. Fleisher, M., Letter to W. Mueller, November 19, 1985.

Figure 1. $Ag_8Sn(TeS_2)_2$ in fluorite.
A few minor inclusions can be observed.

Reflected Light 660X

APPENDIX IV

CANDY CLAIM PETROGRAPHY, COMINCO LTD. MEMORANDUM

Memorandum
For Use Within The Company Only

To Senior Geologist, W.D. (AB Mawer) Date 18 March 1986
(Use Title if Possible)
From Supervisor, E.R.L. (JA McLeod) File No.
(Use Title if Possible)
Subject CANDY PETROGRAPHY Reference JOB V85:614R

Five samples were submitted for sectioning, microscopic study and geochemistry. This memo contains the microscopic descriptions and observations of the following samples:

LAB NO.	FIELD NO.	SECTION TYPE
R85:18813	MR85 R124	THIN
R85:18814	MR85 R125	THIN
R85:18815	MR85 R126	THIN
R85:18816	MR85 R127	POLISHED THIN
R85:18817	MR85 R128	THIN

Sample R85:18813.

In thin section the mode is estimated to be as follows:

Dolomite:	90%	
Fluorite:	3%	
Barite:	2%	
Quartz:	<1%	
Opaques:	4%	(pyrite 1%, limonite 3%)
Synchysite:	Tr.	

Granular dolomite from .05 - 0.1mm forms a near continuous mosaic. Limonite is prominent in interstices around dolomite. Fluorite occurs in rare streaks up to 0.5 x 4.0mm in size. Smaller grains are interstitial to dolomite. Barite also occurs as interstitial grains to dolomite in the 0.2mm size range. Rare grains of quartz may be associated with barite. Pyrite grains, often cubic are widely disseminated.

An unusual, fine grained mineral, 5 - 20μm in size, is noted in massive fluorite. This material is thought not to be bastnaesite but rather synchysite ($CeFCO_3 \cdot CaCO_3$) based on scanning electron microprobing.

Sample R85:18814.

In thin section the material is seen to be much the same as R85:18813 except it is coarser grained and slightly brecciated or broken up.

Signed

. . . ./2

The mode is estimated as follows:

Dolomite:	90%	
Fluorite:	5%	
Barite:	2%	
Opaques:	2%	(pyrite and limonite)
Synchysite:	<1%	
Apatite:	<1%	

The fluorite, barite and synchysite are all noted in the cementing matrix of the dolomite breccia. The grains are small (less than 0.1mm).

Sample R85:18815.

In hand sample as well as thin section subangular to subrounded rock fragments from 1.5cm down to a mm or less are cemented by milled rock material. The rock fragments range from white (creamy) carbonate to dark (charcoal grey) siltstones and shales. Some fragments are laminated. In the cementing groundmass, quartz, feldspars, carbonate, apatite and clay are identified.

Geochemically this sample is unlike others in this suite in that it is anomalously low for most elements analyzed for. This material is a multi-lithic breccia and may very well be a diatreme sample.

Sample R85:18816.

In reflected as well as transmitted light the mode is estimated to be as follows:

Fluorite:	60%
Goyazite:	30%
Barite:	3%
Anatase:	2%
Pyrite:	3%
Limonite:	2%

In reflected light disseminated, euhedral pyrite in grains from 0.02 to 0.2mm is abundant. Also prevalent is a grey reflective phase that turns out to be anatase. The titanium mineral rarely exceeds 0.2mm but is often abundant in grains of very fine size.

Fluorite occurs as massive blocks of material with rectangular fragments up to 2 x 10mm. These are cemented by a phase believed to be goyazite ($SrAl_3[PO_4]_2(OH)_5 \cdot H_2O$). The goyazite (isomorphous end member of gorceixite) is a massive but extremely fined grained matte of material. Both the fluorite and the goyazite are further chopped up by fluorite in shears and veinlets from 0.1 to 0.5mm wide. Barite occurs as inclusions in fluorite while limonite is associated with fluorite shear zones.

. . . ./3

Sample R85:18817.

In thin section the mode is estimated to be as follows:

Calcite: } Dolomite:	95%
Fluorite:	3%
Quartz:	2%
Apatite:	Tr.
Opaques:	Tr.

A very fine grained, laminated calcite carbonate is repeatedly truncated, then cut and filled by coarser grained, (0.5mm) crystalline dolomite. Included in thin laminations in the calcite are 0.2mm sized grains of quartz. Rare grains of apatite are noted. The occasional lens of fluorite to 1 x 4mm is present in the coarser (late stage) dolomite. Minor euhedral pyrite grains are present in the rock.

DISCUSSION:

Briefly, the rocks in the suite are believed to be carbonatite or carbonatite associated (derived).

Two unusual minerals are tentatively identified as synchysite ($CeFCO_3 \cdot CaCO_3$) and goyazite ($SrAl_3[PO_4]_2(OH)_5 \cdot H_2O$). Closely related minerals, bastnaesite and gorceixite, previously identified on the property are not noted in this study.

A detailed scanning of R85:18816, in reflected light and under high magnification, did not reveal the sought after Ag-Sn-Te-S phase. However, the low Ag content of this sample made success remote to start with.

A number of photomicrographs of minerals and textures have been taken and will be forwarded when developed.

Regards.

J.A. McLeod

JAM/sw

Att.

1 Cpy hand delivered by ABm Feb25/86
1:35 pm

PB ZN AG GENERAL...

WHITE RIVER

JOB V 85-06
REPORT DATE 20 FEB

LAB NO	FIELD NUMBER	Ba(4) PPM	Y PPM	Sr PPM	Nb PPM	Th PPM	Ce PPM	La PPM	Zr PPM	P2O5 PPM	U(4) PPM	Pb PPM	Zn PPM	F PPM	Au PPB	Wt Au GRAM	Ag PPM
R8518813	M85R124	11482	275	2418	160	324	3016	3631	250	10100	<20	21	234	E<10000			
R8518814	M85R125	11775	162	1465	218	230	3105	2595	153	12100	<20	<4	96	E<10000			
R8518815	M85R126	56	44	111	94	<20	95	34	182	2500	<20	8	25	670			
R8518816	M85R127	14754	451	>10000	1419	1539	3477	3691	3948	102700	<20	82	9	E<10000	240	5	9.8
R8518817	M85R128	62	<20	1453	<20	59	57	<20	160	4500	<20	<4	8	E7000			

I=INSUFFICIENT SAMPLE X=SMALL SAMPLE E=EXCEEDS CALIBRATION C=BEING CHECKED R=REVISED
IF REQUESTED ANALYSES ARE NOT SHOWN ,RESULTS ARE TO FOLLOW

ANALYTICAL METHODS

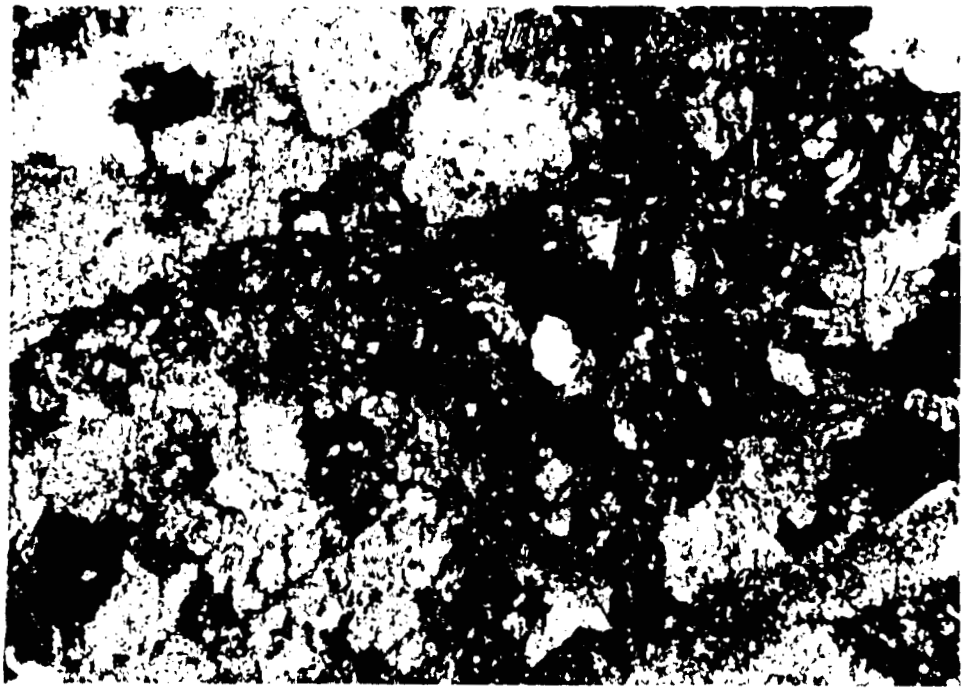
Ba(4)	X-RAY FLUORESCENCE
Y	X-RAY FLUORESCENCE
Sr	X-RAY FLUORESCENCE
Nb	X-RAY FLUORESCENCE
Th	X-RAY FLUORESCENCE
Ce	X-RAY FLUORESCENCE
La	X-RAY FLUORESCENCE
Zr	X-RAY FLUORESCENCE
P2O5	X-RAY FLUORESCENCE
U(4)	X-RAY FLUORESCENCE
Pb	AQUA REGIA DECOMPOSITION / AAS
Zn	AQUA REGIA DECOMPOSITION / AAS
F	SPECIFIC ION ELECTRODE
Au	AQUA REGIA DECOMPOSITION / SOLVENT EXTRACTION / AAS
Wt Au	THE WEIGHT OF SAMPLE TAKEN TO ANALYSE FOR GOLD (GEOCHEM)
Ag	AQUA REGIA DECOMPOSITION / AAS
Ni	AQUA REGIA DECOMPOSITION / AAS

R 124 — Chocolate Brown weathering C
R 125 — " " "
R 126 — Breccia or Conglomerate
R 127 — Dense heavy fluorite fine grai
R 128 — Fine grained ash-grey Bon
with faint purplish bands (P

CANDY CLAIMS - PHOTOMICROGRAPHS

R85:18013. Synchysite in flucrite adjacent to a limonite bearing shear in carbonate. Transmitted light, magnification 160x.

R85:18014. Synchysite, fluorite, barite and pyrite in matrix of brecciated dolomite. Transmitted light, magnification 63x.



R85:18014. As previous photo but in crossed nicols.

R85:18015. Rounded fragments of carbonate, quartz and shale in a milled matrix. Transmitted light, magnification 25x.

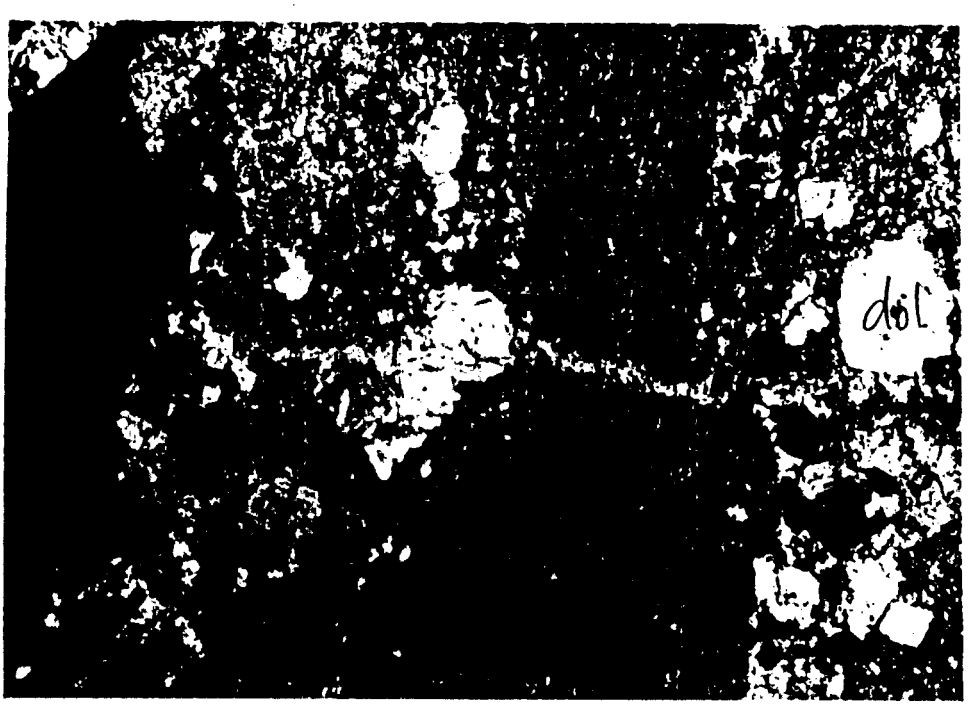
320 µm

R85:18015. As previous photo but in crossed nicols.

320 µm

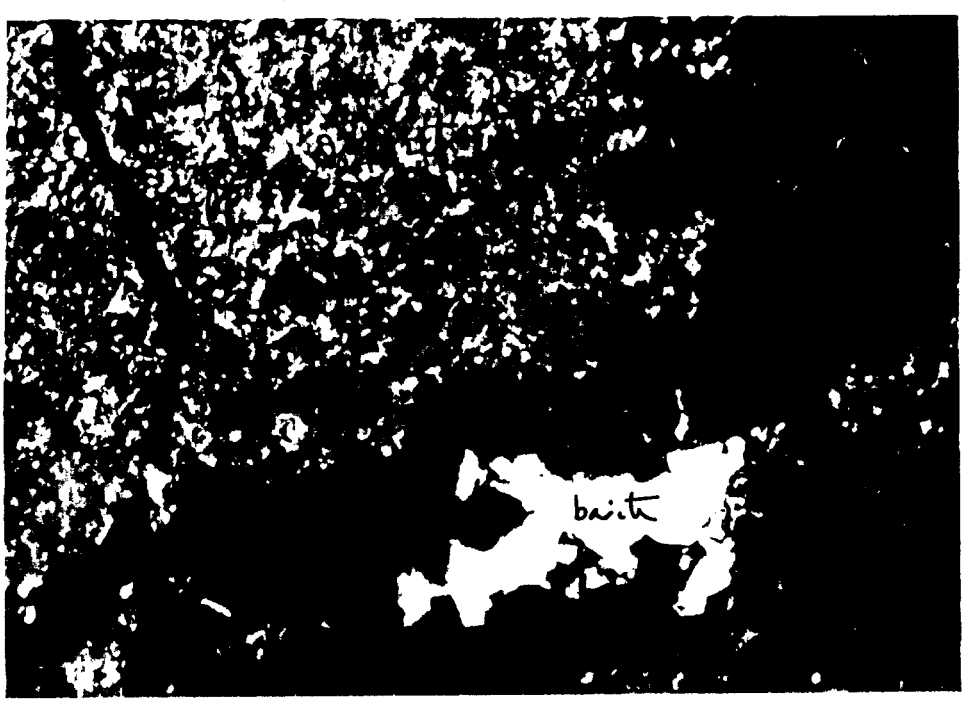
R85:18016. Goyazite, fluorite, fluorite veins and opaques (pyrite and rutile). Transmitted light, magnification 25x.

R85:18017. Calcareous (calcite) layer with lenses of fluorite and dolomite crystals. Pyrite present. Transmitted light, magnification 25x.



R85:18017. As above but in crossed nicols.

R85:18016. Goyazite with flucrite centrally cored by barite. Fluorite veinlets and pyrite in goyazite. Transmitted light, Magnification 63x.



R85:18016. As above but in crossed nicols.

APPENDIX V

XRD AND SPECTROGRAPHIC REPORT, DP CLAIMS, B.C. MINISTRY OF MINES

ANOMALOUS RARE EARTH ELEMENTS (REE) IN THE DEEP PURPLE AND CANDY CLAIMS (82J/3E)

By Z. D. Hora and Y. T. J. Kwong

In late August, 1985, one of the authors (Z. D. Hora) made a reconnaissance visit to the fluorite property (Deep Purple and Candy claims, MI 082J/SW-018) along Rock Canyon Creek in the East Kootenays (Fig. 37-1). On this property, fluorspar is abundant in float boulders and a few scattered outcrops over an area of some 2 000 by 3 000 metres. The boulders are of two main types: (1) large fluorspar fragments, and (2) brown, crystalline carbonate rocks with disseminations, patches, or veinlets of fluorspar. In this area the outcrop is sparse and soils have a characteristic gossan-like red colour. Previous trenching revealed heavy overburden in several localities. In the adjacent sedimentary carbonate rocks of Ordovician and Devonian age, fluorite occurs as replacement impregnations and local breccia-type veins and zones. The fluorite associated with the brown carbonate is mostly dark blue to dark purple, while in the surrounding sedimentary rocks it is either colourless or bright purplish and pink.

Because of a close resemblance of the brown carbonate to rauhaugite — a ferroan dolomite which occurs in some carbonatite localities (Mountain Pass, St. Honore) — several float samples collected this summer were semi-quantitatively analysed by an emission spectrographic method and the corresponding mineralogy ascertained by powder diffractometry. The results are summarized in Table 37-1.

Four of seven samples analysed show an anomalous total rare earth element (REE) content in excess of 0.5 per cent. Bastnaesite [$Ce^{*}CO_3F$] and gorceixite [$(Ba, Ca, Ce^{*})Al_3(PO_4)_2(OH)_5{\cdot}H_2O$] have been identified as the primary hosts of the REE's. Bastnaesite shows a positive correlation with crystalline dolomite, which could be iron-rich, whereas gorceixite can occur independently of the carbonate minerals; it is associated with massive fluorite in sample No. RC-85-D1. Although the abundance of fluorite in these rocks is itself intriguing, it is possible that the fluorspar mineralization is an integral part of a major intrusive carbonatite that carries a significant amount of REE's. Further laboratory and field studies are being planned to assess the plausibility of this hypothesis.

ACKNOWLEDGMENTS

We thank Mr. M. A. Chaudhry of the Analytical Laboratory for his prompt effort to produce the emission spectrographic data for us to finish this note before the publication deadline. We also thank Mr. C. Graf for the introduction to the property geology.

REFERENCES

Alionis, E. (1979): Fluorite Claims, Golden Mining Division, Rio Tinto Canadian Exploration Limited, *B.C. Ministry of Energy, Mines & Pet. Res.*, Assessment Report 7 830.

Graf, C. (1981): Geochemical Report, Candy Claim, Golden Mining Division, *B.C. Ministry of Energy, Mines & Pet. Res.*, Assessment Report 9 960.

Figure 37-1. Location map for the Deep Purple and Candy claims (82J/3E).

* Usually accompanied by other lanthanide group elements.

TABLE 37-1

CHEMISTRY* AND MINERALOGY OF SELECTED FLOAT SAMPLES FROM THE DEEP PURPLE AND CANDY CLAIMS

SAMPLE No.	BRIEF DESCRIPTION	CHEMISTRY (ABUNDANCE IN PER CENT)	MINERALOGY
RC-85-A1	Dark brown carbonate with patches and veinlets of fluorite	Si <1.0, Al <1.0, Ti 0.03, Na <0.3, K <0.3, Mg 5.0, Ca 10.0, Fe 4.5, Mn 1.0, La 0.5, Ce 0.5, Nd 0.1, Nb 0.02, Y 0.05, Sr 0.1, Ba 0.5, Mo 0.02 trace Pb, Cu, V, Zr, Be, Pr, Sm, Gd, Dy, Yb, Th	Dolomite >> fluorite >> minor bastnaesite > calcite > limonite ± trace pyrite ± gorceixite
RC-85-A2	Light brown carbonate with streaks and veinlets of fluorite	Si <1.0, Al 2.5, Ti 0.02, Na <0.3, K <0.3, Mg >5.0, Ca >10.0, Fe 3.0, Mn 0.8, La >0.5, Ce >0.5, Nd 0.1, Nb 0.01, Y 0.03, Sr >0.5, Ba >1.0, Mo 0.01, P 0.5 trace Pb, Cu, V, Zr, Be, Pr, Sm, Gd, Dy, Yb, Th	Dolomite >> fluorite >> minor barite, gorceixite, calcite, talc(?) ± trace bastnaesite
RC-85-B1	Medium brown carbonate with streaks of fluorite	Si 5.0, Al 1.2, Ti 0.01, Na 0.4, K 1.2, Mg 5.0, Ca 4.0, Fe 5.0, Mn 0.5, La 0.25, Ce 0.25, Nd 0.07, Nb 0.02, Y 0.01, Sr 0.1, Ba >1.0, P >0.5 trace Pb, Cu, V, Ni, Mo, Ga, Zr, Be, Pr, Sm, Gd, Dy, Yb, Th	Dolomite >> fluorite > K-feldspar > barite > minor gorceixite, calcite, illite, talc(?), pyrite ± bastnaesite
RC-85-B2	Light-coloured carbonate with purple fluorite	Si 4.0, Al 1.5, Ti 0.03, Na 0.3, K 0.5, Mg 3.0, Ca >10.0, Fe 1.2, Nb 0.01, Ba 0.06 trace Mn, Cu, V, Ni, Sr, Y, Be	Calcite — dolomite > fluorite > quartz > K-feldspar >> trace illite ± gorceixite
RC-85-C1	Light grey, laminated carbonate with brown clots of limonite	Si 3.0, Al <1.0, Ti 0.01, Na <0.3, K <0.3, Mg 1.2, Ca >10.0, Fe 0.7 trace Mn, Cu, Ni, Sr	Bulk sample: calcite >> dolomite>> minor fluorite, quartz and K-feldspar Brown clots: dolomite >> calcite> minor quartz, K-feldspar, pyrite, and limonite
RC-85-D1	Fine-grained purplish grey massive fluorite with abundant pyrite	Si <1.0, Al 3.0, Ti 0.5, Na <0.3, K <0.3, Mg <0.1, Ca >10.0, Fe 4.0, Be 0.03, V 0.12, La 0.25, Ce 0.3, Nd 0.1, Nb 0.14, Sr >1.0, Ba >1.0, P >1.0, Mo 0.01 trace Mn, Pb, Cu, Ni, Co, Sn, Zr, W, Cr, B, Pr, Sm, Gd, Dy, Th	Fluorite >> gorceixite > pyrite > minor barite, calcite, rutile ± trace K-feldspar
RC-85-D2	Coarse purple fluorite	Si 1.0, Al 5.0, Na 0.3, K <0.3, Mg <0.1, Ca >10.0, Fe 0.4, Ba >0.5 trace Ti, Mn, Cu, Sr, Be	Fluorite > prosopite [$CaAl_2(F,OH)_8$] >> minor kaolinite

* Semi-quantitative emission spectrographic analyses performed by M. A. Chaudhry of the Analytical Laboratory.

BATCH 1126 - 013

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

ANALYTICAL SERVICES REQUEST

Submitter J.D. HORA
Number of samples 2
Special instructions Heavy minerals separation + identification
Project INDUSTRIAL MINERALS Area ROCKY MOUNTAINS
Air photo
Card 1 of 1

Date submitted Feb. 5, 1986
Date required Within reason
Priority

Date started Feb. 11/86
Date reported Feb. 26/86
Chief Analyst W.M. Johnson

PRINT CLEARLY (use dark pen or pencil)

	NTS	FLD NO	ZN	UTM E	UTM N	RXTYAG	SPROPERTY	COMMENTS
1	82J 3E	HMS-2	11	0850	13	CRBN 108	DEEP PURPLE	HEAVY MINERALS STREAM SEDIMENT
2		HMS-3						AS ABOVE

	LAB NO	OXIDE	SPEC	XRD	MIN	PRPAu	Ag	Cu	Pb	Zn	Co	Ni	Mo	Cr	Hg	As	Sb	Ba	Sr
1	31451	C	P	SQ	Q	✓	SEP												
2	31452	C	P	SQ	Q	✓	SEP												
3		C	P	SQ	Q		SEP												
4		C	P	SQ	Q		SEP												
5		C	P	SQ	Q		SEP												
6		C	P	SQ	Q		SEP												

MINERALOGICAL COMPOSITION

MINERALOGICAL COMPOSITION

31451 (40-fo mesh)
ρ > 2.89 (2.2 wt % of the size fraction)

31452 (40-fo mesh)
ρ > 2.89 (1.7 wt % of the size fraction)

PECTROGRAPHIC REPORT

1	Nd 0.5, La >1.0 Ce >1.0 Si 1.5 Al 1.5 Mg 8.0 Ca >10 Fe 10.0 Pb 0.02 Cu T Zn — Mn 0.5 Ag T V T Ti 0.05 Ni T Co T Na T K T W —, Mo 0.02, Sr 0.5, Ba >1.0, Y 0.06 Trace: Ga, Ag, Zr, Cr, Yb, Be, Li, Nb, Th, Gd, Pb, Dy, Sm	2	Nd 0.2, La 0.3 Ce 0.4 Si 1.0 Al 1.0 Mg >10 Ca >10 Fe >10 Pb 0.02 Cu T Zn — Mn 0.6 Ag T V T Ti 0.15 Ni T Co T Na T K T W —, Mo 0.01, Sr 0.2, Ba >0.5, Y 0.02 Trace: Ga, Ag, Zr, Cr, Yb, Be, Nb, Li, Th, Gd, Pb, Dy, Pr, Sm	3	Si Al Mg Ca Fe Pb Cu Zn Mn Ag V Ti Ni Co Na K W
4	Si Al Mg Ca Fe Pb Cu Zn Mn Ag V Ti Ni Co Na K W	5	Si Al Mg Ca Fe Pb Cu Zn Mn Ag V Ti Ni Co Na K W	6	Si Al Mg Ca Fe Pb Cu Zn Mn Ag V Ti Ni Co Na K W

X–RAY DIFFRACTION REPORT AND COMMENTS

31451 HM85-2 Bulk sample: DOLOMITE > QUARTZ > CALCITE >> minor K-FELDSPAR, FLUORITE, ILLITE ± trace CHLORITE

Heavy fraction*: DOLOMITE (probably Fe-rich) >> BARITE ≥ FLUORITE > GOETHITE > minor BASTNAESITE, QUARTZ, ALLANITE ± GORCEIXITE ± CELSIAN(?)

31452 HM85-3 Bulk sample: DOLOMITE >> QUARTZ > CALCITE > minor K-FELDSPAR, PLAGIOCLASE, FLUORITE, KAOLINITE ± ILLITE/MICA.

Heavy fraction*: DOLOMITE (probably Fe-rich) >> GOETHITE > minor HEMATITE, FLUORITE, PYRITE, BARITE > trace BASTNAESITE, APATITE, CALCITE, QUARTZ ± ALLANITE

* ρ > 2.89, grain size = 40-fo mesh, composite grains present.

KEY

COLUMNS 28–31

UMFC	ultramafic	GRNS	greenstone	TRCT	trachyte	SKRN	skarn	SNDS	sandstone
ANDS	andesite	MNZN	monzonite	TUFF	tuff	GOUG	gouge	SHLE	shale
BSLT	basalt	OBSD	obsidian	AMPB	amphibolite	ARGL	argillite	SLSN	siltstone
CRBN	carbonatite	PNLT	phonolite	CLCC	calc-silicate	CHRT	chert	MRLZ	mineralization
DCIT	dacite	QZPP	quartz porphyry	GNSS	gneiss	COAL	coal	MVSP	massive sulphide
DORT	diorite	RYLT	rhyolite	MRBL	marble	DLMT	dolomite	DISS	disseminated
GBBR	gabbro	SRPN	serpentinite	PLLT	phyllite	LMSN	limestone	SCKK	stockwork
GRNT	granite	SNKN	shonkinite	SCST	schist	MARL	marl	VEIN	vein
GRDR	granodiorite	SYNT	syenite	HRFL	hornfels	QRTZ	quartzite	ALRZ	alteration

COLUMNS 32 – 33

04	Proterozoic	12	Cambrian	21	Mississippian	34	Jurassic
05	Helikian	14	Ordovician	22	Pennsylvanian	36	Cretaceous
06	Hadrynian	16	Silurian	24	Permian	40	Cenozoic
10	Paleozoic	18	Devonian	30	Mesozoic	42	Tertiary
11	Prot.–Paleozoic	20	Carboniferous	32	Triassic	44	Quaternary
						50	Unknown

COLUMN 34 SAMPLE TYPE

1	Single grab sample
2	Channel/chip
3	Composite sample
4	Drill core
5	Talus or transported
6	Soil
7	Silt
8	Other

COLUMN 35 % SULPHIDE

0	<0.5
1	0.5–1
2	1–10
3	10–50
4	>50

COLUMNS 36 – 43

Mineral Inventory Number or property name

COLUMNS 44 – 80

Comments

ANALYTICAL METHOD

AA	ATOMIC ABSORPTION
AH	HYDRIDE GENERATION
FA	FIRE ASSAY
ES	EMMISSION SPEC
XR	X–RAY FLUORESCENCE
WC	WET CHEMICAL
CL	COLORIMETRIC
CV	COLD VAPOUR

SAMPLE PREPARATION

W	TUNGSTEN CARBIDE
C	CERAMIC
S	STEEL

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

ANALYTICAL SERVICES REQUEST

Submitter D. MORA
Number of samples
Special instructions
Project INDUSTRIAL MINERALS Area
Air photo Card 1 of 2

Date submitted Sept. 19, 1985
Date required — OCT. 1985

Date started Sept 23/85
Date reported Oct 8/85

Priority FIELDWORK 1985 Chief Analyst [illegible]

PRINT CLEARLY (use dark pen or pencil)

	NTS	FLD NO	ZN	UTM E	UTM N	RXTYAG	S	PROPERTY	COMMENTS – EMMISSION SPECS –
	82J 3E	RC85A1	11	0450	13	CRBN	1	01	DEEP PURPLE-DARK CARBONATE & FLUORITE (PURPLE

	LAB NO	OXIDE	SPEC	XRD	MIN	PR	PA	Au	Ag	Cu	Pb	Zn	Co	Ni	Mo	Cr	Hg	As	Sb	Ba	Sr	
1	31096	C	P	SQ	Q		SEP															1
2	31097	C	P	SQ	Q		SEP															2
3	31098	C	P	SQ	Q		SEP															3
4	31099	C	P	SQ	Q		SEP															4
5	31100	C	P	SQ	Q		SEP															5
6	31101	C	P	SQ	Q		SEP															6

RC85A2 — same

RC85B1 — same

RC85B2 LIGHT COLOURED CARBONATE & PURPLE CaF2

RC85C1 COLOURLESS CARBONATE & FLUORITE, WHITE SPEC

RC85D1 PURPLE CaF2, PYRITE - FINEGR.

SPECTROGRAPHIC REPORT

1 La>0.5, Nb0.02, Nd0.1, Ce>0.5, Y0.05
Si<1.0 Al<1.0 Mg>5.0 Ca>10 Fe 4.5
Pb T Cu T Zn — Mn 1.0 Ag — V T Ti 0.03 Ni —
Co — Na<0.3 K<0.3 W —, Mo 0.02, Sr 0.1, Ba>0.5
TRACE:- Zr, Yb, Be, Th, Gd, Dy, Sm, Pr

2 La>0.5, Nb 0.01, Nd 0.1, Ce>0.5, Y 0.03, Pb 0.5
Si<1.0 Al 2.5 Mg>5.0 Ca>10.0 Fe 3.0
Pb T Cu T Zn — Mn 0.8 Ag — V T Ti 0.02 Ni —
Co — Na<0.3 K<0.3 W —, Mo 0.01, Sr>0.5, Ba>1.0
TRACE:- Zr, Yb, Be, Th, Gd, Dy, Sm, Pr

3 La 0.25, P>0.5, Nb 0.02, Nd 0.07, Ce 0.25, Y 0.5
Si 5.0 Al 1.2 Mg 5.0 Ca 4.0 Fe 5.0
Pb T Cu T Zn — Mn 0.5 Ag — V T Ti 0.01 Ni I
Co T Na 0.4 K 1.2 W —, Sr 0.1, Ba>1.0
TRACE:- Ga, Mo, Zr, Yb, Be, Th↓, Gd↓, Dy↓, Sm↓

4 Si 4.0 Al 1.5 Mg 3.0 Ca>10 Fe 1.2
Pb — Cu T Zn — Mn T Ag — V T Ti 0.02 Ni T
Co — Na 0.3 K 0.5 W —, Ba 0.06, Nb 0.01
TRACE:- Sr, Y, Be,

5 Si 3.0 Al<1.0 Mg 1.2 Ca>10 Fe 0.7
Pb — Cu T Zn — Mn T Ag — V — Ti 0.01 Ni T
Co — Na<0.3 K<0.3 W —
TRACE:- Sr,

6 Si<1.0 Al 3.0 Mg<0.1 Ca>10 Fe 4.
Pb I Cu T Zn — Mn I Ag — V 0.12 Ti 0.5 Ni I
Co T Na<0.3 K<0.3 W —, Mo 0.01, Sr>1.0, Ba>1.0
TRACE:- Sn, Zr, W, Cr, Yb, B, Th, Gd, Dy, Sm, Pr
Be 0.03, La 0.25, P>1.0, Nb 0.14, Nd 0.1, Ce 0.3

X–RAY DIFFRACTION REPORT AND COMMENTS

LAB #	FIELD #	MINERALS IDENTIFIED
31096	RC-PS A1	DOLOMITE ≫ FLUORITE >> minor BASTNAESITE > CALCITE > LIMONITE ± trace PYRITE ± GORCEIXITE ($BaAl_3(OH)_7(P_2O_7)$)
31097	RC-PS A2	DOLOMITE ≫ FLUORITE ≫ minor BARITE, GORCEIXITE, CALCITE, TALC(?) ± trace BASTNAESITE
31098	RC-PS B1	DOLOMITE >> FLUORITE > K-FELDSPAR > BARITE > minor GORCEIXITE, CALCITE, ILLITE, TALC(?), PYR ± BASTNAESITE.
31099	RC-PS B2	CALCITE ≈ DOLOMITE > FLUORITE > QUARTZ ≥ K-FELDSPAR >> trace ILLITE ± GORCEIXITE
31100	RC-PS C1	Bulk sample: CALCITE >> DOLOMITE >> minor FLUORITE, QUARTZ and K-FELDSPAR. Brown spots: DOLOMITE >> CALCITE > minor QUARTZ, K-FELDSPAR, PYRITE and LIMONITE.
31101	RC-PS D1	FLUORITE >> GORCEIXITE > PYRITE > minor BARITE, CALCITE, RUTILE ± trace K-FELDSPAR.

CAN NOT BE USED FOR PROMOTIONAL PURPOSES

KEY

COLUMNS 28–31

UMFC	ultramafic	GRNS	greenstone	TRCT	trachyte	SKRN	skarn	SNDS	sandstone
ANDS	andesite	MNZN	monzonite	TUFF	tuff	GOUG	gouge	SHLE	shale
BSLT	basalt	OBSD	obsidian	AMPB	amphibolite	ARGL	argillite	SLSN	siltstone
CRBN	carbonatite	PNLT	phonolite	CLCC	calc-silicate	CHRT	chert	MRLZ	mineralization
DCIT	dacite	QZPP	quartz porphyry	GNSS	gneiss	COAL	coal	MVSP	massive sulphide
DORT	diorite	RYLT	rhyolite	MRBL	marble	DLMT	dolomite	DISS	disseminated
GBBR	gabbro	SRPN	serpentinite	PLLT	phyllite	LMSN	limestone	SCKK	stockwork
GRNT	granite	SNKN	shonkinite	SCST	schist	MARL	marl	VEIN	vein
GRDR	granodiorite	SYNT	syenite	HRFL	hornfels	QRTZ	quartzite	ALRZ	alteration

COLUMNS 32 – 33

04	Proterozoic	12	Cambrian	21	Mississippian	34	Jurassic
05	Helikian	14	Ordovician	22	Pennsylvanian	36	Cretaceous
06	Hadrynian	16	Silurian	24	Permian	40	Cenozoic
10	Paleozoic	18	Devonian	30	Mesozoic	42	Tertiary
11	Prot.-Paleozoic	20	Carboniferous	32	Triassic	44	Quaternary
						50	Unknown

COLUMN 34 SAMPLE TYPE

1	Single grab sample
2	Channel/chip
3	Composite sample
4	Drill core
5	Talus or transported
6	Soil
7	Silt
8	Other

COLUMN 35 % SULPHIDE

0	<0.5
1	0.5–1
2	1–10
3	10–50
4	>50

COLUMNS 36 – 43

Mineral Inventory Number or property name

COLUMNS 44 – 80

Comments

ANALYTICAL METHOD

AA	ATOMIC ABSORPTION
AH	HYDRIDE GENERATION
FA	FIRE ASSAY
ES	EMMISSION SPEC
XR	X–RAY FLUORESCENCE
WC	WET CHEMICAL
CL	COLORIMETRIC
CV	COLD VAPOUR

SAMPLE PREPARATION

W	TUNGSTEN CARBIDE
C	CERAMIC
S	STEEL

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

ANALYTICAL SERVICES REQUEST

Submitter D. H.
Number of samples
Special instructions
Project
Air photo

Date submitted
Date required

Area
Card 2 of 2

Priority

Date started Sept 23/85
Date reported Oct. 8/85

for Chief Analyst P. G. Pugh

PRINT CLEARLY (use dark pen or pencil)

1	NTS	FLD NO	ZN	UTM E	UTM N	RXTYAG	ST	S	PROPERTY	COMMENTS
		RC85D2								COARSE PURPLE FLUORITE

1	LAB NO	OXIDE	SPEC	XRD	MIN	PRP	Au	Ag	Cu	Pb	Zn	Co	Ni	Mo	Cr	Hg	As	Sb	Ba	Sr	1
	31102	C P	SQ	Q	SEP																

SPECTROGRAPHIC REPORT

1	Si 1.0	Al 5.0	Mg <0.1	Ca >10	Fe 0.4	2	Si	Al	Mg	Ca	Fe	3	Si	Al	Mg	Ca	Fe
	Pb —	Cu T	Zn —	Mn T	Ag —		Pb	Cu	Zn	Mn	Ag		Pb	Cu	Zn	Mn	Ag
	V —	Ti T	Ni —				V	Ti	Ni				V	Ti	Ni		
	Co —	Na 0.3	K <0.3	W —, Ba >0.5,			Co	Na	K	W			Co	Na	K	W	
	TRACE:- Sr, Be,													
4	Si	Al	Mg	Ca	Fe	5	Si	Al	Mg	Ca	Fe	6	Si	Al	Mg	Ca	Fe
	Pb	Cu	Zn	Mn	Ag		Pb	Cu	Zn	Mn	Ag		Pb	Cu	Zn	Mn	Ag
	V	Ti	Ni				V	Ti	Ni				V	Ti	Ni		
	Co	Na	K	W			Co	Na	K	W			Co	Na	K	W	

X-RAY DIFFRACTION REPORT AND COMMENTS

31102 LC #5 D2. FLUORITE > PROSOPITE, $CaAl_2(F,OH)_8$ >> minor KAOLINITE.

APPENDIX VI

1985 ROCK SAMPLE ASSAYS REPORTS
BY
NIPPON MINING CORP.,TECK CORP. AND TRM ENGINEERING LTD.

TECK EXPLORATIONS LIMITED

1199 WEST HASTINGS STREET
VANCOUVER B.C. V6E 2K5

TEL: (604) 687-1117
TELEX: 04-507709

January 06, 1986

Mr. Chris Graf
Active Mineral Explorations Ltd.
Suite 1010-837 West Hastings
Vancouver, B.C.
V6C 1C4

Dear Chris:

Find enclosed assay certificates for samples from your DP and Candy claims. As you can see, there were no surprises and the results basically support your previous findings. Although the niobium values were disappointing, I have not discounted the possibility, considering the small number of samples tested. The F-Ag-Ba-REE association is intriguing and hopefully we can assist you in further development of the property in the coming year.

Yours truly,

TECK EXPLORATIONS LIMITED

Wayne Spilsbury

WM:rl

DP AND CANDY CLAIM SAMPLES

Sample No.	Location	Description
5917 (DP-1)	Rio trench #1	Hydrothermal (?) breccia; fine grained carbonate with angular fragments of ankeritized sediments, fluorite and unaltered shale
5918 (DP-2+3)	Float on Candy Creek road	Massive dark purple fluorite with barite
5919 (DP-5)	Outcrop on raod or DP-2 claim	Ankeritized limestone (?) with disseminated pyrite and fluorite on fractures
5920 (DP-6)	Subcrop (?) from Rio trench #5	Ankeritized limestone with disseminated dark purple fluorite - weathers cream brown
5921 (HM 85 DP 001)	Mouth of Candy Creek	Heavy mineral concentrate of stream silt

NUCLEAR ACTIVATION SERVICES LIMITED

1280 MAIN STREET WEST, HAMILTON, ONTARIO, L8S 4K1

PHONE (416) 522-5666 TELEX 06-986947

CERTIFICATE OF ANALYSIS

TO: MIN EN LABORATORIES
ATTN: J.J. BARAKSO
705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
CANADA V7M 1T2

CUSTOMER NO. 4701/31

DATE SUBMITTED
11-NOV-85

REPORT: 5169

FILE NUMBER: 6834

5 UNPREPARED SAMPLES

WERE ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
NB	3.0000	PPM	XRF	EU	0.0500	PPM	INAA
LA	0.1000	PPM	INAA	TB	0.1000	PPM	INAA
CE	1.0000	PPM	INAA	YB	0.0500	PPM	INAA
ND	3.0000	PPM	INAA	LU	0.0100	PPM	INAA
SM	0.0100	PPM	INAA				

DATE 25-NOV-85

NUCLEAR ACTIVATION SERVICES LIMITED

CERTIFIED BY R. Sanders

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD ALL SAMPLES ***
IRRADIATED SAMPLES AFTER 30 DAYS. ANY OTHER MATERIAL AFTER 120 DAYS.

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 25-NOV-85 REPORT: 5169 FILE NUMBER: 6834 PAGE: 1

SAMPLE NUMBERS

ELEMENT !	**	**	**	**	**
& UNITS !	5917**	5918**	5919**	5920**	5921**
NB PPM	21	12	190	140	420
LA PPM	11.3	56.6	4350	3230	4500
CE PPM	20	85	4470	3720	4280
ND PPM	9	28	914	1020	1470
SM PPM	1.73	2.86	101	179	183
EU PPM	0.32	0.47	9.11	18.9	42.2
TB PPM	0.4	<0.2	6.3	25.7	19.8
YB PPM	2.90	0.41	7.75	9.94	10.3
LU PPM	0.45	0.04	0.93	1.37	1.92

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604) 980-5814 OR (604) 988-4524 TELEX: 04-352033

CERTIFICATE OF ASSAY

COMPANY: TECK RESOURCES
PROJECT:
ATTENTION: W. SPILSBURY

FILE: 5-875
DATE: NOV.29/85
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	AG G/TONNE	AG OZ/TON	F %	NB %	BA %
5917	2.1	0.06	.53	.01	.01
5918	3.4	0.10	8.11	.01	2.30
5919	2.3	0.07	1.16	.02	.01
5920	4.4	0.13	4.63	.02	.50

Certified by

MIN-EN LABORATORIES LTD.

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2
PHONE: (604) 980-5814 OR (604) 988-4524
TELEX: 04-352329

GEOCHEMICAL ANALYSIS CERTIFICATE

COMPANY: TECK RESOURCES
PROJECT:
ATTENTION: W. SPILSBURY

FILE: 5-875
DATE: NOV.28/85.
TYPE: HEAVY MINERAL

We hereby certify that the following are the results of the geochemical analysis made on 1 samples submitted.

SAMPLE NUMBER	AG PPM	BA PPM	F PPM	LI PPM	MN %
5921HM650P001	5.6	62000	16250	755	0.43

Certified by

NIPPON MINING CO. LTD.

820-1100 Melville Street
Vancouver, British Columbia
Canada V6E 4A6

Tel. 684-2225
Cable: Nimicable
Telex: Nimica 04-54465

December 2, 1985

Mr. Chris Graf,
Active Minerals Exploration Ltd.,
1013-837 West Hastings Street
Vancouver, B.C.
V6C 1C4

Dear Sir:

Enclosed please find the results of the analyses of your property, prepared by Chemex Labs Ltd.

We feel that the results of the assays this time are a little lower than before.

We would like to keep in contact with you with regard to field survey of your carbonatite properties during the next season.

Very truly yours,

T. Kuwahara
General Manager

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave
North Vancouver, B.C.
Canada V7J 2C1
Telephone (604) 984-0221
Telex 043-52597

CERTIFICATE OF ANALYSIS

TO : NIPPON MINING COMPANY LTD.

820 - 1100 MELVILLE ST.
VANCOUVER, B.C.
V6E 4A6

ATTN: T. KUWAHARA

CERT. # : A8517767-001-A
INVOICE # : I8517767
DATE : 14-NOV-85
P.O. # : NONE

Sample description	Prep code	La NAA ppm	Na NAA ppm	Sm NAA ppm	Ce NAA ppm	Lu NAA ppm	Eu NAA ppm
# 20	205	1480	288	142.0	990	1.0	51
# 21	205	3065	696	278.0	1930	2.0	108
# 22	205	2835	502	176.0	1855	<1.0	35
# 23	205	3420	608	179.0	2075	1.0	49
# 24	205	2180	458	149.0	1475	<1.0	31

CTA

Certified by ..Hart Bichler.....

Chemex Labs Ltd.

Analytical Chemists • *Geochemists* • *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone (604) 984-0221
Telex 043-52597

CERTIFICATE OF ANALYSIS

O : NIPPON MINING COMPANY LTD.

820 - 1100 MELVILLE ST.
VANCOUVER, B.C.
V6E 4A6

ATTN: T. KUWAHARA

CERT. # : A8517767-001-B
INVOICE # : I8517767
DATE : 14-NOV-85
P.O. # : NONE

Sample description	Prep code	Yb NAA ppm	Tb NAA ppm				
# 20	205	10	18	--	--	--	--
# 21	205	16	35	--	--	--	--
# 22	205	6	11	--	--	--	--
# 23	205	10	4	--	--	--	--
# 24	205	6	6	--	--	--	--

Certified by Hart Bichler .....

CTA

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

TO : TRM ENGINEERING LTD.

701 - 744 W. HASTINGS ST.
VANCOUVER, B.C.
V6C 1A5

CERT. # : A8611813-001-A
INVOICE # : I8611813
DATE : 16-APR-86
P.O. # : NONE
PETROBOTICS (22674)

Sample description	Prep code	Ag ppm Aqua R	Sn ppm	Au ppb FA+AA			
SN #1	205	15.0	39	135	--	--	--
SN #2	205	0.8	1	30	--	--	--
SN #3	205	1.0	1	90	--	--	--
SN #4	205	2.6	1	10	--	--	--

VOI rev. 4/85

Certified by Hart Bichler .....

CANDY CREEK

SOUTH Base Line NORTH

LEGEND

Geochemical isopleths
3000 ppm Fluorine
2000 " "
1000 " "
depression

Base Line
Trench location
Road cut
Proposed drilling site
760 Soil sample location ppm fluorine
Stream

N.T.S. 82 J/3E

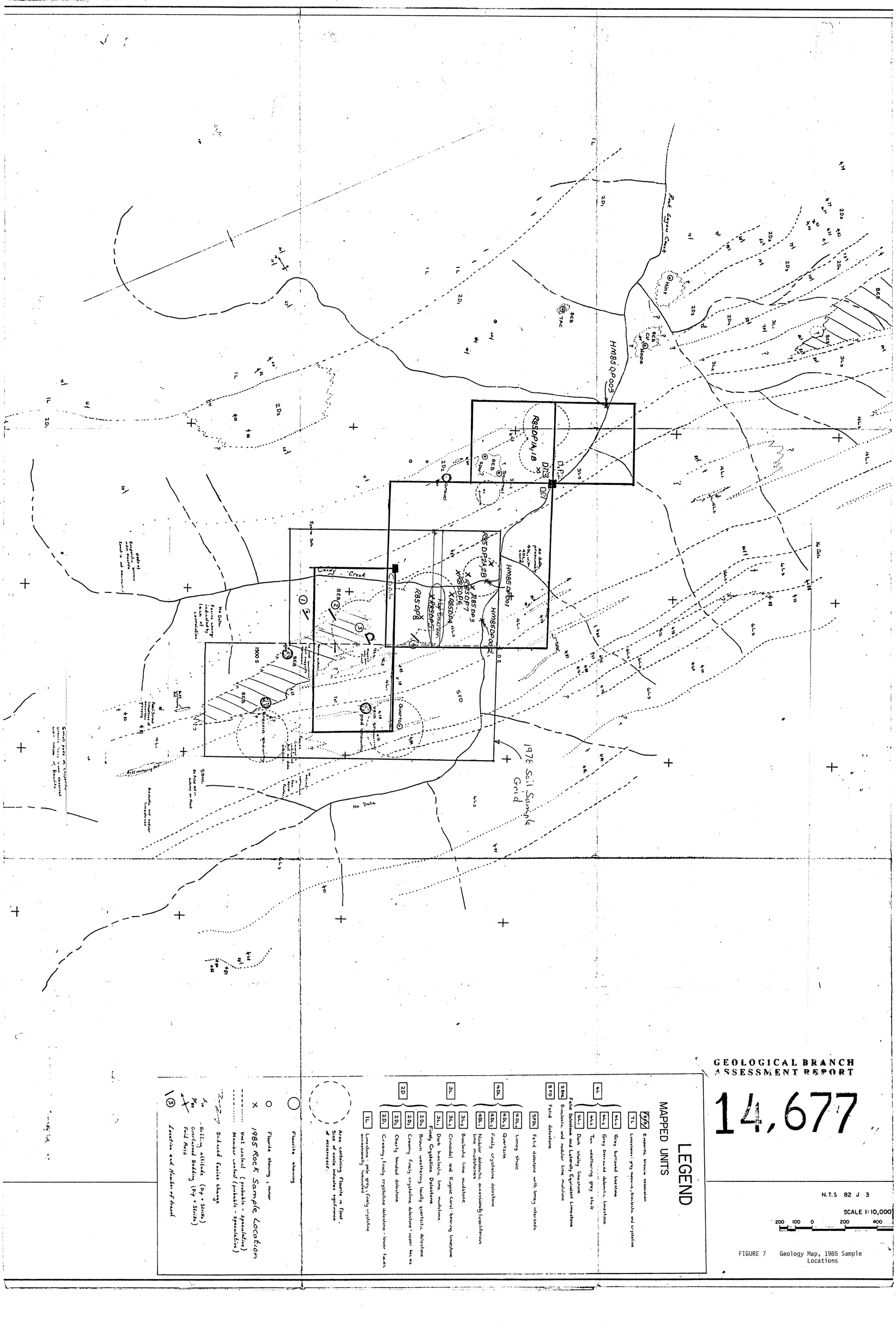
SCALE 1:1000

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,677

FIGURE 8

FLUORITE CLAIMS
Geochemical Results Fluorine,
Trench Locations
E.A. & B.W. | DEC. 1979 | DWG GC-8694



LEGEND

MAPPED UNITS

1985

7L Limestone; grey massive, bioclastic and crystalline

6L Grey bioturbed limestone
- 6L1 Grey bioturbed dolomitic limestone
- 6L2 Tan weathering grey shale
- 6L3 Dark shaley limestone

Fetid dolostone and Laterally Equivalent Limestone

5BML Bioclastic and nodular lime mudstone

5FD Fetid dolostone
- 5FDL Fetid dolostone with limey interbeds

4D Limey shale
- 4D1 Quartzite
- 4D2 Finely crystalline dolostone
- 4D3 Nodular dolomitic occasionally fossiliferous lime mudstones

3L Bioclastic lime mudstone
- 3L1 Crinoidal and Rugose coral bearing limestone
- 3L2 Dark bioclastic lime mudstone

Finely Crystalline Dolostone

2D Brown weathering locally quartzitic dolostone
- 2D1 Creamy finely crystalline dolostone - upper facies
- 2D2 Cherty bedded dolostone
- 2D3 Creamy, finely crystalline dolostone - lower facies

1L Limestone; pale grey, finely crystalline occassionally laminated

Area containing Fluorite in float. Size of circle indicates significance of occurrence.

Fluorite showing

- ○ Fluorite showing ; minor
- × 1985 Rock Sample Location
- ---------- Unit contact (probable - speculative)
- ---------- Member contact (probable - speculative)
- Bedding Deduced facies change
- Bedding attitude (Dip + Strike)
- Overturned Bedding (Dip + Strike)
- Fold Axis
- ③ Location and Number of Trench

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,677

N.T.S 82 J 3

SCALE 1:10,000

200 100 0 200 400

FIGURE 7 Geology Map, 1985 Sample Locations