BLUE RIVER CARBONATITES
BRITISH COLUMBIA
FINAL REPORT, 1981

82-90-10274

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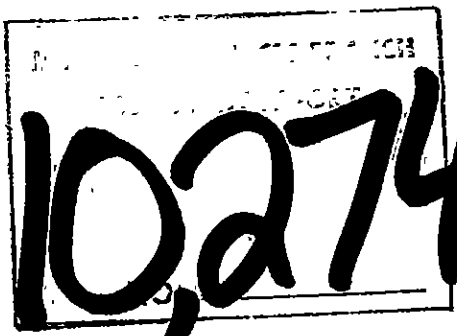
Bent Aaquist
Project Geologist



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PART
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TITLE PAGE

Exploration assessment report for 1981 on the carbonatites north of Blue River, British Columbia, N.T.S. 83D/6E.

Claim Name	Type	Units	Record No.	Record Date
Fir 1	2-Post	NA	1874	5/16/79
Fir 2	2-Post	NA	1875	5/16/79
Blue 1	Mineral	12	2460	3/21/80
Blue 2	Mineral	8	2461	3/21/80
Blue 3	Mineral	12	2462	3/21/80
Blue 4	Mineral	18	2463	3/21/80
Blue 5	Mineral	18	2464	3/21/80
Blue 6	Mineral	18	2465	3/21/80
Blue 7	Mineral	18	2466	3/21/80
Blue 8	Mineral	8	2467	3/21/80
Blue 9	Mineral	20	2468	3/21/80
Blue 10	Mineral	1	2469	3/21/80
BC-1	2-Post	NA	2970	9/25/80
BC-2	2-Post	NA	2971	9/25/80
BC-3	2-Post	NA	2972	9/25/80
BC-4	2-Post	NA	2973	9/25/80
BC-5	2-Post	NA	2974	9/25/80
AR-"I"	Mineral	8	1945	6/20/79
AR-2	Mineral	12	487	8/25/76
AR-3	Mineral	20	505	9/15/76
AR-4	Mineral	20	1946	6/20/79
BE-1	2-Post	NA	2956	9/3/80
BE-2	2-Post	NA	2957	9/3/80
BE-1	2-Post	NA	2907	8/27/80
BE-2	2-Post	NA	2908	8/27/80
Verity ~~FIRST~~	2-Post	NA	33461	5/12/60
BE-3	Mineral	9	1943	6/23/79

Mining Division: Kamloops

Latitude: 52 degrees 17 min. to 52 degrees 27 min.

Longitude: 119 degrees 04 min. to 119 degrees 11 min.

Claim Owners: John Kruszewski FMC No. ~~161239~~ 231323

Elizabeth French FMC No. ~~146838~~ 191068

Anschutz (Canada) Mining Ltd. FMC ~~190441~~ 243460

Operator: Anschutz (Canada) Mining Ltd.

By: Bent E. Aaquist
Project Geologist

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I. Summary

The carbonatite occurrences at Blue River, British Columbia have the highest tantalum concentration of any carbonatite in the world. The potential for economic concentrations of tantalum and niobium within one of these carbonatites is good in light of the results of the 1981 field season.

Detailed mapping, sampling and prospecting is recommended for the Verity-Paradise-Mill area, because this may be one large carbonatite complex. Where possible, ground magnetics, electromagnetics, soil sampling or stream sediment sampling should be used to aid in defining mineralized carbonatites.

Additional drilling is recommended on the Fir-AZ1 claims to define the structure of the carbonatites and the mineral zonation within. Our highest tantalum values are in this carbonatite.

A reconnaissance program is recommended for the Blue River area to look for other carbonatites.

II. Introduction

The main emphasis of the 1981 program was diamond drilling in four separate areas: Mill, Verity, Bone Creek-Power Line and Fir-AZ1 claims. Twenty-eight holes for a total depth of 2,964.9 meters were drilled. Limited surface mapping and sampling was carried out in a number of areas with the greatest emphasis in the Verity area. About 950 core samples and surface samples were submitted for Nb, Ta, and P_2O_5 analyses. A topo map at 1:4,000 scale with 10 meter contours was made for the Mill and Verity Areas.

III. Location and Accessibility

The mining claims controlled by Anschutz (Canada) Mining Ltd. are halfway between the towns of Blue River and Valemount. The claims are covered by map 83D/6E. Access to the area is via Yellowhead Highway #5.

The southern group of claims can be reached by turning off the highway 20 km north of Blue River and crossing the North Thompson River on the Bone Creek Bridge. Continue east to the power line access road, and then travel north for 5 km along the power line.

The northern group of claims can be reached by turning off Highway 5 at Lempriere crossing, cross the CNR tracks and drive south on logging roads for 2.5 km. See 1:4,000 scale topo map for local roads and trails.

IV. Topography and Climate

Relief within the claim area ranges from 760 to 2,290 meters above sea level. Slopes of 20 to 30 degrees are common with local slopes up to 40 degrees. Undergrowth is thick, with devilsclub common in wet areas. Hemlock, cedar, fir and pine cover the slopes up to an elevation of 1,980 meters.

Precipitation averages 127 cm per year, but annual variations can be great. Because of the steep hillsides and the heavy precipitation, dirt roads are commonly washed out especially in the spring.

V. Field Work, 1981

A. Diamond Drilling

Drilling was contracted to Bortz Specialties of Delta, B.C., and all core was drilled with NQWL equipment. Core is in wooden core boxes, four rows of core, each 1.5 meters long. All core is stored in a shed built on the homestead of Elizabeth French at mile 109 of the CN railroad. Road and drill sites were constructed with a D-7 cat owned and operated by Corey Construction of Blue River. Because of the steep slopes, the D-7 cat was used for most drill moves.

The drill schedule is listed in Table I. The Mill area holes are M-8 and M-9, the Verity holes are H-14 to H-30. The locations of all M and H series holes are shown on the 1:4,000 scale topo map and both 1980 and 1981 holes are shown. Holes BC-13 to BC-17 were drilled at the Bone Creek-Power Line and their location and the 1980 holes are shown on the 1:1,000 scale plan map of the area. Holes BC-18 to BC-21 were drilled on the Fir-AZ1 claims and all four holes were drilled from the same site.

B. Drill Core Logging

All the core was logged using a graphic format at a scale of 1 cm = 1 meters. The sample intervals and the assays are listed directly on the log. Data pertinent to individual holes is noted on the first page of each log. All carbonatite intercepts were sampled in intervals of 0.5 to 1.5 meters. Sample intervals were based on rock type changes, or changes in mineralogy. An effort was made to keep sample intervals the same thickness. All samples were split and half the core was kept for reference.

TABLE I

BLUE RIVER CARBONATITES

1981 DIAMOND DRILLING SUMMARY

DRILL HOLE	STARTED	COMPLETED	AZIMUTH	ANGLE	TOTAL DEPTH	CUMULATIVE DEPTH
M-8	May 14	May 21	090	-60	86.8 m	86.8 m
M-9	May 22	May 23	090	-60	76.2 m	163.0 m
H-14	May 24	May 30	360	-65	151.5 m	314.5 m
H-15	May 31	Jun 2	-	-90	111.9 m	426.3 m
H-16	Jun 3	Jun 8	315	-65	159.7 m	586.1 m
H-17	Jun 9	Jun 11	360	-60	86.9 m	672.9 m
H-18	Jun 15	Jun 16	360	-60	87.5 m	760.4 m
H-19	Jun 17	Jun 22	020	-60	105.2 m	865.6 m
H-20	Jun 23	Jun 26	360	-60	89.0 m	954.6 m
H-21	Jun 27	Jun 30	360	-60	101.5 m	1,056.1 m
H-22	Jul 1	Jul 5	-	-90	141.7 m	1,197.8 m
H-23	Jul 8	Jul 10	360	-75	115.5 m	1,313.3 m
BC-13	Jul 11	Jul 15	-	-90	90.2 m	1,403.5 m
BC-14	Jul 16	Jul 17	-	-90	39.9 m	1,443.4 m
BC-15	Jul 18	Jul 21	-	-90	127.1 m	1,570.5 m
BC-16	Jul 22	Jul 24	-	-90	78.6 m	1,649.1 m
BC-17	Jul 25	Jul 26	-	-90	45.1 m	1,694.2 m
BC-18	Jul 26	Aug 2	360	-65	218.8 m	1,913.0 m
BC-19	Aug 6	Aug 9	-	-90	209.7 m	2,122.7 m
H-24	Aug 12	Aug 14	360	-70	55.5 m	2,178.2 m
H-25	Aug 14	Aug 15	360	-75	63.4 m	2,241.6 m
H-26	Aug 16	Aug 20	360	-75	93.3 m	2,334.9 m
H-27	Aug 21	Aug 23	-	-90	99.1 m	2,434.0 m
H-28	Aug 24	Aug 26	360	-90	90.8 m	2,524.8 m
H-29	Aug 27	Aug 30	360	-75	15.5 m	2,540.3 m
H-30	Aug 30	Sep 1	360	-75	24.4 m	2,564.7 m
BC-20	Sep 4	Sep 11	180	-65	171.9 m	2,736.6 m
BC-21	Sep 16	Oct 1	090	-65	228.3 m	2,964.9 m

For the purpose of correlating drill hole data and surface data, cross sections have been made for the Verity and Fir-AZ1 area at a scale of 1:400, and for the Bone Creek area at a scale of 1:500. Because of the low tantalum values obtained at the Mill area, no sections were made for the drilling there.

C. Analytical Work

All core samples and surface samples were taken to Kamloops Research and Assay Lab for sample preparation and P_2O_5 analysis. Preweighed pulps were sent to X-Ray Labs in Don Mills, Ontario for Nb analysis. Another pulp was sent to Nuclear Activation Services in Hamilton, Ontario for Ta analysis.

D. Surface Mapping and Sampling

1. Verity Area

Four separate areas were sampled - see 1:4,000 scale topo map. At the Specimen Pit, a radiometric survey was made over the exposure and a series of channel samples, each one meter long, were taken across an area of varying radioactivity, and known pyrochlore mineralization. A section, at a scale of 1:100, is appended, showing the radiometric and sampling results, and Picture #19 shows the area sampled.

At the Columbite Pit, six channel samples were taken across the exposed carbonatite. A description of the samples and the assays are noted on a drill log format, Table II.

Two areas by the clear cut, east of the power lines, were sampled. The lower of the two areas was an old trench shown to me by Ms. French, who had worked it years ago. The upper, most easterly area was found this summer. It is outcrop (?) exposed by an uprooted tree. This may be part of an exposure mapped in 1952 (see Rowe, 1958, p. 32). Results of the sampling of these two areas are listed in Table III.

ANCHOR MINING CORP. HOLE NO. COLUMBITE PIT SAMPLING PAGE 1 of 1

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 5/17/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
						CPS	Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb % Nb_2O_5	P_2O_5 %			
			about 49,940N 49895E																
			Gneiss strike N 30°-40° E dip 35°E																
			A 2 meter deep cut has been made in the side of the hill.																
R/T 7881			Sovite - coarse crystalline accessory minerals occur in bands with a 30°S dip. Samples are channel samples normal to banding vermiculite occurs in local bands up to 5 cm, some are discontinuous. Apatite crystals are 2-5 mm. Magnetite crystals are up to 7 cm long		Sovite crumbles to coarse sand	165 00 65 50 40 35 25 35 29 25 25 24 20			WEATHERED					380 150 84 110 65 200	0.15 0.08 0.06 0.32 0.24 0.29	5.13 4.35 4.13 4.41 4.63 3.94			4506 4505 4504 4503 4502 4501
			Base of pit				5 3	3 2		1 1									

TABLE II

TABLE III

Results of sampling in the clearcut area above the Verity claim. See 1:4,000 scale topo map for location.

UPPER SHOWING

Sample Number	Sample Type	Ta ppm	Nb_2O_5 %	P_2O_5 %
4520	grab sample 30 c.p.s.	370	0.45	3.78
4521	grab sample no radioactivity	230	0.53	3.73
3828	0.3m chip sample at base	96	0.04	2.70
3829	0.3m chip sample above 3828	110	0.05	2.35
3830	as to 3829	150	0.04	1.97
3831	sugary carb. upper 0.3m	110	0.11	1.18

Pyrochlore was visible in some chips from samples 3829 and 3830. Carbonatite is similar to exposure in the Specimen Pit.

LOWER SHOWING

Sample Number	Sample Type	Ta ppm	Nb_2O_5 %	P_2O_5 %
3832	sugary textured,	69	0.04	2.74
3833	vermiculite rich beforsite	150	0.05	3.56
3834	280 c.p.s., 0.3 m long	27	0.04	1.31
3835	samples, 3833 top, 3832 & 3835 duplicate in middle, 3834 lower sample.	100	0.04	3.54

2. Fir-AZ1 Claims

Two samples collected in August, 1980 from the outcrop discovered by Elizabeth French on her Fir claims, assayed:

	Nb_2O_5%	Ta_2O_5%
#1	1.05	0.06
#2	0.35	0.01

In June, 1981, additional mapping and sampling was carried out. The result of this work is recorded on a drill log format, Table IV. Because of the high Nb and Ta values obtained for all the samples, a limited drill program was laid out to test the carbonatite, drill holes BC-18 to BC-21.

3. Paradise Lake Area

The Paradise Lake Area was visited August 24, 1981, and seven samples were collected (see Table V). Picture #3 shows the ridge where the carbonatite crops out, and a map made by the St. Eugene Mining Co., Ltd. in 1953 shows the geology of the main outcrop.

4. Howard Creek

Carbonatite occurrences were visited for one day. No samples were collected for assay because no significant pyrochlore mineralization was observed. A number of observations with regards to the structure of the carbonatites were made and will be noted in the geology section of this report.

5. Airphoto Interpretation

Stereo airphotos taken last summer by the B.C. government were studied for the Verity and Mill areas. A number of lineaments, thought to be block faults, were noted. These lineaments are shown on the 1:4,000 scale topo map.

ANCHOR MINING CORP. HOLE NO. R-82-1 Outcrop PAGE 1 of 1

BLUE RIVER CARBONATITES LOGGED BY B. AARQUIST/B. BROWN DATE 6/07/81

39.731N 48,546E

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	COUNT PER SECOND	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	U ppm	SAMPLE DEPTH	SAMPLE NUMBER
			Hanging Wall gneiss dips 20°S		in gneiss shear faces N-S 75° dip W, vertical slickensides	65-85 cps throughout								Nb_2O_5				
			Beforsite coarse xline, apatite and amph. are the two main accessory minerals, they occur throughout, and locally are concentrated in bands. There are no large magnetite or vermiculite xls, common at Verity. Non magnetic pyrrhotite is common throughout, 1-2% Beforsite outcrop & float occurs over a 15 meter vertical distance in a slide area on a 33° slope. A band of biotite occurs at the hanging wall contact		water comes out of outcrop at this interval		5	50	4			1	110	.19	2.11		1.5	4512
									cover				no	sample				
							5		5		?	1	200	.28	2.66		1.5	4513
									5%				390	.34	4.12		1.5	4514
								tr		estim.		tr	200	.22	2.96		1.5	4515
							6		5				160	.24	2.73		0.5	4516
								move	cover			7 meters		west				
			Samples 4512-4516 are continuous chip samples across outcrop. Samples 4517-4519 are random chip samples (15-20 per sample) in a given area.				6		6				260	.46	2.52		4 m along stream	4517
								move				7 meters		west				
							5		5	1	1		180	.30	2.52		3m Vertical in stream	4518
							5		5		1		180	.35	2.38		Random chip sample	4519

TABLE IV

ANGLO HURONIAN MINING CORP. HOLE NO. PARADISE AREA PAGE 1 of 1

BLUE RIVER CARBONATITES LOGGED BY B.E Aagaard DATE 8/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb .ppm	P_2O_6 %			
			3716 - 3720 is a series of 1 meter long chip samples across beforsite on south slope of ridge, east of saddle. sampling was east to west			eps													west
						250								88	420	4.85			3720
						400								130	310	4.57			3719
						400								140	300	4.22			3718
						300								110	240	4.60			3717
						300								170	350	4.54			3716
			3721 grab sample up slope from above samples, visible pyrochlore with pink halo																east
														200	180	3.93			3721
			3722 grab sample from large block of beforsite in talus, north slope of ridge, east of saddle. Beforsite blocks common in area with well developed layering of accessory minerals			300								64	80	3.29			3722

TABLE V

6. Reconnaissance Mapping

A number of days and part of days were spent checking other areas of the district for carbonatites. Data from this work is plotted on 1:50,000 scale topo map 83D/6.

E. Topographic Map, Verity-Mill Areas

Intrasearch in Denver, Colorado was contacted to make a detailed topographic map of the Verity-Mill Area, using air-photos taken in 1980, and vertical and horizontal survey control established by us. The resultant map is the 1:4,000 scale map mentioned above. Because of a 0.86 degree difference in survey control between this year's and last year's work, there is a 30 meter offset in our relative coordinates at the Mill Area on the topo map with respect to last year's plan map.

F. Consultant Work

Dr. A. N. Mariano of Carlisle, Mass. has been consulted to determine petrology and mineralogy of the carbonatites. About 35 samples have been sent to him during the summer. A preliminary verbal report and one written report, Appendix II, have been received. When a final report is received, it will be appended.

Dr. Mariano and D. J. Gittins of the University of Toronto visited the Blue River area August 22-26, 1981. One day was spent each at Howard Creek and at Paradise Lake, studying carbonatites; both areas are above tree line and exposure is good. The rest of the time was spent studying outcrops in the four areas where we had been drilling and reviewing drill core.

The visit was very informative for all parties. Some problems about mineral identification were cleared up, but the main point to come out of our discussions was that the carbonatites at Blue River, although not unique in their mode of occurrences, are not well known. What we have learned to date is new knowledge about this mode of occurrence, and there is still a lot we do not know about mineral zonation and extent of occurrences.

G. Property Status

Only two claims and one fraction were staked this year. The claims that we controlled at the end of 1980 were retained (see Claim Map). The two claims and the fraction were staked west of Verity First claim. This gives us control of all land east of the North Thompson River in that area. In addition to the claim staking, all claims were surveyed and tied to a common survey in order to eliminate false gaps between claims shown by the drafting department of the Gold Commissioners office. This work was done by Amex Exploration Services Ltd. of Kamloops.

VI. Geology

A. Regional Setting

The carbonatites in the Blue River area are in the Omineca Crystalline Belt of the Canadian Cordillera, which is also part of the Cordilleran Alkaline Province (Currie, 1976), Figure 1. The carbonatites occur in a sequence of gneisses and schists that lie due north of the Shuswap Metamorphic Complex, see Figure 2. The rocks are probably the same age as the complex, but are separated from it by the sillimanite isograd, a purely arbitrary boundary for the complex. Metamorphic isograds in the area (G.S.C. Map 15-1967) are not all valid, based on our current field work. Therefore, major faults and not isograds should define the major complex boundaries in the district.

There are a number of carbonatite occurrences in B.C. other than the ones at Blue River, see Figure 3. Two of these occurrences are similar to the Blue River carbonatites. They are the Manson Creek and Frenchman's Cap areas. At Manson Creek, carbonatite and syenite occur as a sill-like body over 600 meters long and up to 15 meters wide, with grades of 0.21% Nb_2O_5 (Currie, 1976). Pyrochlore, columbite and niobium rutile are the niobium bearing minerals.

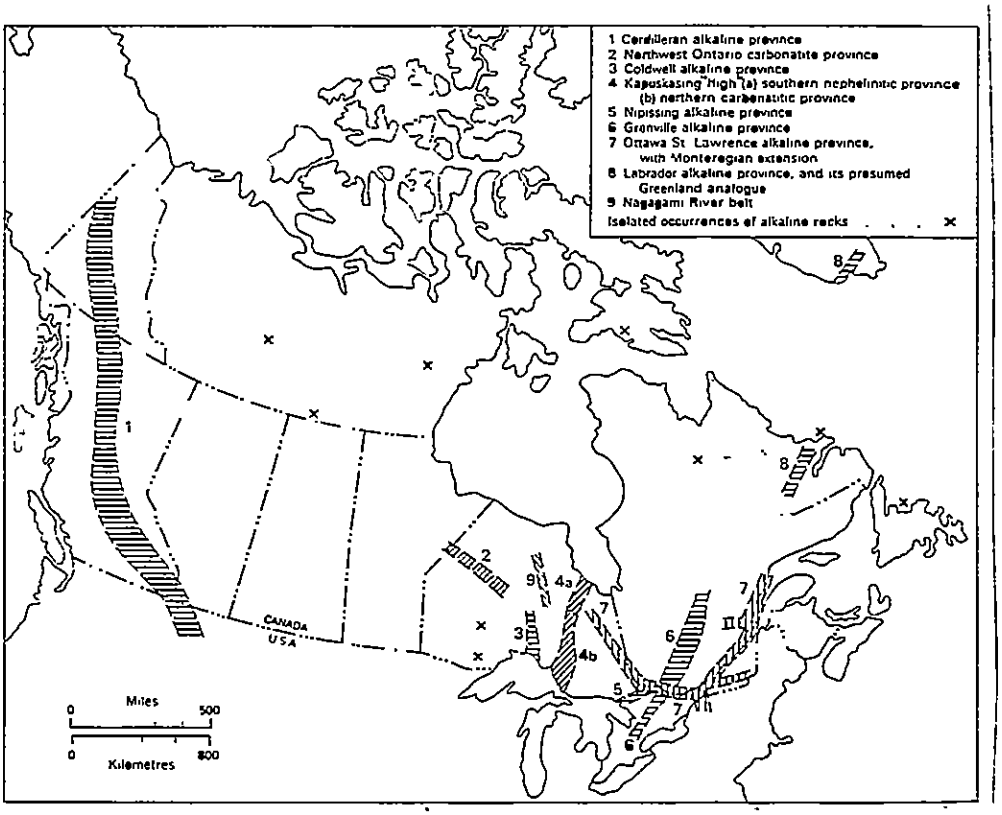

FIGURE 1

Belts of alkaline rocks in Canada
(Currie, 1976)

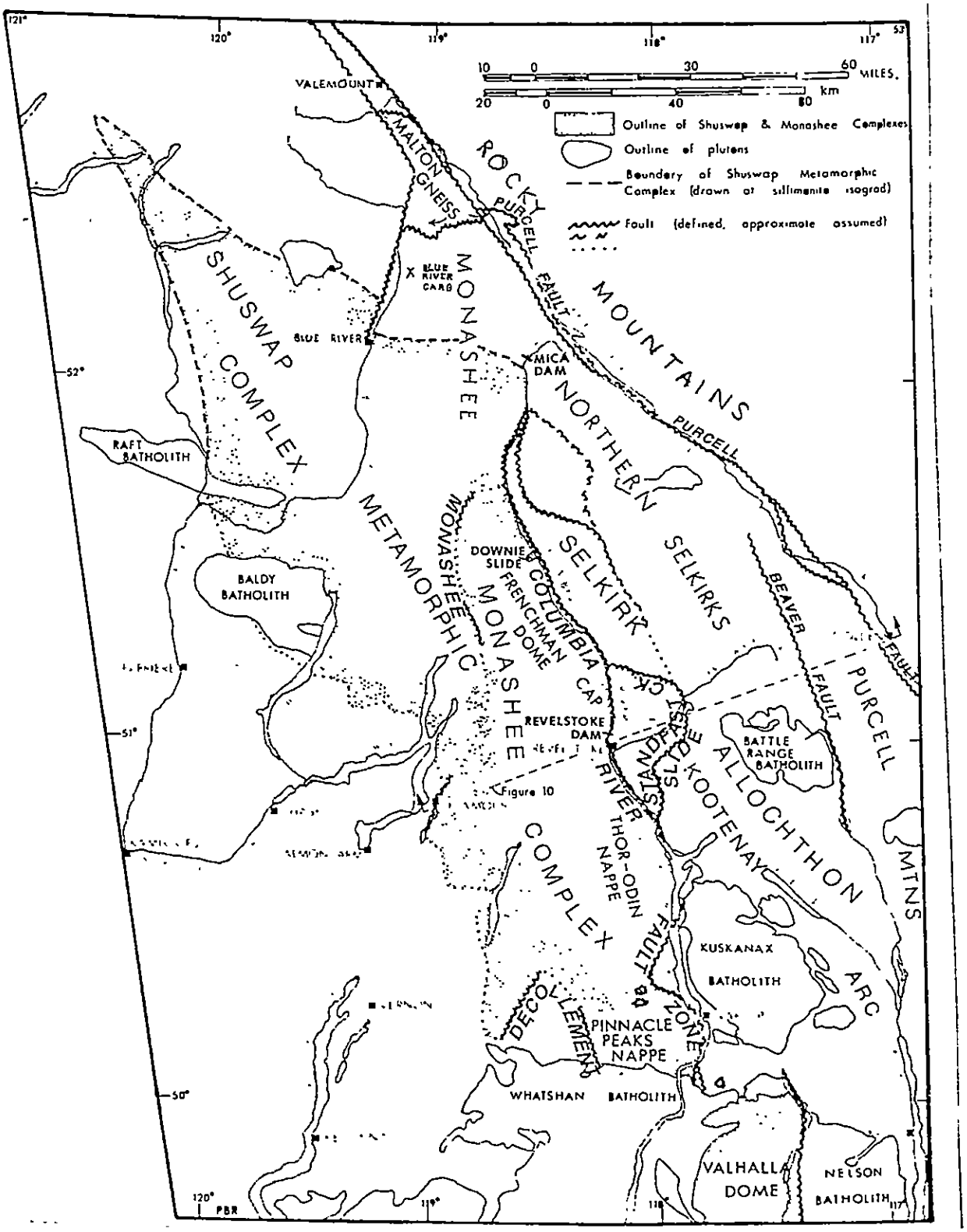

FIGURE 2

Shuswap and Monashee metamorphic complexes and adjacent rocks, major intrusions, regionally important faults. (Read and Brown, 1981)

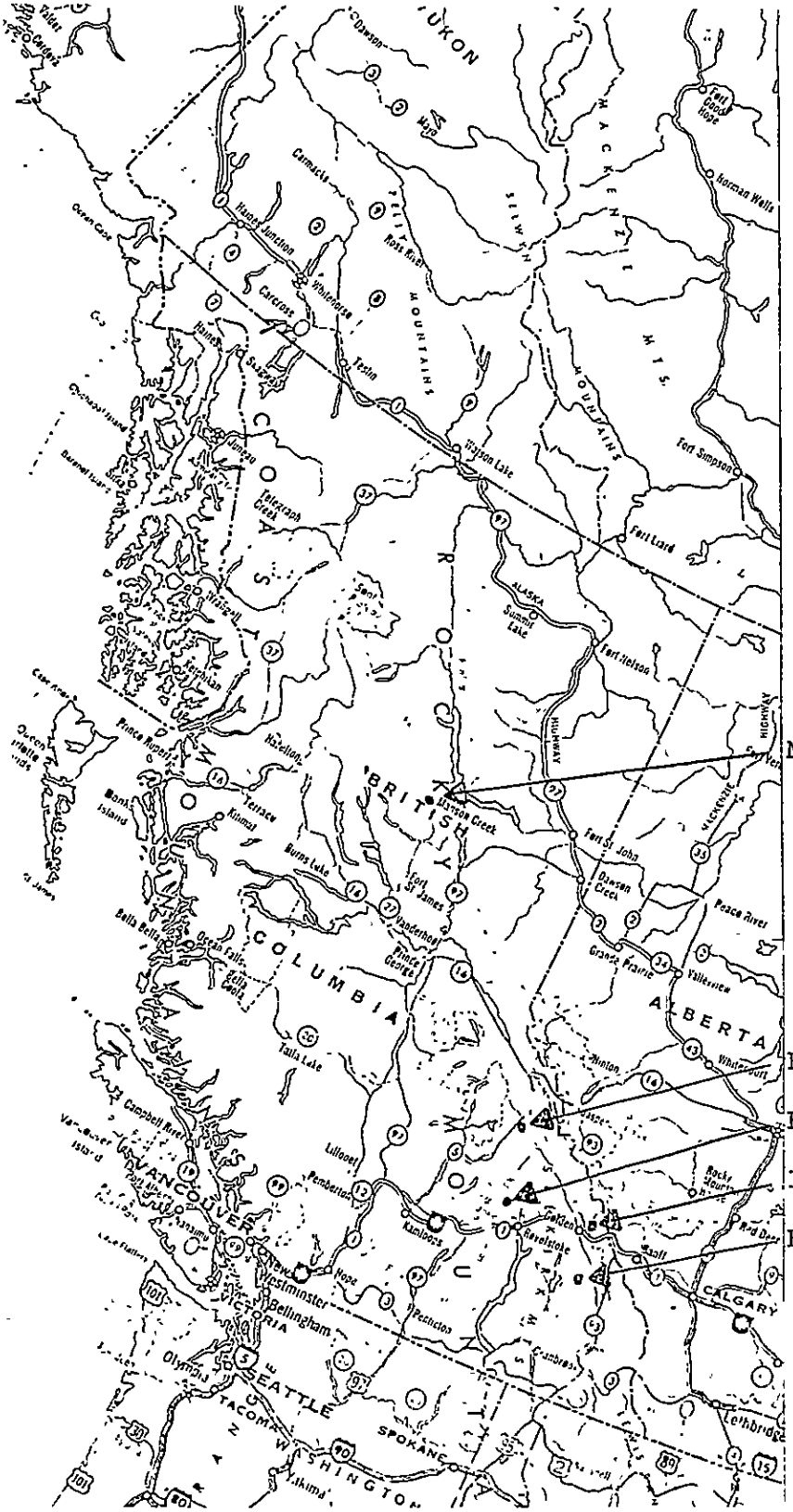

FIGURE 3

Carbonatite localities
in British Columbia.

At Frenchman's Cap, there are a number of concordant carbonatite bodies with apatite, molybdenite, pyrite, columbite-tantalite and local sphene, zircon and pyrochlore (McMillan and Moore, 1974). The economic potential of these carbonatites is not known; however, recent work by the B.C. Department of Mines, Geology Branch, indicates that there is more carbonatite in the area than was previously known, (McMillan, personal communications, November, 1981).

In the Ice River complex, carbonatite is associated with nepheline syenite and rutile, ijolite in a horseshoe-like intrusion. No economic mineralization is known and the area is in a national park. The Bugaboo Placers are a series of eight radioactive placers in three adjacent creeks. They have euxenite-polycrase and pyrochlore. The source is thought to be grantic stocks, in part covered by glaciers (Row, 1958).

B. Geology of the Blue River Carbonatite

The carbonatite occurrences at Blue River consist of both beforsite and sovite. The beforsite and sovite occur mostly as separate bodies, but locally veins of one type has intruded the other. Most carbonatites have internal layering of accessory minerals. Amphibolite and glimmerite are commonly associated with carbonatites. Block faulting and/or step faulting is present throughout the district.

1. Carbonatite Textures

The carbonatites are mostly medium to coarse crystalline with four distinct textures. Gradations exist between all the textural types. A massive, medium to coarse crystalline texture occurs in almost all carbonatites, but it is most common in the beforsite on the Verity claim, see picture #4 and "H" series drill logs. Two types of breccia occur: one is a flow breccia, white coarse beforsite crystals cemented by dark gray fine crystalline beforsite, see pictures #14 and #16; the other is a tectonic breccia caused by hairline fractures, see picture #7. The first breccia type is common in the be-

forsite on the Fir-AZ1 claim, the second type is common in the beforsite on the Verity claims. A porphyritic texture occurs locally but is best developed in the beforsite on the Fir-AZ1 claims, see picture #16. A porphyritic phase appears to have formed by resorption of beforsite crystals from the breccia phase into fine grained beforsite that cements the breccia. A banded texture caused by layering of accessory minerals is common in the sovite units in the Mill and Verity area, see pictures #8, 10 and 12. Banding of accessory minerals is also present in beforsite units, but it is not as well developed. A flow banded unit in drill hole B.C.-20 is an exception. see picture #14.

Layering of accessory minerals is common in many outcrops see notes on the section of the Specimen Pit and Table II, the Columbite Pit. Most bands are 1 cm to 5 cm thick and discontinuous as lens-like in nature. The bands are useful for measuring local dip as well as showing minor offsets cross fractures.

Fractures caused a breccia texture in core in the beforsite on the Verity claim, picture 7, and they are evident in the Specimen Pit outcrops, picture 19.

Some fracture faces have slickensided surfaces indicating movement. The fractures may have formed parallel to regional block faults.

The beforsite on the Verity claim locally has a bleached texture, picture #7. The bleaching has no distinct pattern, and varies in intensity. Bleaching is due to local removal of fine iron oxide grains, but no definite explanation for the leaching action is known.

2. Accessory Minerals

The carbonatites at Blue River have most of the accessory minerals common to carbonatites, apatite, amphibole, olivine, magnetite, biotite, pyrite, pyrrhotite, pyrochlore and columbite.

Apatite is present in all carbonatite units and commonly makes up 5-10% of the rock. The crystals are clear and colorless, and most are 1-3 mm in size, see pictures 4, 11, and 12. The sovite units on the Verity claim have a higher apatite content than any of the other carbonatites. Greater than 4% P_2O_5 is common for the Verity sovites. Except for the sovite intruding the base of the beforsite, it had less than 1% P_2O_5. The Verity beforsite has a poorly developed apatite concentration in its lower 1/3, where the P_2O_5 content increases from less than 3% to greater than or equal to 4% P_2O_5 . The P_2O_5 content drops abruptly at or just above the sovite unit.

The beforsite-sovite distinction can be made on the presence of either amphibole or olivine. All the beforsite units have green needle-like amphiboles 1-2 mm long. The amphibole occurs in random orientation throughout the beforsite and commonly make up 1-3% by volume, see picture #14. Olivine occurs in all the sovite units as dark gray crystals up to 1 cm across. Most olivine crystals have embayed edges and inclusions, see pictures #8, 9 and 11, and some are intergrown with magnetite.

Magnetite is present in all the carbonatite units. It commonly occurs as irregular crystals with embayed edges and inclusions, see pictures #5, 8 and 9. Most crystals are a few mm in size, but in the Columbite Pit, masses of magnetite up to 30 cm across were observed. A magnetite content of 1-2% is common, except for the beforsites on the Fir-AZ1 claims, where they are almost devoid of magnetites.

Biotite (or phlogopite) occurs in all carbonatites. It commonly occurs as thin flakes a few millimeters to a centimeter long. Locally it occurs in books up to 5 mm thick. In the sovite units, the biotite imparts a well developed foliation and/or flow banding, see pictures 10 and 12. Like magnetite, the beforsite on the Fir-AZ1 claims is almost devoid of biotite. On the Verity claim, vermiculite occurs locally in place of biotite.

Pyrite and pyrrhotite occurs in all the carbonatites, but their occurrence appears to be random and is commonly less than 1%. Pyrrhotite is the more common of the two. It occurs as irregular fine masses, and pyrite occurs as fine crystals. The pyrrhotite is magnetic except for the pyrrhotite in the Fir-AZ1 beforsite where it is non-magnetic. Also in the Fir-AZ1 beforsites, the pyrrhotite is most common in the breccia unit, as a cement, see picture #16. In one drill hole, H-19, pyrrhotite was intergrown with magnetite and olivine, see picture #11.

The economic potential of the Blue River carbonatites is in their pyrochlore and columbite content. The crystals occur as octahedrons commonly 1 mm size or less. However, in the Specimen Pit, pyrochlore crystals up to 3 cm have been observed and 1-5 mm crystals are not uncommon. The pyrochlore varies in color from black to reddish brown to gray, with a greasy luster. Pitted faces are common. Columbite is commonly black. The major elements in pyrochlore are Na, Ta, Nb and Ca and locally minor amounts of U. The major elements in columbite are Nb and Fe.

Pyrochlore and columbite occur independent of each other; one is not an alteration product of the other. Variations in relative abundance of the two minerals can account for the wide range of Nb:Ta ratios observed in the carbonatites, see drill logs.

3. Associated Intrusive Rocks

There are four types of intrusive rocks in the carbonatites. On the Verity claim, sovite has intruded into the basal part of the beforsite (see picture #5). This particular sovite has a low apatite and pyrochlore-columbite content, and it varies in thickness from being locally absent up to 4.2 meters. At Bone Creek, a thin sovite band was observed at the base of a beforsite (see log for drill hole BC-14). On the Fir-AZ1 claims, sovite was observed intruding beforsite in one drill hole, BC-19.

The opposite of the above situation, beforsite intruding sovite was observed in only two drill holes, H-14 and H-17 (also see picture 13). The significance of this intrusion is not known.

The third type of intrusion, amphibolite, occurs in all the carbonatites. The amphibolite occurs as fracture fillings a few millimeters thick, see picture #6, up to 15+ cm thick which was observed in the outcrops on the Verity claim. Thick amphibolite units, greater than one meter, may be related to this type of intrusion. The association with carbonatite is based on the observations that thin bands, picture #6, have calcite in them, and the amphibolite has both apatite and pyrochlore-columbite (see drill log assays). One amphibolite intercept in drill hole BC-20 at 134 meters had 230 ppm Ta and 0.144% Nb_2O_5.

The fourth associated rock type has been called transitional in the drill logs. This rock type represents a zone of mixing between carbonatite and the country rock gneiss. The transitional rock is banded with separate bands of alkali amphibolite, white k-feldspar, carbonatite, gneiss and biotite rich carbonatite. Individual bands vary in thickness from a few cm up to 1 meter and the contacts parallel the gneissic foliation. The transitional rock represent fenitization with the development of K-feldspar and biotite. Locally, fenitization is restricted to a narrow zone of biotite development at the carbonatite contact (see Table IV). In many places in the Blue River area, there is not fenite development and the carbonatite is in sharp contact with the country gneiss (picture 17).

4. Stratigraphy and Structure

The carbonatites are sill-like bodies conformable with foliation in the country gneiss. The Verity claim has the most varied stratigraphy of any of the known carbonatites in the district. A simplified stratigraphic section on the Verity claim is shown in Figure 4. This stratigraphy is continuous for the full strike length that has been drilled to date.

VERITY CLAIM

GENERAL STRATIGRAPHY

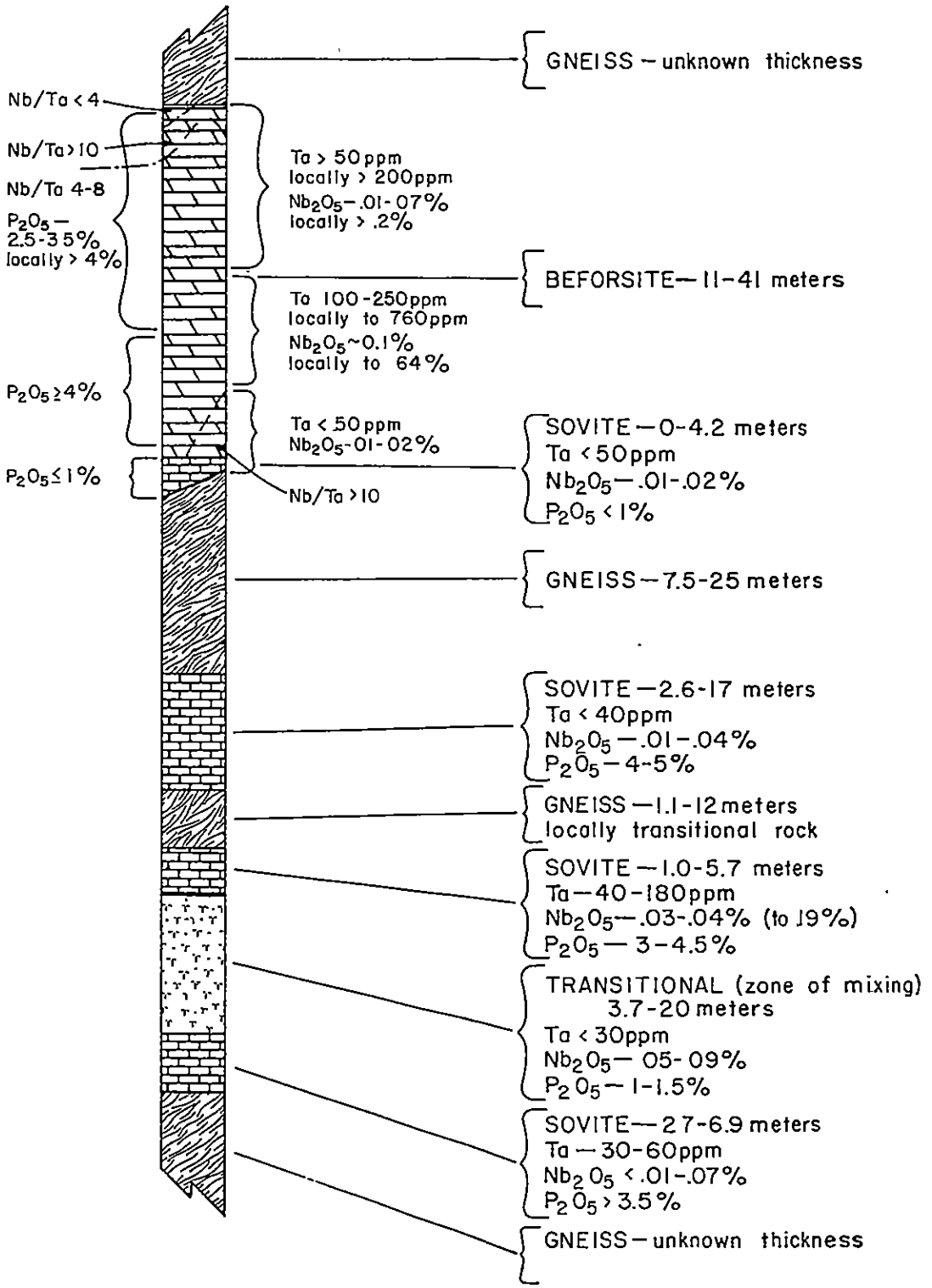

FIGURE 4

THE ABOVE UNITS ARE DRAWN RELATIVE TO THEIR AVERAGE THICKNESS AMPHIBOLITE IS COMMON IN THE SOVITE AND TRANSITIONAL UNITS.
FOR MORE DETAILS ABOUT ZONING, SEE GRAPHIC MINERALIZATION SECTIONS.

The Bone Creek-Power Line showing is a thin, horizontal sheet of beforsite (see 1:500 scale sections of 1980 and 1981 drilling). The beforsite either pinches out to the north, or it has been offset by faulting. Detailed surface mapping of the gneisses and schists in the area should prove or disprove the presence of faults.

The stratigraphy of the beforsites on the Fir-AZ1 claims appears to be complex and cannot be properly interpreted at this time because of a lack of data (see 1:400 scale sections). It appears to be a near horizontal intrusion of beforsite and amphibolite.

The Mill area has two major sovite units similar to the lower two units at the Verity. Dip is to the west. Extension to the Verity is unknown.

The lateral limits of the carbonatites are not well known. Faults define some limits locally, (picture #18 and 1:100 scale section of the Specimen Pit). Only one intrusive lateral contact has been observed to date (see picture 17).

There are numerous block faults in the Blue River district. Such faults are well exposed at Howard Creek (83D/7W), pictures #18 and 20, and on the ridge between Paradise and Serpentine Creek, picture #3. Airphoto lineaments, interpreted as faults, in the Verity area, have been plotted on the 1:4,000 scale topo map. One such lineament, extending between drill holes H-27 and H-28, if a fault, can account for the absence of carbonatite in drill holes H-28. The presence of slickensided fractures in the Specimen Pit area (picture #19) is further evidence for faulting.

Faulting, and not folding (Currie, 1976), can account for the irregular distribution of carbonatite outcrops in the Verity area as mapped in 1952 (Rowe, 1959, p. 32). The approximate locations of all carbonatite outcrops are plotted on topo map 83D/6. The Verity and Paradise carbonatites are similar both texturally and compositionally. If they are part of the same body, they represent a sill with dimensions of

5 km x 30 m. The drilling on the Verity claim has tested only 1% of the potential areal extent of this carbonatite.

5. Country Rock

The country rock hosting the carbonatites is mostly a quartz, feldspar, biotite gneiss. The gneiss varies from well banded to massive with biotite imparting foliation. Muscovite and garnets are present locally, and in places, the rock is better described as a schist. At Bone Creek and on the Fir-AZ1 claims, local bands of gneiss have fine disseminated graphite and magnetic pyrrhotite. These bands have low values of gold, 0.003-0.007 oz/ton, and low values of silver, 0.06-0.11 oz/ ton. Emission spec analyses were run on two samples from drill hole BC-14. No significant anomalies were recorded from 35 elements (see log for details).

Feldspar dikes, white, coarse crystalline, and massive are ubiquitous in the district. They cross cut the gneiss as well as all the carbonatites. The dikes are irregular and vary in thickness from a few centimeters to many meters. The dikes are post carbonatite but pre-faulting.

V. Economics Assessment

A. Economics of the Area worked to date

Subeconomic mineralization, about ½ the grade required for economic extraction, has been encountered in all the area drilled; however, favorable continuity and thickness is good only on the Verity and Fir-AZ1 claims.

1. Verity Area - The beforsite on the Verity claim is the best mineralized unit of all the carbonatite units there. The beforsite is itself stratified mineralogically (see Figure 4, and Graphic mineralization sections). In the westerlymost drill holes, the top of the beforsite has very low Nb:ta ratios, 2-4 for 4 to 5 meters thickness. This unit is underlain by a 3 to 5 meter thick unit with Nb:Ta ratios of 10-40.

This unit is locally absent in some of the easterly holes. The rest of the beforsite has Nb:Ta ratios from 4 to 8. The best mineralization is in this center part, with Ta values of >200 ppm common; the highest value obtained was 760 ppm. Near the beforsite-sovite contact, there is an abrupt drop in Ta values from above 100 to less than 25 ppm. The P_2O_5 values do not correspond to the trends in the Na and Ta values, but seem to be highest in the lower part of the beforsite, right down to the sovite contact. The above observations indicate that the beforsite formed from a series of magma pulses, each one varying slightly in mineral content. The lateral continuity evident on the graphic mineralization sections is encouraging for future exploration because, if economic intercepts with minable thickness are discovered, there is good potential for lateral continuity.

2. Fir-AZ1 - The beforsite units on the Fir-AZ1 claims has the highest background Nb and Ta values of any carbonatites in the area. Ta values average >150 ppm, and two samples had 1,100 and 1,800 ppm. No mining widths have been encountered nor has lateral continuity been established. The textural variability and the differences in Nb:Ta ratios indicate formation from a series of magma pulses similar to the Verity beforsite. Ratios of Nb:Ta within the beforsite are grouped. The following groups are common: less than 1, 2 to 3.5, 4 to 5, 6± with local values up to 12.

3. Mill Area - Anomalous values of niobium occur in the lower half of the lower sovite unit in the Mill area. Values up to 0.42% Nb_2O_5, over 1.5 m, occur for a strike length of 100 meters and they are open to the north and to the south. The zone has been intersected in four holes to date. No significant tantalum values were encountered.

4. Bone Creek - High Nb and Ta values occur locally with no lateral continuity. The carbonatite unit is thin, >5 meters with limited lateral extent.

5. Mineralogy - An economic deposit in this area might have two or three niobium and tantalum bearing minerals: pyrochlore, columbite and fersmite. This may result in additional milling and metallurgical problems, and, therefore, increase those costs.

B. Potential for an Economic Deposit

The potential for finding an economic concentration of niobium-tantalum in the Blue River area is good. There are a number of reasons for this conclusion. All carbonatites tested in the area have anomalous values of niobium-tantalum; thus, there is a good possibility that an economic concentration occurs somewhere. The drilling done in the Verity area has tested only 1% of the total volume of potential beforsite in the area between Verity and Paradise. We have no reason to believe that this is the best mineralized area. It was drilled because it was the best exposed, easily accessible and best known. A similar argument is valid for the Fir-AZ1 carbonatite.

The presence of other carbonatites, not previously known, in the area and in the district, increases the chances of finding an economic deposit because there are more potential host rocks. Last year a carbonatite was found on Red Sands Road, 14 km east of Blue River and this year carbonatites were reported in the headwaters of Bone Creek (J. Kruszewski, personal communications). G.S.C. Map 15-1967 shows marbles and amphibolites in the area interbanded with the gneisses, some of which may be carbonatites because at the time the map was published, some G.S.C. geologists did not believe carbonatites existed in the Canadian Cordillera. Also, more carbonatites have been found recently in the Frenchman's Cap area to the southeast of Blue River. Pyrochlore and columbite is also known in these carbonatites.

TABLE VI

Verity Drill Holes

Hole	Highest U. Assay	Interval
H-1	261 ppm	50'-53'
H-2	188 ppm	53'-55'
H-3	205 ppm	16'-18'
H-4	187 ppm	8'-10'
H-5	6.5 ppm	57'-59'
H-6	50 ppm	53'-60'
H-7	165 ppm	71'-76'
H-8	100 ppm	55'-60'
H-9	254 ppm	156'-161'
H-10	25 ppm	223'-228'
H-11	128 ppm	21'-29'
H-12	150 ppm	10'-16'
H-13	217 ppm	19'-24'

No U analyses from Mill Area

Bone Creek Area

Hole	Highest U Assay	Interval
BC-4	77 ppm	88'-93'
BC-5	126 ppm	85'-90'
BC-6	5 ppm	32'-32'8"
BC-7	188 ppm	112'-115'
BC-10	136 ppm	101'-105'
BC-11	64 ppm	54'-58'
BC-12	59 ppm	24.5'-25'

C. Uranium Moratorium

The B.C. provincial government has placed a moratorium on uranium exploration. This moratorium is significant to carbonatite exploration because most pyrochlores in the Blue River area are uraniferous to the limit of minability as defined by the moratorium, which is 100 ppm, or 0.01%. The two most radioactive carbonatites known to date are the Verity beforsite and the Bone Creek-Power Line beforsite. Radioactivity of 5 to 10 times background is common. Table VI list the highest uranium values encountered in each drill hole drilled last year. Not all pyrochlore crystals are as radioactive as the ones found on the Verity claim. Thus the moratorium should not deter from future exploration. The moratorium terminates on February 28, 1987.

VI. Conclusions

1. No economic deposit was defined by this year's work.

2. All carbonatites sampled in the Blue River area have anomalous pyrochlore and columbite.

3. The pyrochlore in these carbonaties have the highest tantalum values of any known carbonatites in the world.

4. The carbonatites are sill-like intrusions not related to any circular structures.

5. There are more carbonatites in the district than what was previously known, and there is good potential for finding even more.

6. Our work this year sampled only a fraction of the known carbonatites, and we still do not know enough about the mineral zonation within these carbonatites to know if we sampled the best parts.

7. We currently know more about these types of carbonatite than anyone else.

8. Phosphate and fluorine geochemistry may be useful in locating other carbonatites (Boyle, 1981; Rodriguez, 1981).

9. Because of the steep terrain and the limited success of past programs, airborne geophysics is not a cost effective tool for exploration. It may be useful for follow-up work.

10. Panning of stream sediments may prove useful in locating pyrochlore rich carbonatites. Pyrochlore should concentrate in a heavy mineral fraction, and visual identification can be made with a binocular microscope.

VII. Recommendations for Future Work

1. Recent SEM-EDAX work indicates that the Nb:Ta ratios should be >6. Therefore our assays must be checked where we have high Ta and no corresponding high Nb. A preliminary study of Nb assays on this year's results has started. It may be ncessary to reanalyse many of our samples, because we should have significantly higher Nb values in the 0.3% to 0.5% range. This is especially true of the Fir-AZ1 area where Ta values are averaging >150 ppm.

2. A program of stream sediment sampling using fluorine geochemistry and heavy mineral panning may help to locate other carbonatites in the area. This should be done in conjunction with prospecting, mapping and outcrop sampling. Stream sediment sampling should be on streams draining small areas.

3. If our Nb assays were truly low, and there are more values around 0.5% Nb_2O_5, then a minimum of four holes

should be drilled on the Fir-AZ1 claims - two holes each north and south of the existing holes. About 800 meters of drilling would be involved.

4. A two week reconnaissance program is recommended to check localities of marble and amphibolite east and southeast of Blue River, as shown on G.S.C. Map 15-1967. This will involve two people and about 40 hours of helicopter time.

VIII. REFERENCES

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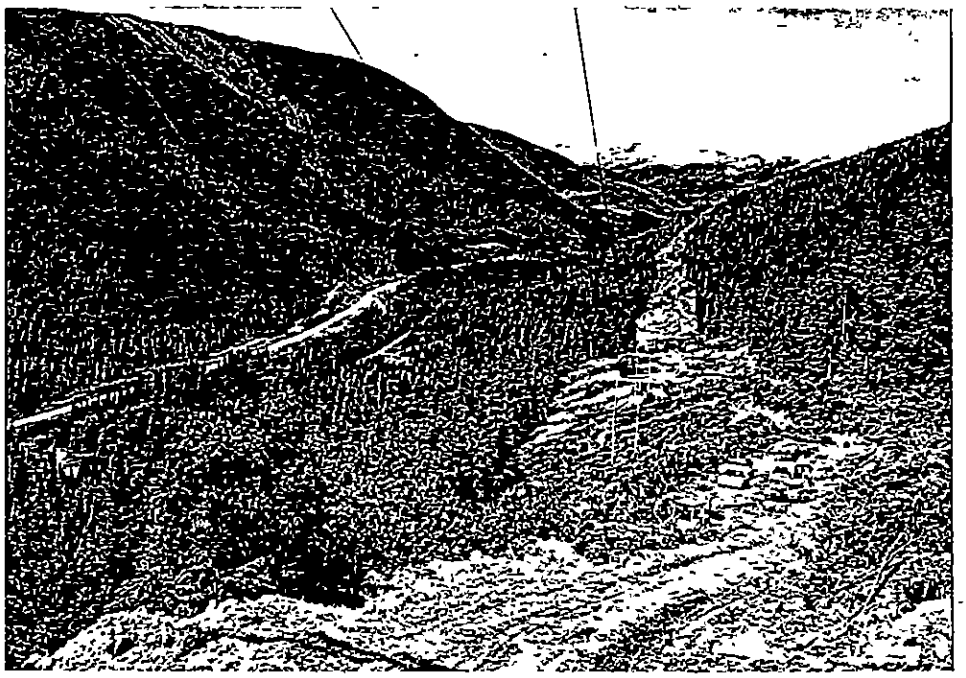
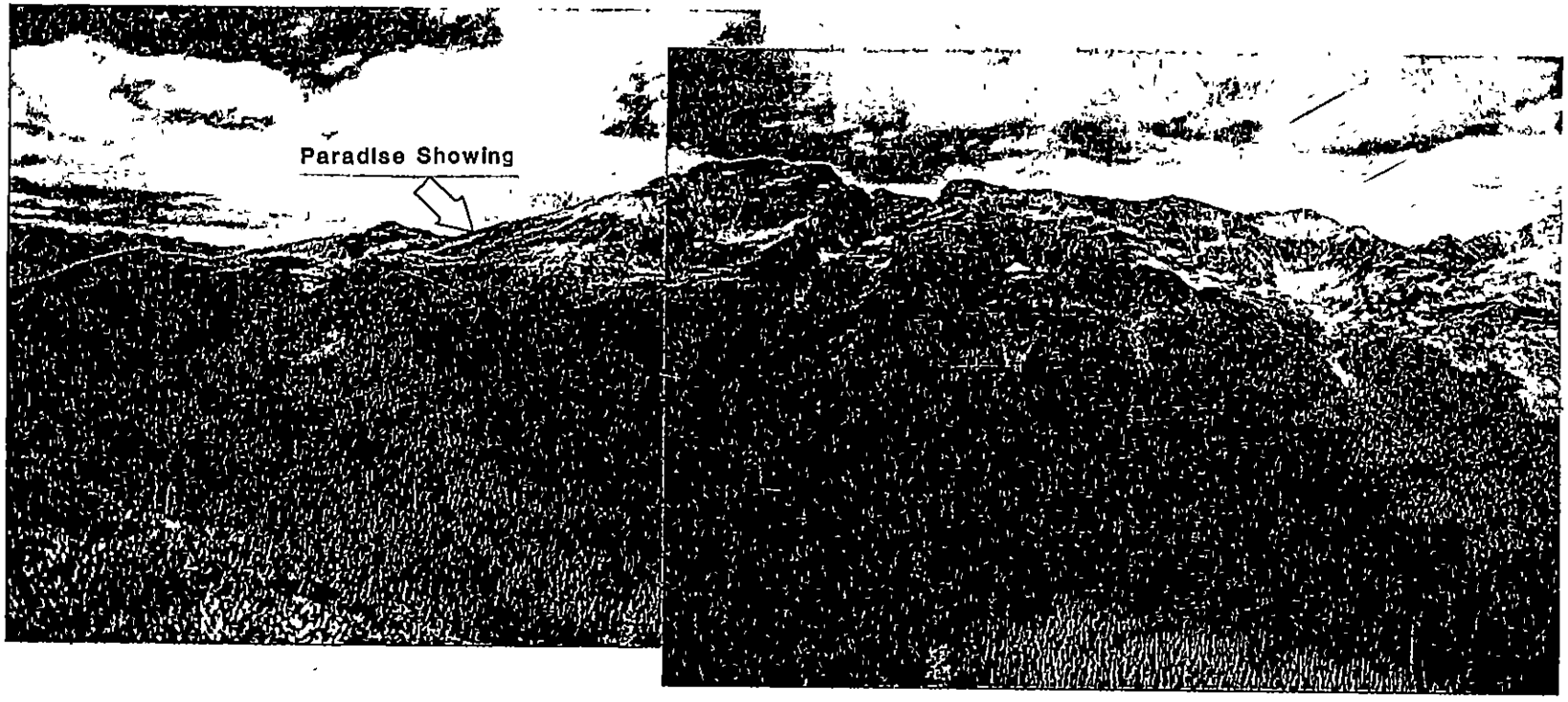
Rowe, R. B., 1958. Niobium (Columbium) Deposits of Canada. G.S.C. Econ. Geol. Series No. 18, 108 pp.

A P P E N D I X I

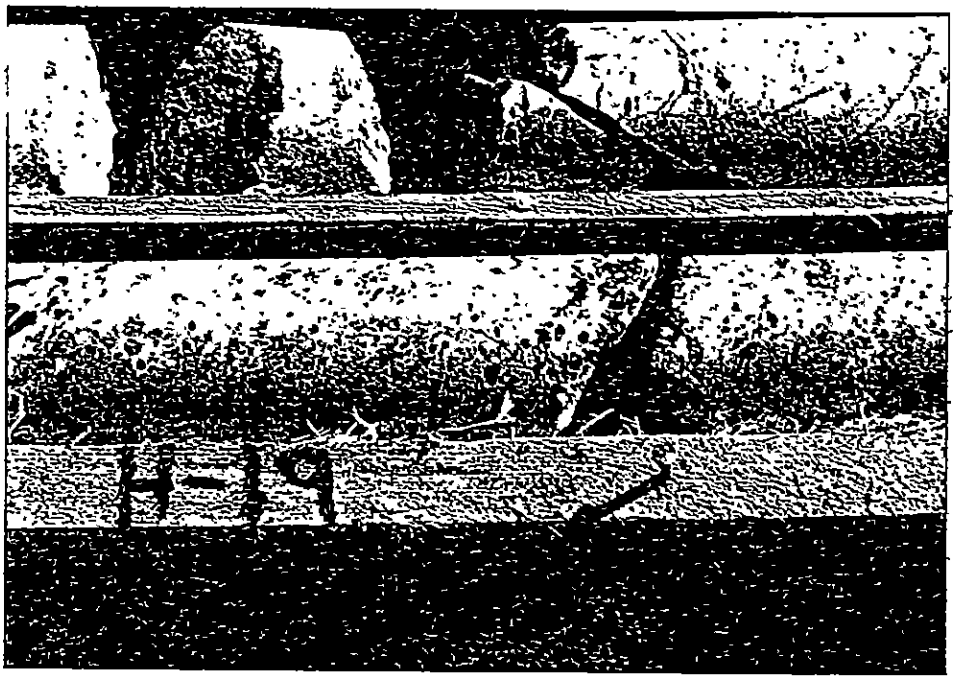


VERITY CLAIM looking north.
North Thompson River & Yellowhead Highway below

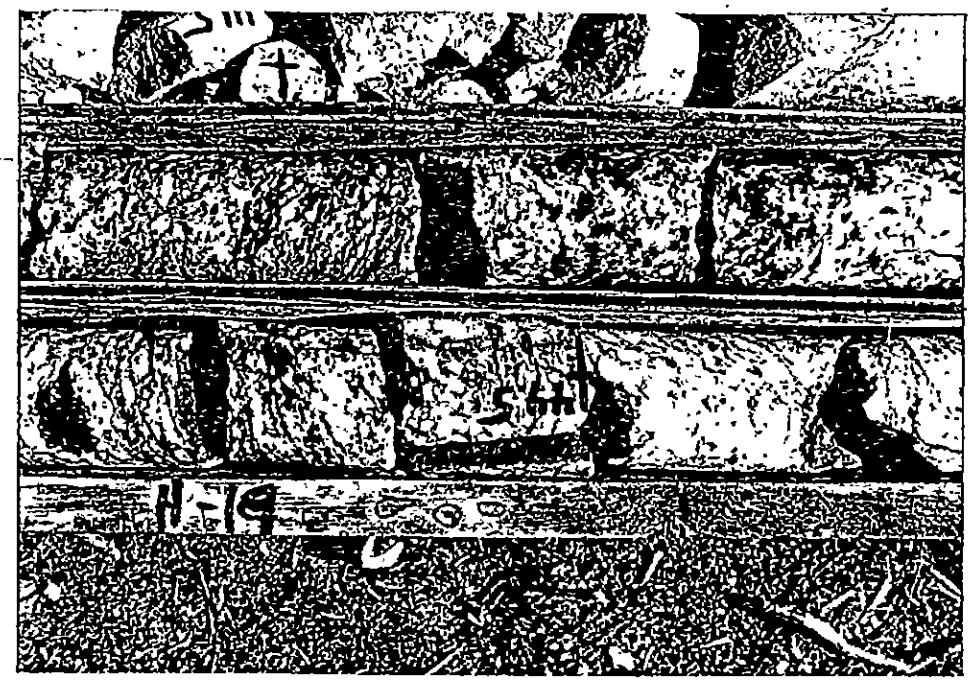
VERITY CLAIM carbonatite units parallel the slope
of the hill, & crop out halfway up
the break in slope ahead.



SERPENTINE CREEK VALLEY, looking north.
Sides of the secondary valleys in center of picture are fault controlled. Beforsite crops out on the ridge crest, at right side of saddle, left center of photo (Paradise showing carbonatite).

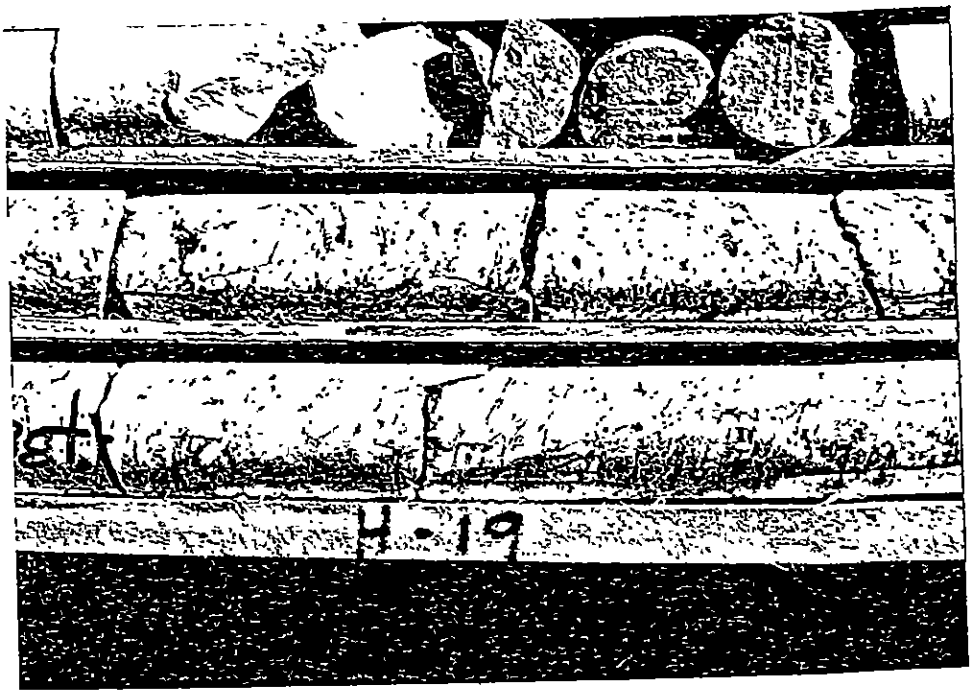


HOLE H-19 @39.5m.
Verity beforsite with coarse apatite crystals (clear).



HOLE H-19 @44.5m.
White bands of sovite cut orange beforsite.
Sovite has dark olivine crystals. Large black mass
at lower left is magnetite.

HOLE H-19 @35m.
Dark green bands are amphibole and calcite fracture fillings in orange beforsite.

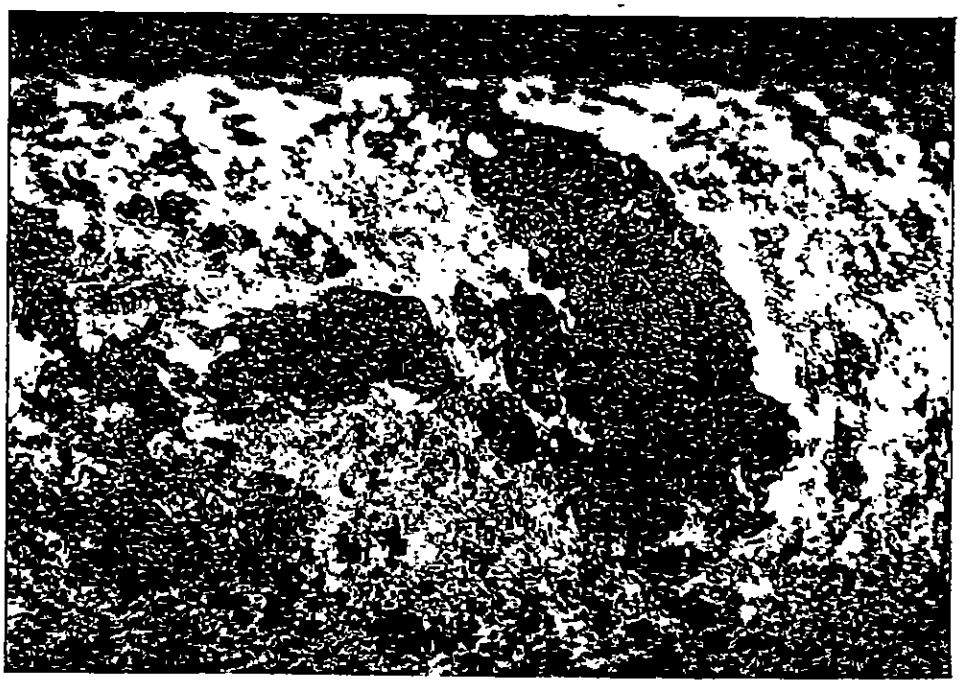


HOLE H-19 @38.5m.
Irregular bleached zones in beforsite, bleaching does not appear to follow any textures or structures. The dark masses in the center row are biotite-vermiculite.

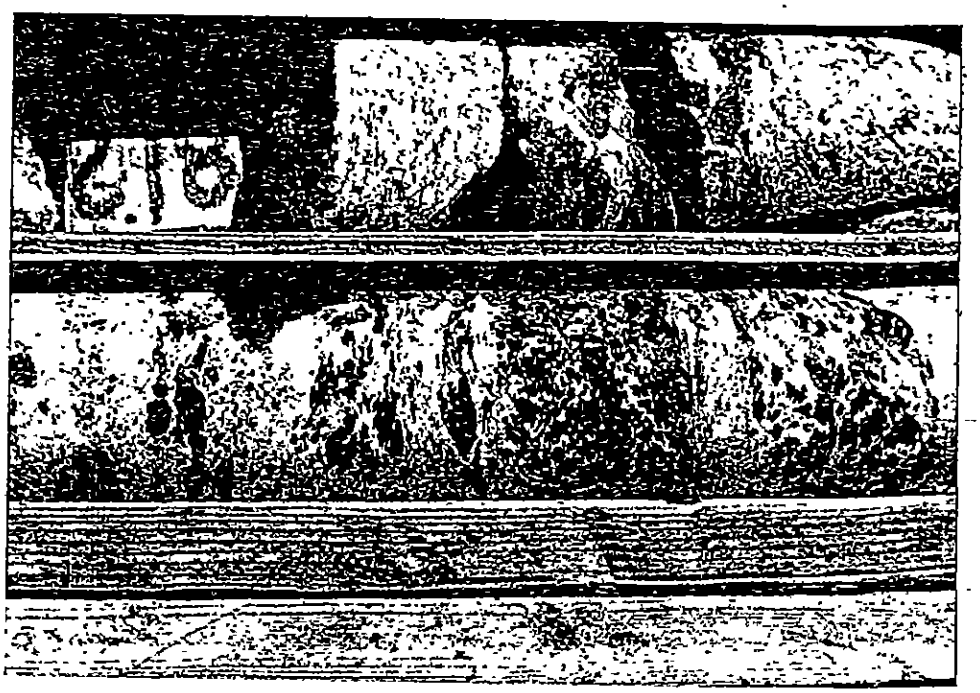
8

HOLE H-19 @75m.
White sovite with coarse magnetite and olivine.

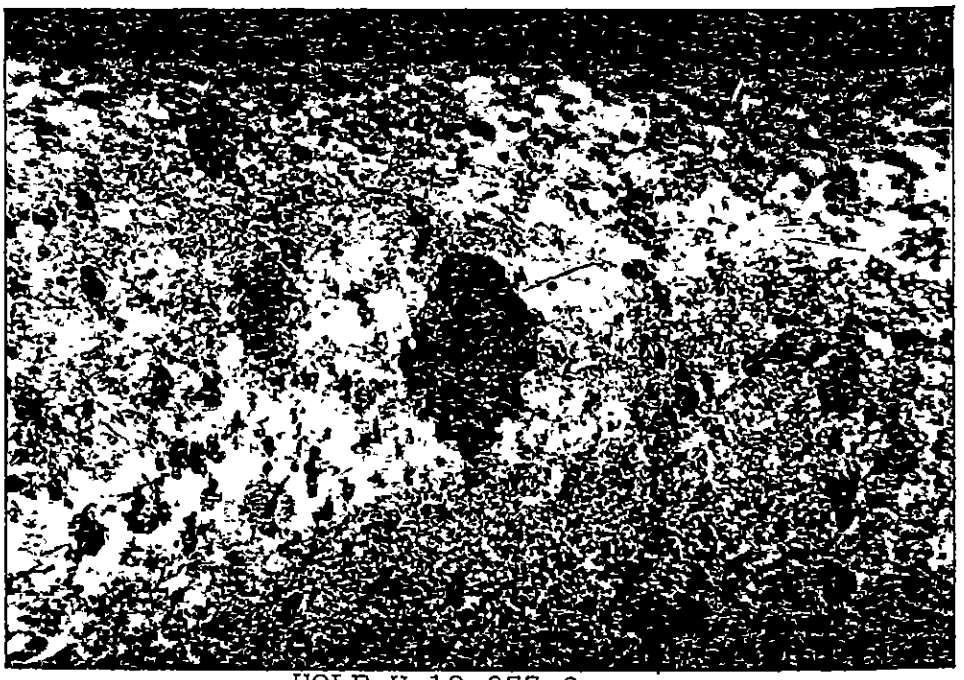
9



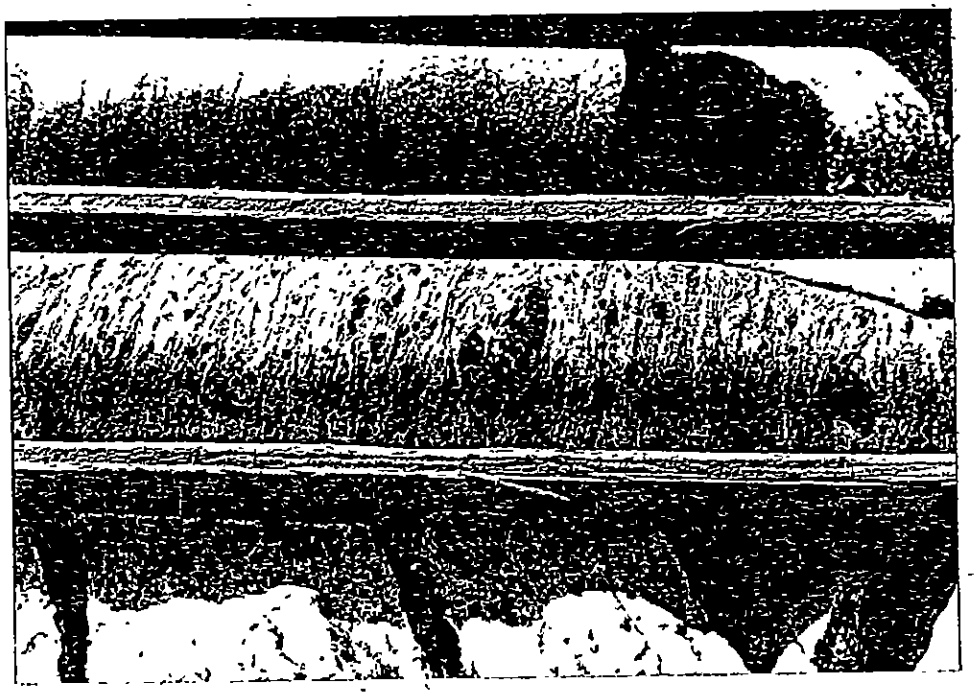
HOLE H-19 @75m.
Close-up of center of above picture, black magnetite to right with embayed edges, and sovite, apatite inclusions. Crystal left of center is olivine with magnetite in part of its rim.



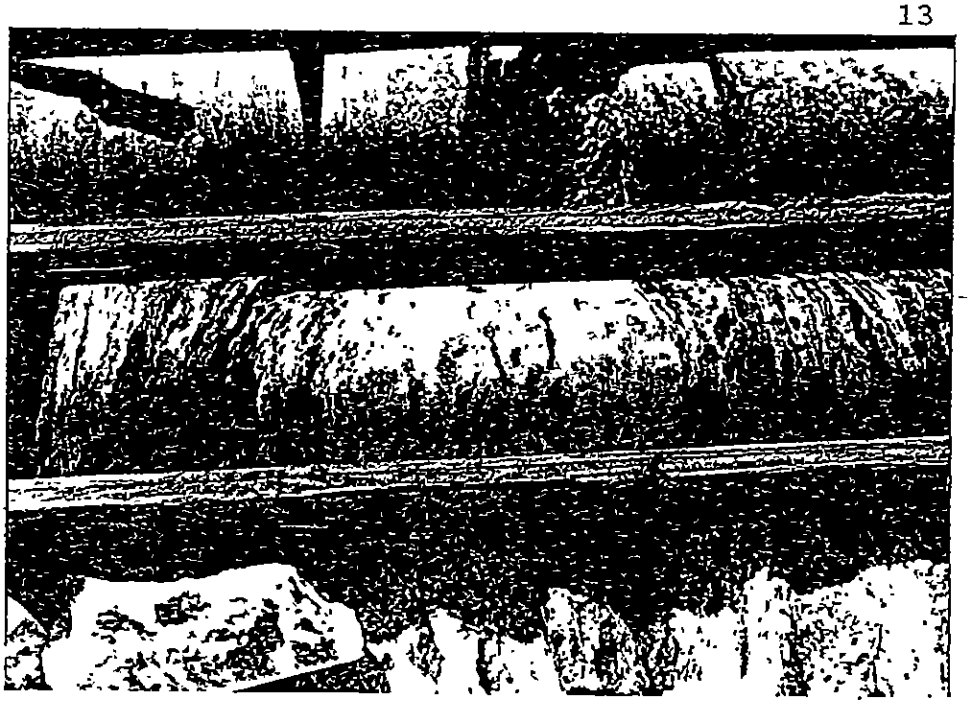
HOLE H-19 @81.2m.
4 cm. thick bankds of olivince and biotite-vermiculite, local lens-like masses of biotite-vermiculite edge of a magnetite crystal at left center, apatite crystals are light gray.



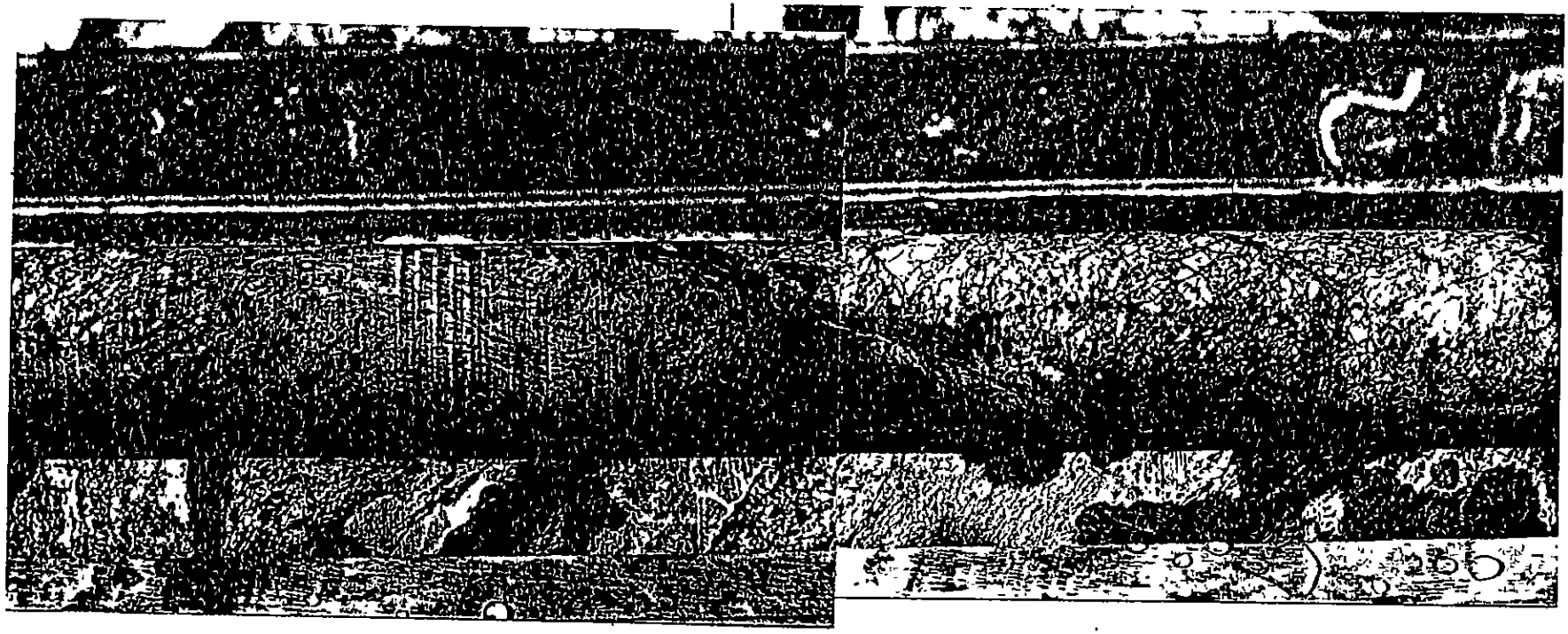
HOLE H-19 @77.8m.
Intergrowth of magnetite (black), olivine (dark gray) and pyrrhotite. Biotite-vermiculite appears reddish.



HOLE H-14 @124m.
Flow banded sovite, skeletal magnetite in center of picture, apatite is light gray; long, thin black minerals are biotite-vermiculite.

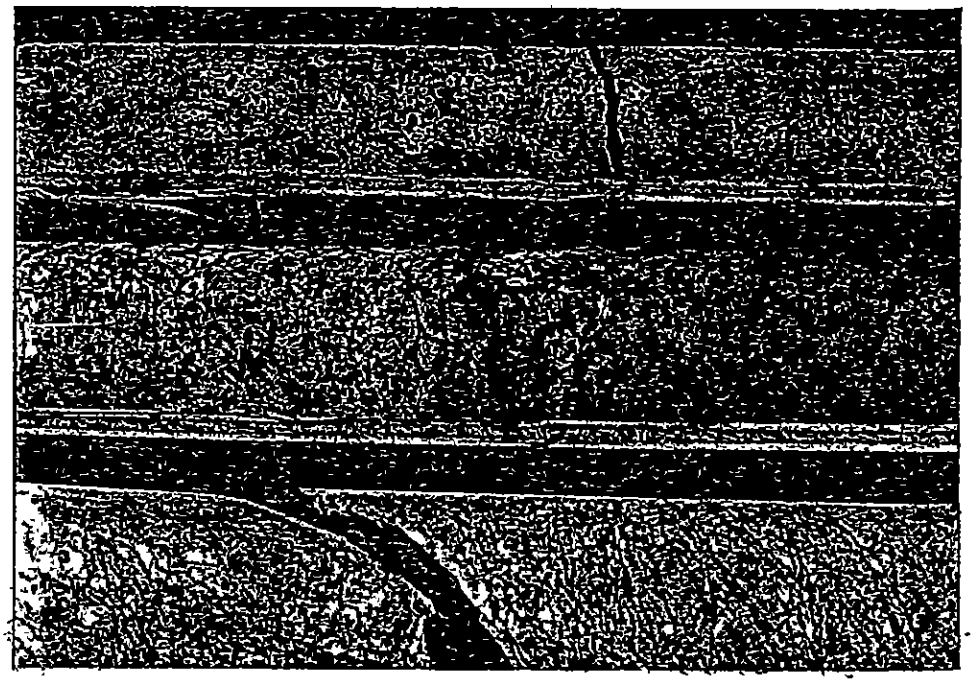


HOLE H-14 @124.3m.
A thin unit of beforsite, white and massive (center), sharp contacts with sovite, grayish white, local biotite-vermiculite in beforsite.



HOLE BC-20 @140m.
Folded flow-banding in beforsite, in shear contact with brecciated beforsite; shear is marked by a band of chlorite-amphibole material. Dark needle-like crystals are amphibole. Large black crystal in center of photo is columbite (?) (see close-up).

HOLE BC-20 @140 m.
Columbite (?) crystal with embayed edges & inclusions



HOLE BC-19 @118m.
Beforsite-three textures: massive, fine-grained at top; porphyritic at right center; breccia at left center and bottom. A mass of nonmagnetic pyrrohotite, interstitial in breccia, in center of photo.

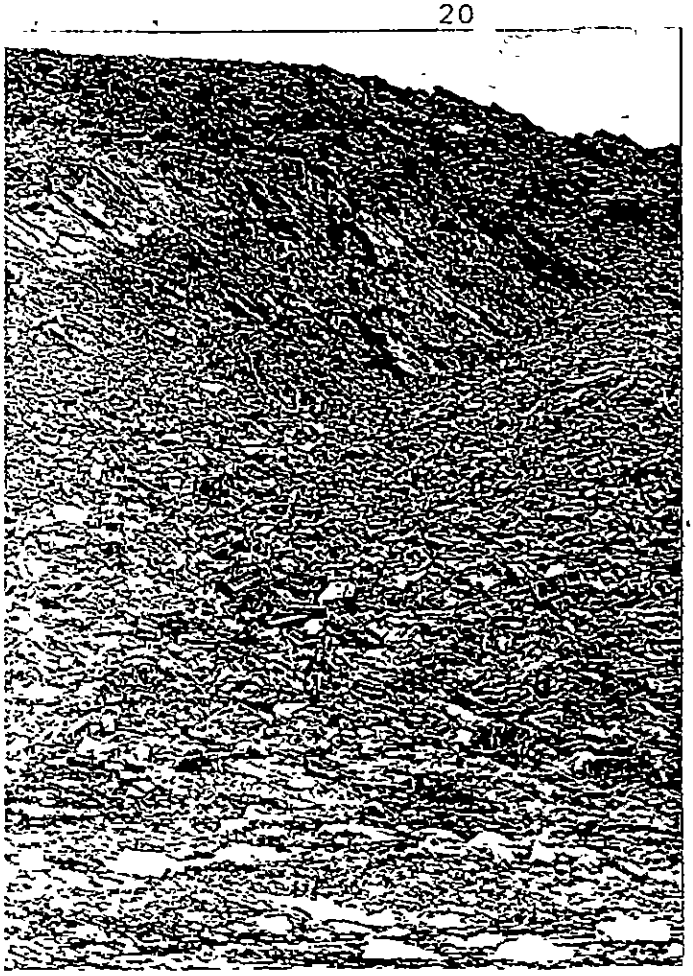
Carbonatite outcrop at Howard Creek,
dip is to the east, hammer at lower right.

A carbonatite at Howard Creek,
note abrupt cut-off of carbonatite at far left and
center right. These are fault contacts.

SPECIMEN PIT, VERITY CLAIM
Accessory mineral bands dip 15°-18° to right.
The vertical fractures locally have slickensides developed.
Micromovement with left side up is indicated by local deflection of accessory mineral bands.

HOWARD CREEK AREA

Vertical rock faces above talus is caused by rock breaking along fault shears. Gneiss dips gently to the right (east).



APPENDIX II

REVIEW OF 1980 AIRBORNE DATA

I. Howard Creek - Apex Data

No correlation can be made between geophysical work and geology, because flight lines did not extend over the area of known carbonatite. Flight lines 4W and 5E should have been extended west as far as flight line 6W.

There is a magnetic high of 80 gammas on line 7E down slope from the area of known carbonatites. This may be a carbonatite unit because some carbonatites in the area have large magnetite crystals in them.

Kenting Data

The airmagnetic data does not have any expression over the known carbonatite localities at Howard Creek.

II. Blue River Area in General - Kenting Data

There is no good correlation between magnetics and stratigraphy; some magnetic trends cross cut the known stratigraphy. There is a negative correlation between magnetics and the known carbonatite at Paradise; however, a magnetic high at Paradise may be a result of an unknown carbonatite rich in magnetite.

In the Gum Creek-Bone Creek area there is a magnetic high east and up slope from our known carbonatite. The carbonatite units in that area have almost no magnetite and the pyrrhotite is non-magnetic; therefore, the carbonatites should have no magnetic expression.

On the radiometric map, there is no radioactive high over the Howard Creek carbonatite, and a radiometric low over the known Paradise carbonatite (it is known to be radioactive locally based on ground survey data). There is a direct correlation of a radiometric high west of Paradise and the magnetic high, and similarly at Gum Creek-Bone Creek there is a radiometric and magnetic correlation.

The most radioactive area is on the ridge north of Moonbeam Creek and in the valleys of Dominion Creek. The orientation of the anomalies indicates the radioactivity is probably confined to certain gneissic horizons. Thorium is the main radioactive

mineral. The presence of two radioactive high spots in the south branch of Dominion Creek suggest a placer concentration, possibly of monazite.

III. Verity Area - Apex Data

The Verity carbonatites were picked up with airmagnetics as a high-low couple, extending from the North Thompson River due east and up slope to an elevation of 5,000 feet. It is abruptly cut off at either end. No projection of an east offset can be made because of a lack of data continuity.

A P P E N D I X III

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September 7, 1981

RECEIVED
SEP 10 1981

Mr. Louis R. Reimer
Exploration Manager
Anschutz Mining Corp.
2400 Anaconda Tower
555 Seventeenth St.
Denver, Colorado 80202

Dear Lou;

Here is a quick summary of the SEM results that I recently described to you on the phone. I'll be in touch with you or Bent on the fourth week in September. By then I should have also received thin sections from the Blue River Core.

Best wishes,

Tonyam

Anthony N. Mariano

SEP 10 1981

ANSCHUTZ MINING CORPORATION

Summary

BC-16 51.2 m

Five grains were examined in this intercept. Three were red pyrochlores with major Ta and uranium on the 1-2 wt.% level.

One black grain was pyrochlore with major Ta and 2-4 wt.% UO_2.

One black grain was columbite with only minor Ta which may have been due to contamination from nearby pyrochlore.

BC-16 52.2 m

Two red grains were analyzed. Both were found to be pyrochlores with major Na, Ta, Nb, U, Ca and minor Ti.

BC-17 40.3 m

One black grain with red internal reflection - columbite showing major Nb and Fe with a trace amount of Mn.

One red grain - columbite showing major Nb and Fe with a trace amount of Mn.

BC-19 108.2 m

Two yellow grains and two brown grains were examined. They were all pyrochlores with major Ta and ≈ 1 wt.% UO_2.

The major elements in these pyrochlore are Na, Ta, Nb, and Ca. Uranium and Ti are trace constituents.

A columbite grain was also examined in this intercept. It contained a pyrochlore inclusion with major Ta and trace amounts of U. The columbite host contains only Nb and Fe (see EDX and photomicrograph).

BC-19 119.2 m

Two black grains were examined with inclusions that were found to be apatite. Both grains are columbite with major Nb and Fe and only minor amounts of Ta.

BC-19 162.5 m

A cluster of 4 grains were examined in this intercept. They were found to be columbite with major Nb and Fe and minor Ta (see EDX).

BC-19 187.8 m

Two black clusters were examined in this intercept. They were found to be columbite with amphibole inclusions. The columbites showed only Nb and Fe with traces of Mn. Two yellow transparent grains were also identified as pyrochlore with major Na, Ta, Nb and Ca. Uranium is less than 1 wt.%.

Explanation for the Scanning Electron Microscopy Data

The establishment of the mineralogy and chemical character of minerals in carbonatites is not a routine task. Their complex geochemistry is responsible for the formation of minerals that have been considered uncommon to the mineralogist.

In this work, Blue River carbonatite minerals have been examined by the use of scanning electron microscopy coupled with an energy dispersive x-ray analyzer (EDX). The advantages of this system include simplicity and speed of operation for acquiring detailed topographical data with excellent resolution and a large depth of field at high magnifications. The coupled x-ray analyzer allows simultaneous analyses of elements including, but not limiting, Na through U, on areas down to 0.5 microns in dimension.

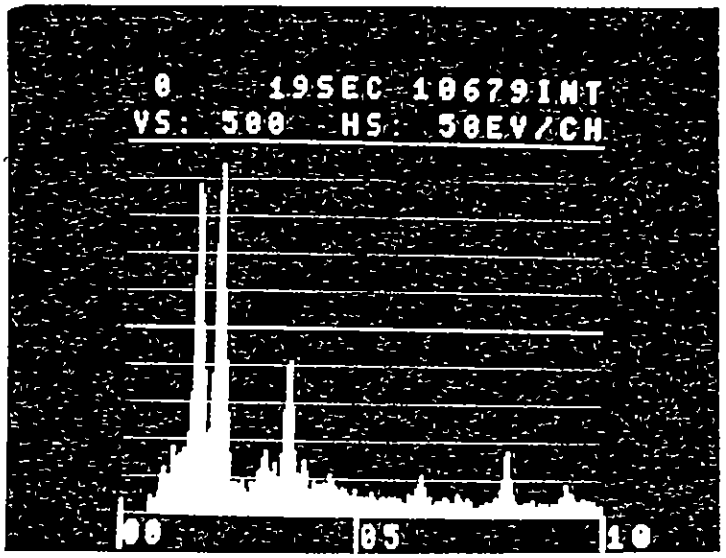
In this presentation elemental data obtained from energy dispersive analysis of x-rays will be referred to as EDX. In the EDX displays, a bottom scale is provided, which can be used for locating the energy level for the particular element. Each element has a specific excitation level which is calibrated in electron volts (ev).

The specific keV for each x-ray emission energy line can be measured on the bottom of the EDX spectra with the aid of a variable scale ruler.

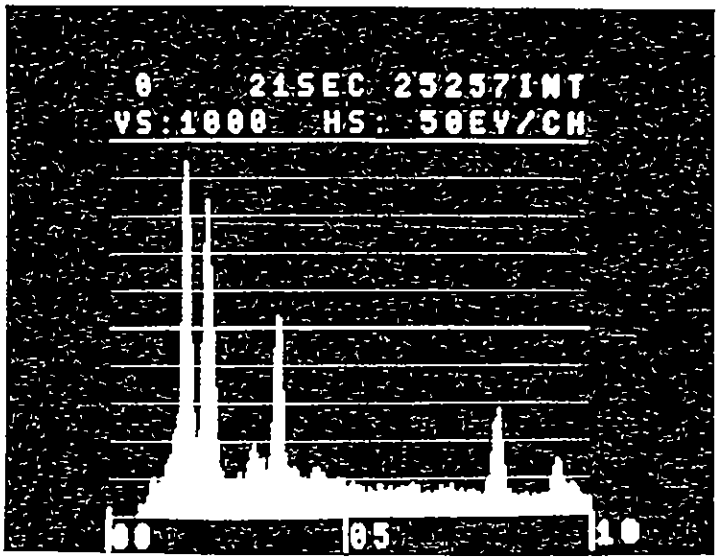
A list of keV (x-ray emission energy lines) pertinent to this work is given in the following page.

X-ray Emission Energies Pertinent to this Work

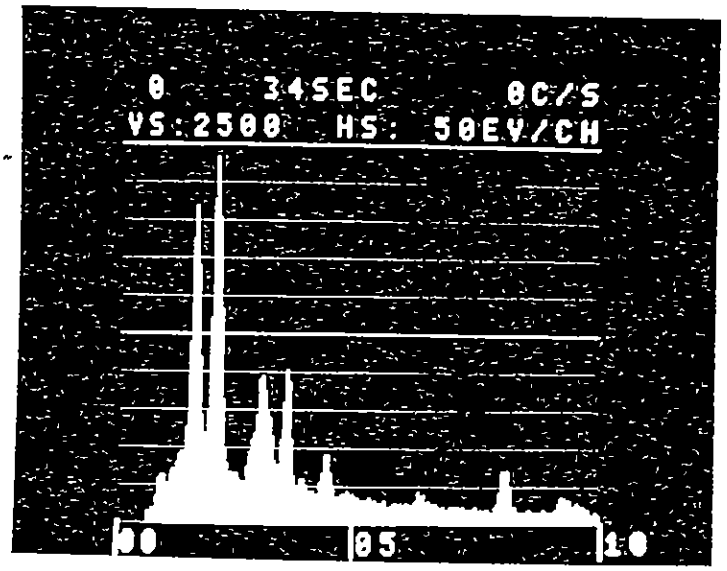
	keV
Na $K\alpha_1$	1.041
Mg $K\alpha_1$	1.254
Al $K\alpha_1$	1.487
Ta $M\alpha_1$	1.710
Si $K\alpha_1$	1.740
Sr $L\alpha_1$	1.806
Nb $L\alpha_1$	1.166
Th $M\alpha_1$	2.996
U $M\alpha_1$	3.171
Ca $K\alpha_1$	3.691
Ca $K\beta_1$	4.012
Ti $K\alpha_1$	4.510
Mn $K\alpha_1$	5.898
Fe $K\alpha_1$	6.403
Fe $K\beta_1$	7.057
Ta $L\alpha_1$	8.145
Ta $L\beta_1$	9.341



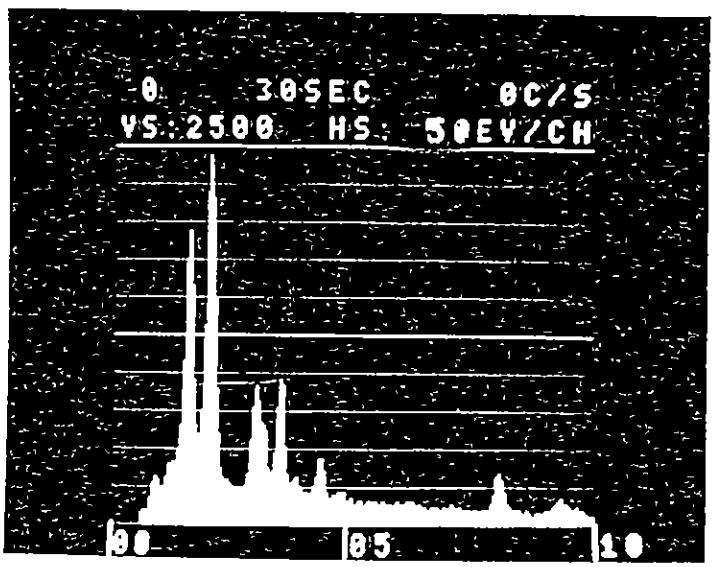
BC-16 51.2 meters
red pyrochlore grain
Major Ta
$TaM\alpha_1$ - 1.710 keV
$TaL\alpha_1$ - 8.145 "
$TaL\beta_1$ - 9.341 "
only minor U
$UM\alpha_1$ - 3.171 keV
Ta_2O_5 estimated at
≈ 20 wt.%
UO_2 estimated at
1-2 wt.%.



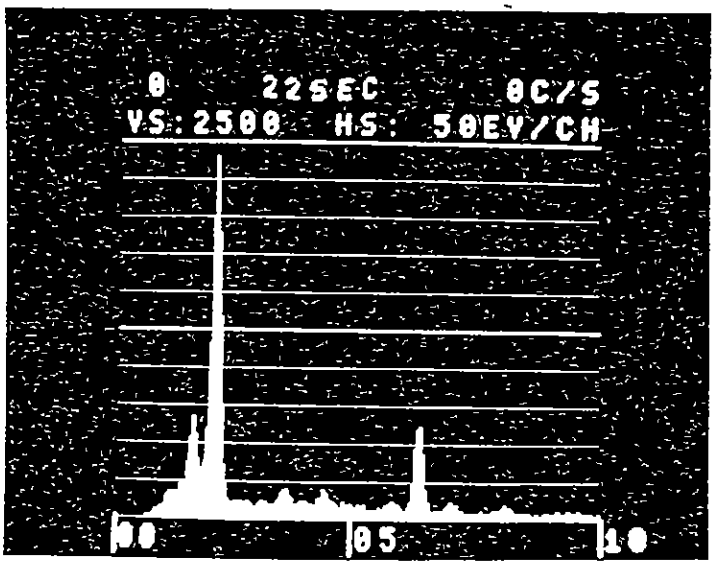
BC-16 51.2 meters
black pyrochlore grains
same as red grain
from same core but
higher in Ta and
U is ≈ 3-4 wt.%.



BC-16 52.2 m
red grain pyrochlore
with major
Na, Ta, Nb, U, Ca
minor Ti.

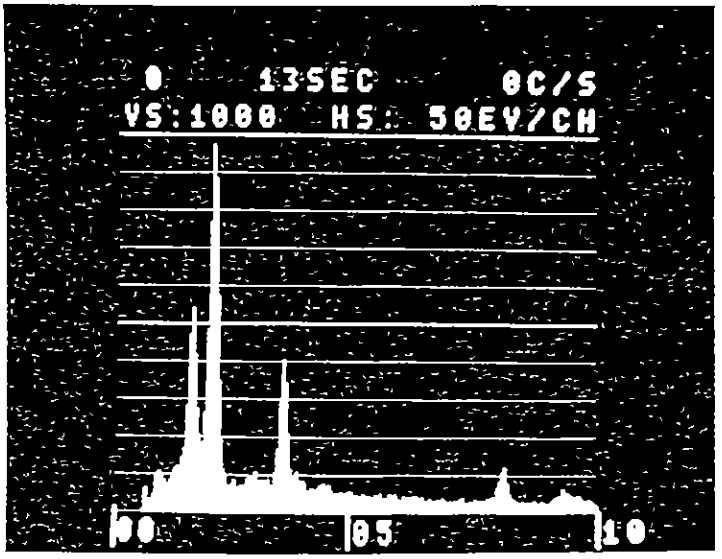


BC-16 52.2 m
red grain pyrochlore
same as above.

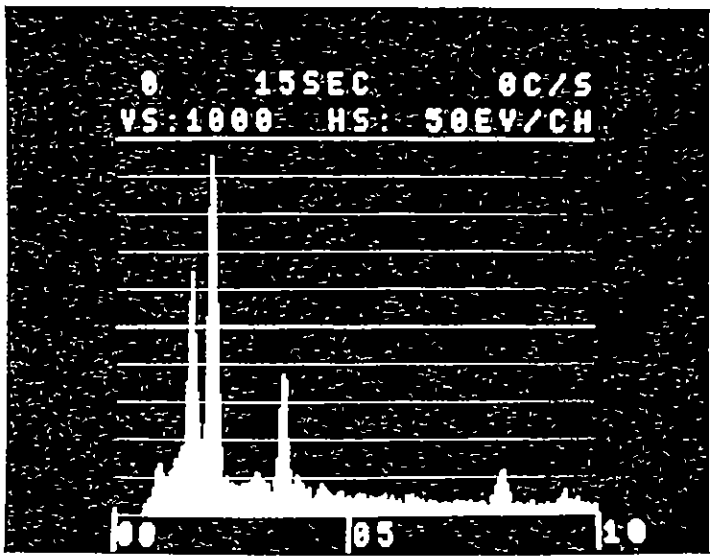


BC-16 51.2 meters
black grain
minor Ta
major Nb and Fe
only minor amounts
of Ca, Ti, Mn and
Na
U is not detectable.
This is probably
columbite with
contamination from
nearby pyrochlore
inclusions.

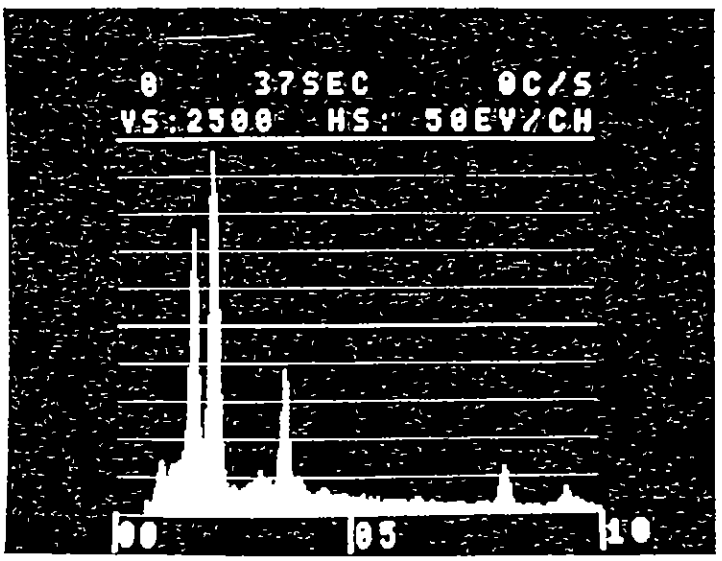
BC-17 40.3 m
black grain with
red internal reflection
columbite
major Nb and Fe.
Trace amounts of Mn.



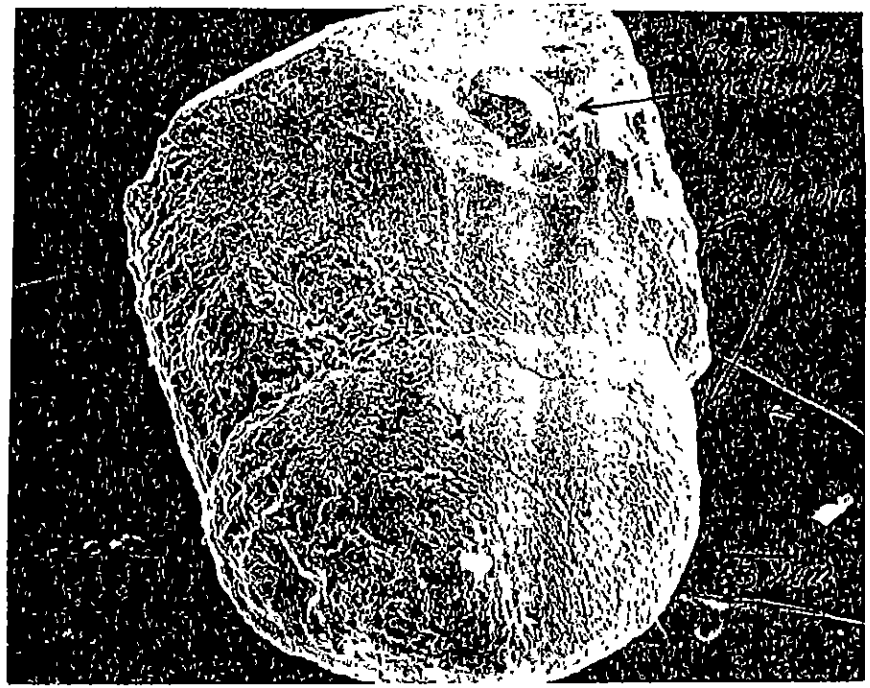
BC-19 108.2 m
yellow grain
pyrochlore
major Na, Ta,
Nb, Ca.
Trace U and Ti.

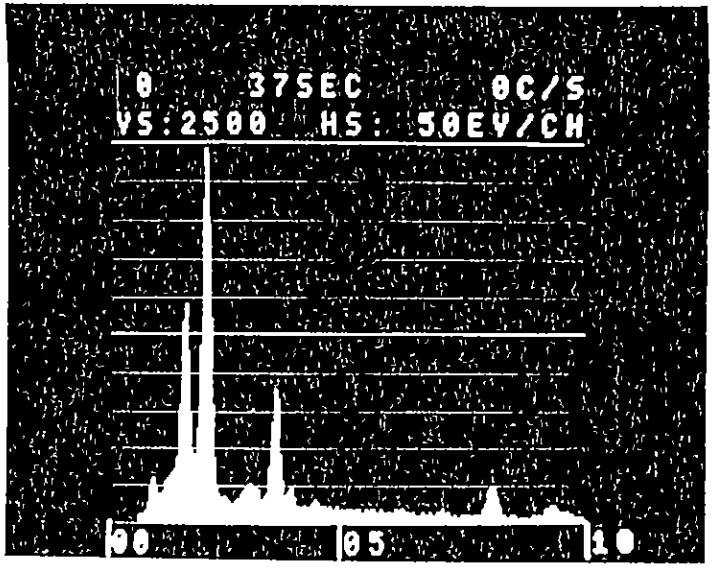


BC-19 108.2 m
yellow grain
pyrochlore
same as above.

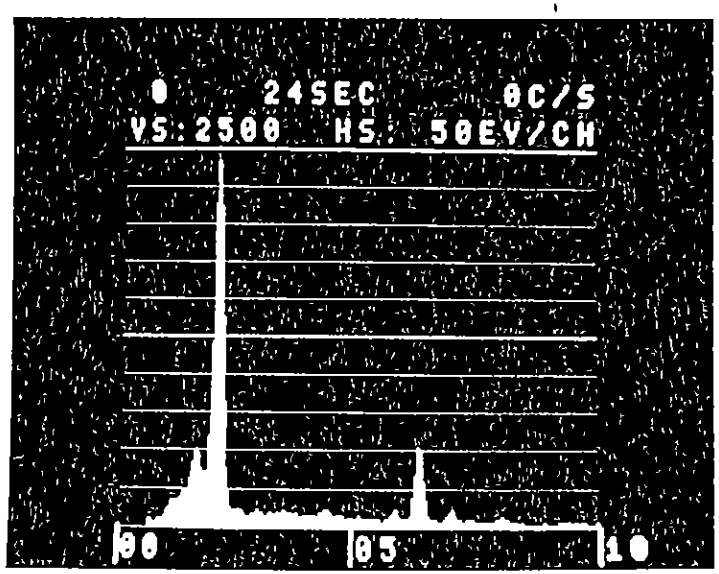


BC-19 108.2 m
brown elongate
grain pyrochlore
same as above.



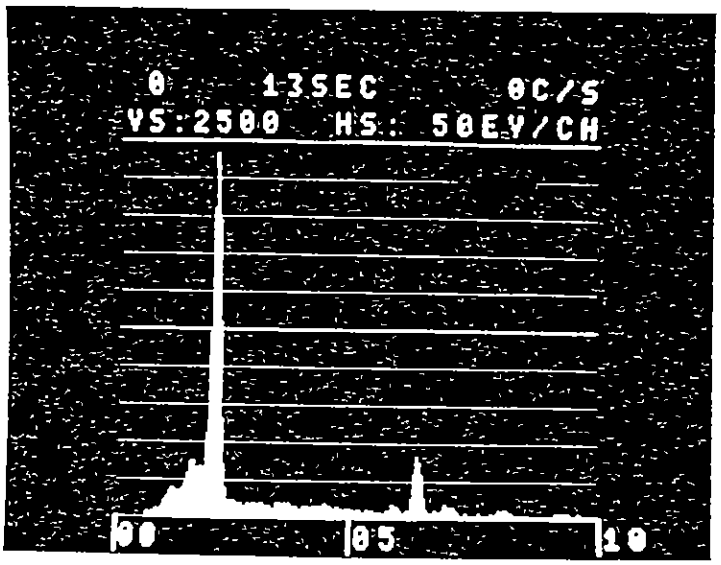


Pyrochlore inclusion - contains major Na, Ta, Nb, Ca, and trace amounts of U and Ti.

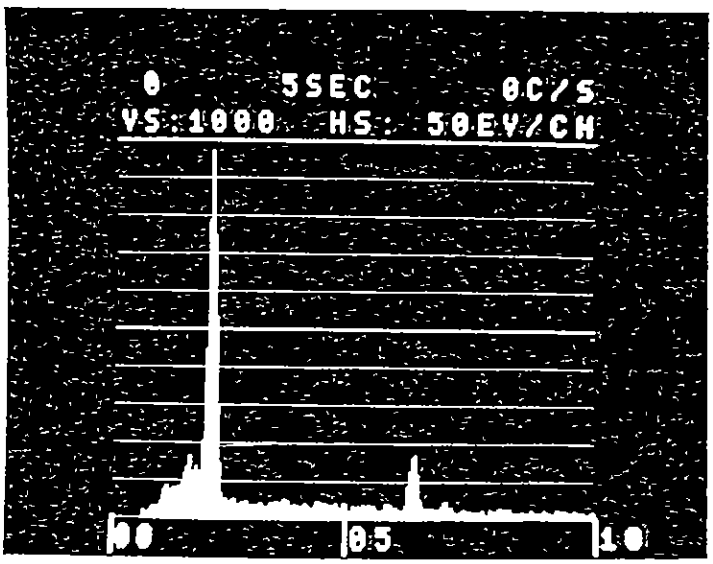


Columbite host with major Nb and Fe. Trace constituents are Ta, Ti and Mn.

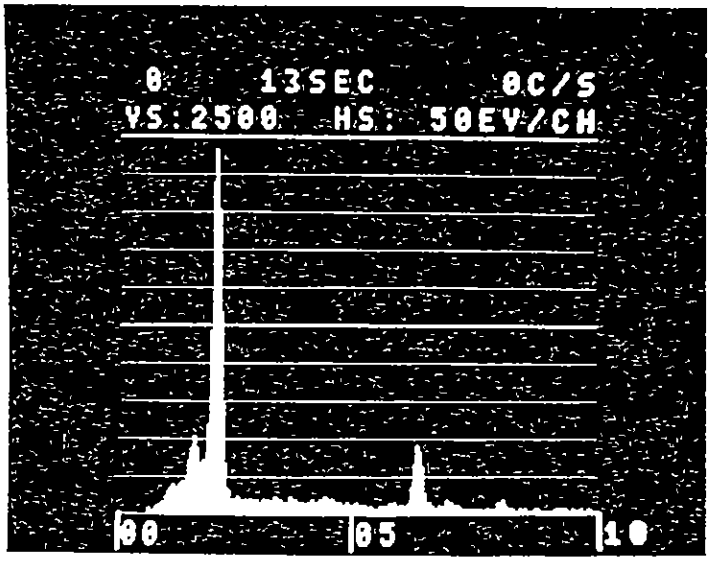
BC-19 108.2 m
Black Columbite Crystal with Yellow Pyrochlore Inclusion.



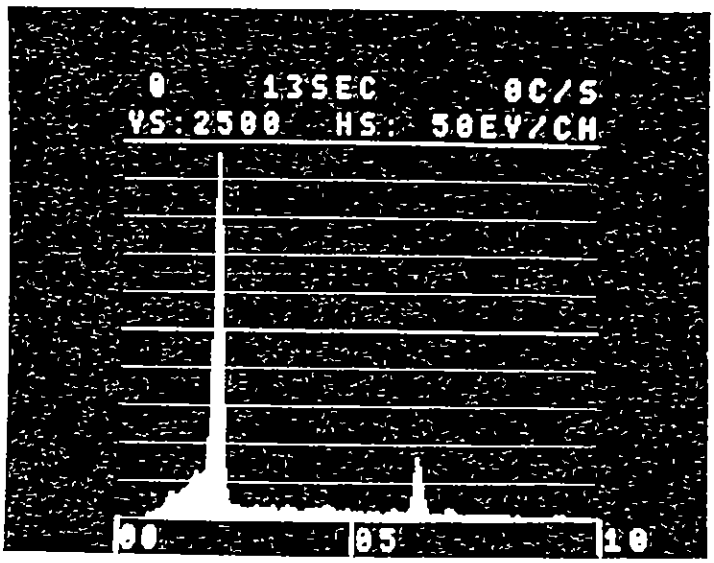
BC-19 119.2 meters
black grain
columbite with
major Nb and Fe
and traces of Ta.



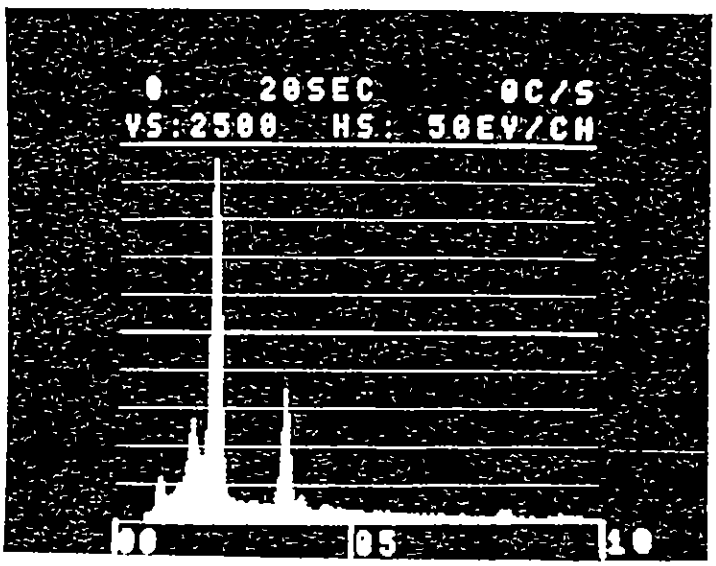
same as above.



BC-19 162.5 meters
black grains
columbite
major Nb, Fe
minor Ta.



BC-19 187.8 meters
black grains
columbite
major Nb and Fe.



BC-19 187.8 meters
yellow transparent
grains pyrochlore
major Na, Ta, Nb,
Ca
trace Ti.

APPENDIX IV

STATEMENT OF QUALIFICATIONS

I, Bent E. Aaquist, do hereby certify that:

1. I am an employee of Anschutz Mining Corporation with its office at 2400 Anaconda Tower, 555 Seventeenth Street, Denver, Colorado, U.S.A.

2. I reside at 9462 Sierra Drive, Arvada, Colorado, U.S.A.

3. I am a member of the Canadian Institute of Mining & Metallurgy, a member of the Geological Association of Canada, and a member of the Association of Exploration Geochemists.

4. I am a graduate of the University of Alberta with a B.Sc. in Honours Geology, and a graduate of the University of Western Ontario with a M.Sc. in Geology.

5. I have practised continuously as a geologist since May, 1971.

6. This report is based on work carried out under my supervision in 1981.

Bent E. Aaquist
Project Geologist

Denver, Colorado, U.S.A.
February, 1982

A P P E N D I X V

Cost Statements

Cost statement for claims:

Verity 1, AR-I, Blue 4, Blue 5, Blue 6, Blue 7

Road and drill site construction	
D-7 204 hr @ $75/hr.	$ 15,300.00
Diamond drill costs:	
Drilling overburden - 77.4 m @ $73.82/m	5,713.67
- 1.5 m @ $104.99/m	157.49
Coring bedrock - 1,506 m @ $73.82/m	111,172.92
- 7.3 m @ $78.74/m	574.80
Cost plus	
rig hours 176.5 hr. @ $20.00/hr	3,530.00
man hours 370 hr @ $22.00/hr	8,140.00
17 sacks FONDU, 6 sacks KWIK-SEAL	743.96
20 pails Alcomer	3,925.18
core splitter ½ cost	263.91
Accomodation and meals - 375 man days @ $30.00/da.	11,250.00
Vehicle Rental - June 1 mo. @ $673.00/mo	673.00
- July ¼ mo. @ $673.00/mo	168.25
- Aug. ½ mo. @ $673.00/mo	336.50
- gasoline for vehicle	320.00
- 4500 km excess distance @ 10¢/km	450.00
Air travel - May 27, 2 people Vancouver-Kamloops	92.94
- June 12, Kamloops-Calgary	62.00
- June 21, 2 people Vancouver-Kamloops	92.94
- June 30, Kamloops-Vancouver	46.47
- July 3, Blue River-Edmonton (bus)	50.00
- Aug. 18, Calgary-Kamloops	62.00
- Aug. 30, Blue River-Kamloops (bus)	25.00
- Aug. 31, Kamloops-Calgary	62.00
Analytical work	
Drill core 584 samples for Nb_2O_5, Ta, P_2O_5 @ $28.00/sample	16,352.00
Surface samples- 35 samples for Nb_2O_5, Ta, P_2O_5 @ $28.00/sample	980.00
Loomis shipping, 4 shipments @ $22.50/shipment	90.00
Wages	
Geologist 3.75 mo. @ $2,583/mo	9,686.25
Student 1.5 mo. @ $1,550/mo	2,325.00
Supervisor 1¼ mo. @ $4,000/mo	5,000.00
Part time 16 hr. @ $6.00/hr	96.00
Consulting - A. N. Mariano 5 da @ $480/da	2,400.00
- Expenses in field and lab	300.00
- Vehicle rental and gas for 3 da	140.00

(Cost statement for: AR-I, Verity 1, Blue 4, Blue 5, Blue 6, and Blue 7 - Continued)

Topo map production 1:4000 (50%)	1,800.00
Verity 1 - Drafting 25 da @ $80.00/da	2,000.00
- Supplies and copying	500.00
Typing and copying report	100.00
	$204,982.28

Cost statement for claims: AR 2, AR 3, AR 4, Blue 8
Blue 9, and Blue 10

Road and drill site construction	
30 hr @ $75.00/hr	2,250.00
Lowbed transport	200.00
Diamond drill costs (holes M-8 & 9)	
Drilling overburden	
15.2 m @ $73/83/m	1,122.06
12.2 m @ $104.99/m	1,120.84
Coring bedrock 115.45 m @ $73.82/m	8,522.52
Cost plus:	
D3 cat: move 16.5 hr @ $20.00/hr	330.00
Road const. 13.5 hr @ $40.00/hr	540.00
Drill fluids 132 sacks @ 100#	
12 tubs Alcomer	3,013.05
Core splitter (½ cost)	263.91
Rig hours 8 hr @ $20.00/hr	160.00
Man hours 16 hr @ $22.00/hr	352.00
Accomodation & Meals	
April 20 & 21, 2 days @ $45.00/da	90.00
May 15-23, 61 days @ $30.00/da	1,830.00
August 10-13, 12 man days @ $30.00/da	360.00
Sept. 22-28, 7 man days @ $45.00/day	315.00
Air Travel - April 19, 2 people Vancouver-Kamloops	92.94
- April 21, 2 people Kamloops-Vancouver	92.94
- May 13, Calgary-Kamloops	62.00
- May 22, Kamloops-Calgary	62.00
- July 10, Vancouver-Kamloops	46.47
- Sept. 22, Vancouver Kamloops	46.47
- Oct. 5, Kamloops-Calgary	62.00
Truck rental - May ½ mo. @ $673.00/mo	336.50
- July ¼ mo. @ $673.00/mo	168.25
- Aug. ¼ mo. @ $673.00/mo	168.25
- Gas for truck	225.00
- 4000 km excess distance chg @ 10¢/km	400.00
- April 19-21 car rental & gas	130.00
Core storage shed	
Lumber and supplies	1,158.00
E. Halley labor and supplies	755.00
Casual labor 38 hr @ $6.50/hr	247.00

(Cost statement for claims: AR 2, AR 3, AR 4, Blue 8 Blue 9, and Blue 10 - continued)

Analytical work	
6 samples Nb, Ta @ $14.00/sample	84.00
48 core samples Nb_2O_5, Ta, P_2O_5 @ $28/sample	1,344.00
7 surface samples Nb_2O_5, Ta, P_2O_5 @ $28/sample	196.00
Loomis shipping, 2 shipments @ $22.50/shipment	45.00
Consulting - A. N. Mariano 5 days @ $480/day	2,400.00
- Field and lab expenses	225.00
- Travel Vancouver-Kamloops, return	92.94
- Vehicle rental and gas, 3 days	140.00
Install a crossing on CNR at Lempriere	2,241.53
Wages - Geologist 1 3/4 mo. @ $2,583/mo.	4,520.25
- Student 1 mo. @ $1,550/mo.	1,550.00
- Supervisor ½ mo. @ $4,000/mo.	2,000.00
Topo map production 1:4,000 (50%)	1,800.00
Survey for: Equipment rental (Norman Wade)	305.28
Casual labor - rodman 40 hr @ $5.50 per hr.	220.00
Helicopter Rental, Shirley Helicopter	
April 20, 2 hr @ $380/hr plus gas	693.47
Aug. 23 & 24, 4.2 hr @ $498/hr plus gas	2,465.86
Drafting - 12 days @ $80.00/day	960.00
- Supplies and copying	180.00
Miscellaneous - Supplies, flagging, insect repellent	55.00
	$46,040.53

Cost statement for:

BC 1, BC 2, BC 3, BC 4, BC 5F, Fir 1, Fir 2, BE 1, BE 2, BE 1, BE 2, Blue 1, Blue 2, Blue 3, and BE 3.

Road and drill site construction 80 hr @ $75/hr	$ 6,000.00
Diamond drill costs (holes BC-13 to 17)	
Drilling overburden 19.5 m @ $73.82/m	1,439.47
Coring bedrock 261.5 m @ $73.32/m	26,685.93
Cost plus:	
Moving drill 49.5 hr @ $20.00/rig hr.	990.00
141 man hours @ $22.00/man hr.	3,102.00
Casing left in hole 3 m @ $26/m	78.00
24 pails Alcomer	4,593.00
Accomodation and meals - 83 man days @ $30/day	2,490.00
Vehicle Rental	
½ month @ $673/month	336.50
gasoline for vehicle	90.00
2500 km excess distance charge 10¢/km	250.00
Wages	
Geologist 3/4 month @ $2,583/month	1,937.25
Student ½ month @ $1,550/month	775.00
Supervisor ¼ month @ $4,000/month	1,000.00
Analytical costs	
16 core samples analysed for Nb_2O_5, Ta, P_2O_5 @ $28/sample	448.00
2 core samples .35 element spec @ $30/sample	60.00
7 core samples Au, Ag, Cu, Zn assays $ $23.50/sample	164.50
Loomis charges, shipping	22.50
Air travel - July 10 Vancouver-Kamloops	46.47
- July 13 Kamloops-Calgary	62.00
- July 27 Kamloops-Calgary	62.00
Drafting - 3 days @ $80/day	240.00
supplies and duplicating costs	40.00
Consulting services - A. N. Mariano, 3 da @ $480/day	1,440.00
expenses in field and lab	80.00
	$52,432.62

APPENDIX VI

Drill Logs

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-14 PAGE 1 OF 11

PROPERTY: VERITY AREA N.T.S. NO. 83D /6E

DEPTH: 151.5m AZIMUTH: 360° ANGLE: -65° ELEVATION: 962m

NORTHING: 49,796 approx EASTING: 49,900 approx

DATE STARTED MAY 24/81 DATE COMPLETED: MAY 30/81

LOGGED BY: B. E Ragnist

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: DRILLERS HAD PROBLEMS WITH WATER-LOSS FOR FULL LENGTH OF DRILL HOLE SITE IS ON A STEEP SLOPE ABOVE HIGH GRADE PIT.

SAMPLE NUMBERS IN HOLE ARE 3031 - 3096, 3815

SITE WITH COLLAR LOCATION WAS DESTROYED IN ORDER TO MAKE ACCESS TO DRILL HOLE H-16.

NOTE! Nb VALUES ARE Nb$_2$O$_5$ IN %

ANSCHUTZ MINING CORP. HOLE NO. H-14 PAGE 5 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 5/30/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER	
			Basal contact lost in broken core															17.1		
18			17.1 – 63.7 Beforsite Carbonatite white with local orange stain coarse xline, massive. Both pyrite & pyrrhotite occur as f.g. xls common with magnetite. Green amphibole xls 4 mm common occur in random orientation at 19 meters there appears to be Two periods of carbonate a orange carbonate cut by a white carbonate, contacts are indistinct; xl size is similar.			3.18	3	4		3		1		62	.02	5.04		18.5	3031	5
20						3.04	1	1		3		1		46	.02	3.12		20.0	3032	5
22						2.59	2	2	2	3		1		27	.01	3.57		21.5	3033	5
24						6.35	3	2	3	2		1		33	.03	2.89		23.0	3034	5
26			Amphibole xls decrease in size below 26 m. to 2-5 mm. above 1cm was common.			9.12	2		5	2		1		23	.03	3.18		24.5	3035	5
						38.	3		5	2		1		9	.05	3.73		26.0	3036	
28						6.76	4	1	4	3		1		31	.03	3.73		27.5	3037	5
			Poorly developed banding of apatite and amphibole xls at 28 meters, at 75°	75°		7.77	4		4	1		1		90	.10	2.77		29.0	3038	5
30			* The biotite column denotes vermiculite	65°	poorly developed banding of sulphides, apatite and amphibole	6.28	4		3	1		1		89	.08	2.38		30.5	3039	10
32						4.86	5		2	1	1	2		230	.16	3.05		31.7	3040	5-20

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-14 PAGE 1 OF 11

LOGGED BY B. E. Aaquist DATE 5/30/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
					Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
		irregular bands of amph. material 55-90° occur locally	4 cm of clay gouge at 31.8	7.09	2		5	1		1		69	.07	1.74		33.0	3041	5
34		34-35 carbonatite has a f.g. sugary texture, change in xl size is gradational.	75 acces minerals occur in poorly defined bands	4.66	2		2			2		45	.03	2.04		34.4	3042	5
				5.59				2	1	1		150	.12	3.16		36.0	3043	10
36																		
				6.69	5		5	2		1		94	.09	3.09		37.5	3044	
38																		
				5.92		2	5					59	.05	2.50		39.0	3045	
				5.50	5	4	8			1		89	.07	2.80		40.5	3046	
40																		
	*	* THE* BOX #8 covering this interval was tipped over when a tree fell on the drill. The core may not be in order - there is no way to tell, sample depths are not valid.																
				6.35	5	2	4	2		1		66	.06	3.94		42.0	3047	10
42	*																	
				8.16	5		4	3		1		60	.07	3.67		43.5	3048	20
	*																	
44		Carbonatite in this interval is locally bleached, it is orange with white areas, contacts between areas is sharp but very irregular		5.49	5	3	3	2		1		140	.11	3.76		45.0	3049	10
	*																	
				5.83	5	2	3	1		1		84	.07	4.06		46.3	3050	15
46	*																	
			local 1-2 mm eircon	4.66	3	2	3	1				120	.08	4.10		47.1	3051	5-50
		at 48.0 carbonatite changes from orange to white	46.5-48. rock is fractured & crumbly	3.76								130	.07	5.41		48.0	3052	
48																		

ANSCHUTZ MINING CORP. HOLE NO. H-14 PAGE 5 OF 11

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 5/31/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			pyrite fills 2 fractures at 49.55	65	poorly developed foliation defined by	4.99	3	5	2	2				28	.02	2.93		49.5	3053
50			49 - 49 carbonatite is white, below 49 it becomes light orange. Vermiculite 1 cm long is common. 51 - 53 irregular masses locally of amphibolite & vermiculite			3.68	3	4		3		1		19	.01	3.50		51.0	3054
52						12.71	1	5	5	2				11	.02	3.25		52.0	3055
						8.74	2	7	5					8	.01	3.30		53.3	3056
54			local magnetite up to 6 cm.			8.22	3	5	2	4				17	.02	3.14		54.8	3057
					55 - 56 core crumbles - sandy	4.51	3	7	2	2				31	.02	2.70		56.1	3058
56						10.75	4	5		2				13	.02	3.44		57.6	3059
58			below 58.6 carbonatite is white and has a dark green mineral disseminated 1-2 cm common - hornblende, commonly intergrown with magnetite.			4.99	4	5	5					14	.01	2.84		58.6	3060
		C	'this white unit is Sovite - see Log H-16'			6.99	2	5	3	2				20	.02	0.32		60.0	3061
60		C				9.53	2	5	3	2				22	.03	0.41		61.0	3062
		C				5.59	2	5	3	2				25	.02	0.21		62.4	3063
62		C	Basal contact sharp at 55° 15 cm of sheared amphibolite below the contact		62.4 - 63.7 core crumbles - sandy														
	70	C				4.37	2	2	3	3				16	.01	1.81		63.7	3064
64																			

ANSCHUTZ MINING CORP. HOLE NO. H-14 PAGE 6 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Dagnist DATE 5/31/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
66			63.7 - 80.3 Gneiss feldspar biotite, minor amphibole locally, light gray mostly massive to locally banded; biotite defines foliation		55 70 65 65 65 60												
68																	
70																	
72																	
74																	
76																	
78																	
80			Basal contact irregular, gradational over 5 cm														

ANSCHUTZ MINING CORP. HOLE NO. H-14 PAGE 1 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 5/31/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			80.3 - 90.1 Sovite Carbonatite white, m.g., massive to poorly developed foliation		banding irregular in gneiss		3	5				37	.20	1.58	80.3	
															80.9	3065
			Local amphibolite rich bands.				5	20	1			63	.06	1.99	82.0	3066
82			at 81.6 - 82.0 & 85.7 - 86.2, 87.5 - 88.8													
			82.6 - 80.9 gneissic band			4	7	5	2			23	.01	4.45	83.4	3067
84					70 ↘ vermiculite defines foliation	4	6	3	2		1	27	.01	5.35	84.7	3068
						4	6	3	2		1	47	.02	4.10	85.7	3069
86			amphibolite contacts are sharp					85				44	.07	0.76	86.2	3070
			mostly black amphibole with 10% light green in two bands			4	5	3	1		1	10	.01	5.32	87.5	3071
88						2	20	30				29	.03	2.22	88.8	3072
			Basal contact sharp & irregular 1 cm band of light green amphibole			5	5	4	1			19	.01	4.38	90.1	3073
90																
			90.1 - 97.0 gneiss as to 80.3 a couple of quartz bands													
			91.7 - 91.9, rusty massive v.f.g.													
92																
					70 ↘											
94																
96																

no anomalous scint readings

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-14 PAGE 6 OF 11

LOGGED BY B.E. Aagaard DATE 6/02/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			97-98.0 Transition zone, interbanded gneiss & carbonate, carbonate bands parallel foliation in gneiss.												97.0	
98			98.0 - 104.0 Sovite Carbonatite white, med. xline carbonate 2mm apatite, 5mm amph, 1-2 cm vermiculite, magnetite masses up to 2cm. Mineralogy varies, locally amph consists of 70% a unit of gneiss 99.1-99.2	70			-	5			1	7	.06	0.71	98.0	3074
						4	6	2	2		1	180	.19	3.76	98.65	3075
100				65	poorly developed foliation in carbonatite.	2	10	4	1			90	.10	2.70	99.6	3076
						5	8	5	1			78	.07	2.89	100.5	3077
102						5	5	4	2	1		76	.05	3.83	102.0	3078
			Basal contact irregular gradational over 2 cm.		a 1cm zircon xl at 103.1	5	2	1	2	1		46	.02	4.56	103.3	3079
104			104 - 117.3 Transition Zone interbanded carbonatite, amphibole rich carbonatite & gneiss locally mineral content is highly variable.			4	5	10	1	1		140	.11	4.51	104.3	3080
						1	10	15				13	.07	1.42	105.8	3081
106			Banding is common in carbonatite bands of amphibole, vermiculite magnetite			1	5	20				29	.09	1.51	107.3	3082
108			Amphibole is light green				5	10				22	.06	1.31	108.8	3083
						2	5	10				29	.09	1.42	110.0	3084
110				72				2				6	.06	0.53	110.95	3085
						1	2	5			1	16	.07	0.83	112.8	3086
112																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-14 PAGE 1 OF 11

LOGGED BY B. E. Aaquist DATE 6/03/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
114							5	15			1	20	.05	1.08	114.6	3087
					60	3	5				1	79	.04	2.45	115.2	3088
116			116 – 117.3 vermiculite phase of carbonatite, black & white, med, xline Basal contact sharp at 45°				10	15			1	31	.06	1.15	116.0	3089
			117.3 – 121.6 Amphibolite green, fig, + massive. local areas of med. to coarse xline vermiculite				60					23	.07	0.89	117.3	3090
118							10	90				58	.05	1.76	118.3	3091
							10	90				46	.04	1.24	119.4	3092
120							10	90				53	.05	1.44	120.5	3093
			Basal contact irregular at 55°		55											
			121.6 – 124.9 Sovite Carbonatite white, fig. – c.g., massive to locally foliated. The fig. foliated portions have most of the accessory minerals 122.0 – 122.6, 123.8 – 124.8		60 foliation caused by vermiculite		10	80				34	.05	0.94	121.6	3094
122						4	2	2	2			39	.03	3.39	122.6	3095
						3	3	2				60	.07	3.18	123.8	3096
124						5	4	2	1			61	.044		124.9	3815
			124.9 – 151.5 Gneiss gray, fig. – mig., banding 1 – 10 cm wide, bands have different grain size & varying mafic mineral content		80											
126																
128																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-14

LOGGED BY B.E. August

DATE 6/3/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
130					85											
132																
134					75											
136			135.9 - 136.4 } white massive feldspar 138.9 - 139.3 } c.g., massive, minor muscovite													
138					75											
140					60											
142																
144					00											

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-14

LOGGED BY B. E. Aagaard

DATE 6/03/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %	ppm		
146			146.2 - 147.3 - feldspar as to 139.3. contacts lost in broken core																
148																			
150																			
151.5 T.D.																			

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-15 PAGE 1 OF 8

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 111.9 m AZIMUTH: — ANGLE: -90° ELEVATION: 962m

NORTHING: 49.796 approx. EASTING: 49.900 approx

DATE STARTED May 31, 1981 DATE COMPLETED: JUNE 2, 1981

LOGGED BY: B.E. Coquist

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: HOLE WAS ABANDONED BECAUSE OF BROKEN GROUND - THERE WAS A GOOD POSSIBILITY THAT RODS MIGHT HAVE BROKEN OFF IN THE HOLE. EVEN THICK MUD WOULD NOT HOLD GROUND. THERE WAS 100% MUD & WATER LOSS.

THE SITE WITH THE COLLAR LOCATION WAS DESTROYED IN ORDER TO MAKE ACCESS TO DRILL HOLE H-16.

SAMPLE NUMBERS IN HOLE ARE 3117 - 3166.

NOTE Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-15 PAGE 2 OF 8

LOGGED BY B.E. Ragnist DATE 6/5/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
0			0-2.8 Overburden																
2																			
4			2.8 - 15.1 Feldspar Biotite Gneiss gray, medium xline, massive to banded, local bands of green amphibolite, and local massive quartz.																
6					30														
8																			
10																			
12					75	Nb/Ta													
14					30														
			Basal contact sharp at 65°															15.1	
			15.1 - 58.0 Beforsite Carbonatite																
16			top 5cm are gray, f.g.			2.12	4	3		4		2		66	.02	4.45		16.6	3117

ANSCHUTZ MINING CORP. HOLE NO. H-15 PAGE 3 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 6/05/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
18			White to very light orange, medium to coarse xline, massive magnetite masses up to 7 cm. Some associated with minor pyrite and pyrrhotite. apatite 1-2 mm. vermiculite disseminated commonly < 1 cm. amphibole locally, < 1 cm common at 21 meters magnetite, pyrite & pyrrhotite are intergrown. zircon xl.			5.18 ±19%	3	1	2	2		1		44	.02	3.60		18.1	3118
20						1.75 (±0.2) ±11%	4	2		2		2		160	.04	4.31		19.6	3119
22					21.84 18.93	20.39 ±7%	4	3	2	2		2		24	.07	3.76		21.1	3120
24						22.34	5	3		2		2		97	.31	4.08		22.6	3121
						8.9	5	4		2		1		55	.07	2.93		23.6	3122
						18.43	2	1		2		1		110	.29	3.69		24.7	3123
26						5.99	3	2		2		2		140	.12	2.61		26.0	3124
						4.99	3	3		1	1	2		140	.10	2.43		27.0	3125
28						4.41	4	3			1	1		190	.12	2.64		28.0	3126
						6.01	2	3		1	1	1		93	.08	2.15		29.0	3127
30						3.76	2	3		1	1	1		74	.04	2.89		30.1	3128
						8.54	3	3		1		1		180	.22	3.41		31.0	3129
32						4.45	3	3			1	2		220	.14	3.28		32.0	3130

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-15 PAGE 1 OF 8

LOGGED BY B. E. Aaquist DATE 6/06/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
			Below 26 meters, carbonatite is mottled white & orange contacts between the colors are sharp & irregular. there are locally two intensities of orange.		from 32-38 core is locally fractured & with crumble, locally calcite fills fractures 1mm wide, fractures common at 30°	3.50	3	2				1		180	.09	2.41		33.0	3131	0
34						4.19	2	3	2		tr	1		150	.09	1.97		34.0	3132	120
						3.76	2	2	1	1		1		93	.05	1.81		35.5	3133	0
36						3.45	4	2	1	1				81	.04	2.15		36.7	3134	0
						4.19	4	2	1	1	tr			100	.06	2.61		37.8	3135	10-70
38						3.50	3	2	2		tr	2		280	.14	2.96		38.7	3136	50-120
			pyrite & pyrrhotite occur together as round blebs 1-2mm diss. in carbonatite.			3.50	3	2	2	1	tr	2		180	.09	3.21		40.0	3137	10-45
40						3.18	2	2	3	1	tr	2		110	.05	2.29		41.2	3138	10-35
			there are a couple of zircon xls 41.2 - 41.5																	
42			41.2 - 46.7 strong orange color mottled white		42.5-43.5 30% broken	7.53	6	2	2	2				65	.07	4.31		42.5	3139	0
					core, crumbles.	7.53	7	4	3	1				65	.07	3.87		43.5	3140	0
						4.03	7	2	3	2	tr	1		260	.15	4.01		44.0	3141	130
44						7.53	6	2	2	2				65	.07	4.07		45.4	3142	0
46						3.18	7	2	2	1	tr			220	.10	3.41		46.7	3143	0-30
					46.7-46.9 vermi rich zone, core breaks parallel to cleavage	3.18	3	2	5	1	tr			110	.05	2.75		47.7	3144	10-30
48																				

ANSCHUTZ MINING CORP. HOLE NO. H-15 PAGE 5 OF 8

BLUE RIVER CARBONATITES LOGGED BY B. E. Dagquist DATE 6/06/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
						2.83	4		3	2	tr	1		220	.09	3.53		49.0	3145	100
50						4.51	5	3	2	2	tr	1		31	.02	5.41		50.0	3146	20
							5	3	3	2	tr			43	.02	3.37		51.5	3147	30
52		x	apatite x/s locally up to 5mm				5	3	3	1		1		11	ND	3.14		53.0	3148	
Bx9																				
54							5	1	1					10	ND	3.76		54.2	3149	
							5	3	3	1				15	.01	3.44		55.3	3150	
56							5	2		2				<5	.01	5.16		56.8	3151	
58 Bx10			from 59.5 down, carbonatite is white "This is Souite see log H-16" C/10/81				5	5	2	3				10	ND	5.00		58.3	3152	
			Zircon x/ 5mm				3	5	2			1		28	.01	2.45		59.5	3153	
60			below 59.5 are irregular x/s of dark green amphibole up to 2.5 cm across 1cm common. along with this is a fine green amph.				2	3	3	1		1		24	.01	0.62		60.7	3154	
62			Basal 10 cm is fg. green Basal contact lost in broken core				3	3	2	1		1		16	.02	0.27		62.0	3155	
64 Bx11			63.5				2	4	4	1				25	.02	1.17		63.5	3156	

ANSCHUTZ MINING CORP. HOLE NO. H-15 PAGE 2 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.A. Doguin DATE 6/06/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66			63.5 - 84.0 Gneiss feldspar, biotite gray, medium xline, massive to banded. Massive sections have foliation due to biotite. Local quarte-feldspar pure white massive bands 2-20 cm thick.		75											
68 Bx-12																
70																
72					75											
74 Bx-13																
76					70											
78					70											
80 Pg-3																

ANSCHUTZ MINING CORP. HOLE NO. H-15 PAGE ____ OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/06/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER	
92				60															
			Basal contact gradational at 65° over 1cm																
84			84.0 - 89.2 Sovite Carbonatite white, medium xline, [illegible] well foliated. Apatite 1-2 mms, Vermiculite 1-2 cm long books, locally 40%	50													84.0		
Bx15						5	5	3	1				35	.02	3.76		85.1	3157	5-10
86						7	5	3	2		1		11	.01	4.58		86.3	3158	10-15
			* Lost core ; ground-up			5	4	3	2				54	.02	3.92		87.5	3159	10
88					88-89 - core crumbled to sand because of high vermiculite														
			Basal contact gradational over 2cm, core broken			7	7	2	3				30	.01	4.58		89.0	3160	10
						7	2	3	3	1			69	.02	3.76		89.2	3161	140
90			89.2 - 93.3 Gneiss as to 84.0 local feldspar pure bands																
				70															
92																	93.3		
			Basal contact lost in broken core																
			93.3 - 98.6 Sovite Carbonatite as to 89.2			7	2	2	2				55	.06	4.17		94.1	3162	
94			amph.-vermiculite rich zone 94.1 - 95.1				15	20					34	.03	3.02		95.1	3163	
				50															
96						6	4	3	2				19	.01	5.00		96.3	3164	5

ANSCHUTZ MINING CORP. HOLE NO. H-15 PAGE 6 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
						5	3	2	2	1	1	50	.03	3.92	97.6	3165
98			*gneiss band Basal contact irregular 98.6 – 111.9 Transition Zone - (zone of mixing?) Consists mostly of amphibolite gneiss, green, med to coarse x/line well to poorly banded with white feldspar & local vermiculite Locally amph. is interlayered with gneiss as to 84.0 Locally thin bands of carbonate occur in the amphibolite		70	2	10				91	.08	2.11	98.6	3166
100																
102																
104																
106																
108																
110	20															
111.9 TD																

10-4c

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-16 PAGE 1 OF 11

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 159.7m AZIMUTH: 315° ANGLE: -65° ELEVATION: 962m.

NORTHING: 49785 (approx) EASTING: 49,855 (approx.)

DATE STARTED 6/03/81 DATE COMPLETED: 6/08/81

LOGGED BY: B.E. Aaquist / B. Brown

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL RODS & CASING REMOVED FROM HOLE. HOLE WAS DRILLED TO UNDERCUT PART OF SPECIMEN PIT.

SAMPLE NUMBERS IN HOLE 3167 - 3230.

NOTE! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-16 PAGE 2 OF 11

LOGGED BY B.E Aagaard DATE 6/08/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0-5 overburden - broken bedrock													
4																
6			5-35.9 Gneiss feldspar, biotite, amphibolite, muscovite gray, medium grained (1-2mm) well foliated, locally banded due to variation in mafic mineral content													
8	50															
10					65											
12			13.7 - 14.3 augen texture developed		65											
14																
16																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-16

LOGGED BY B. E. Aagaard

DATE 6/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			16.3 - 16.5 feldspar pure zone		65														
18																			
20					30														
22					65														
24																			
26					65														
28																			
30					65														
32																			

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 4 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Oaquist DATE 6/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
34 Bx5			Basal contact gradational over 2 cm																	
36			35.9 - 97.1 Beforsite Carbonatite white to very light orange, coarse xline, mostly massive locally banding developed by accessory minerals. magnetite xls are commonly embayed, < 1 cm is common xl. size*			Nb/Ta												35.9		
						2.54	3	4	3	2	1	1		110	.04	4.77		37.0	3167	10-4
38						2.18	2	1	2	2	1	1		96	.03	3.92		38.2	3168	10-10
						2.15	1	1	1	1		1		130	.04	2.70		39.3	3169	10
40 Bx6						5.95	2	2	2	2		1		47	.04	3.85		40.4	3170	10
								1	1					13	ND	1.86		41.1	3171	0
42						14.56	4	1	3	1		1		24	.05	3.37		42.5	3172	5
					50	20.97	4		2	3		1		10	.03	3.46		44.0	3173	5
44			* locally there is a black, clay like mineral, commonly with an orange oxide halo in the carbonatite.			20.43	3	1	3		1	1		65	.19	2.50		45.5	3174	5
Bx7 46						22.24	4		5	1		1		110	.35	3.55		47.0	3175	5
						5.73	2	1	2	2		1		61	.05	4.24		48.5	3176	
48																				

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 5 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Argnist DATE 6/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
																		48.5		
50					60 bands with apatite & amph concentrations	6.13	4	1	3	1		1		57	.05	2.64		50.0	3177	
					51-53, breccia 1-3 cm fragments in an ground mass of carbonate, fracturing is near parallel to core axes 30% broken core	5.76			2		tr	1		73	.06	1.58		51.5	3178	
	B×8					6.52	1	1	2			1		150	.14	2.22		53.0	3179	
54						6.35	4	1	3	1	tr	1		110	.10	1.76		54.5	3180	
						8.58	5	1	4			1		220	.27	2.47		56.0	3181	5-10
56	B×9					3.50	1		2		tr	1		140	.07	1.56		57.5	3182	5-20
58						4.45	1	tr	1		tr	tr		79	.05	1.08		59.0	3183	
					60	3.68	1		2		1	1		190	.10	2.29		60.5	3184	10-70
60						3.81	1	1	1	1	1			330	.18	2.47		62.0	3185	20-12
62	B×10					4.49	1	1	3	1	1	1		140	.09	2.86		63.5	3186	5-30
64																				

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 6 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Osquist DATE 6/10/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %				
						5.40	5	1	3		1	1	220	.17	2.73		65.0	3187	10-100
66			apatite xls up to 5 mm. orange coloration of carbonatite			4.84	5	1	3	2	1	1	130	.09	3.32		66.5	3188	50
					amph-apatite in bands	4.33	5		3	1	1	1	210	.13	2.66		68.0	3189	50
68						5.10	1		2		1	1	96	.07	2.38		69.3	3190	50
70						6.66	0	0	0	0	0	0	21	.02	Tr		70.3	3191	0
						4.05	2	1	3	1	1	1	190	.11	3.35		71.8	3192	50
72						3.68	3	1	3		1	1	190	.10	3.35		72.9	3193	100
			73.6 - 1.2 cm pyrochlore xl			4.40	3	2	3	2	2	1	540	.34	3.76		73.9	3194	170
74			euhedral with embayments			4.37	3	1	3	1		1	160	.10	2.38		74.9	3195	40
			2-3 mm xls common			5.49	2		2		1	tr	140	.11	3.30		75.8	3196	30
76						6.88	5	3	3	1	1		61	.06	4.19		76.9	3197	50-110
						12.84	5	3	3	1		1	49	.09	4.01		78.4	3198	
78							3	2	5	1	1	1	-	.11	3.83		79.9	3199	305
90																			

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 4 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Argint DATE 6/10/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
						6.17	3	2	5		1	1		34	.03	4.01		81.2	3200	20
82						3.66	4	1	3		1			210	.11	2.96		82.7	3201	10-30
						3.26	3	1	3	2	1			130	.06	3.67		84.2	3202	10-40
84						4.92	5	2	2	2	1	½		71	.05	4.58		85.2	3203	30-90
	Bx/4					4.11	5	2	2	1	½			17	.01	4.10		86.2	3204	35
86					weak banding 60-70°	2.80	4		3	2	1			250	.10	4.31		87.5	3205	30-20
88						3.50	4	½	3	½	1			120	.06	3.48		88.7	3206	30-1K
	Bx/5				88.7 - 90.5 core crumbled to a coarse sand.	2.85	5	2	3	1	tr			98	.04	3.41		90.2	3207	30
90						0.81	4	1	3	1	½			86	.01	4.01		91.7	3208	5
92							5	1	1	1				20	.01	4.42		93.2	3209	5
94					92.5 - 94 core broken as to 90.5		6	3	3	2				7	ND	4.90		94.7	3210	0
	Bx/8						2	5	5	2				20	ND	3.71		96.2	3211	0
96																				

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 8 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Oaquist DATE 6/10/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			Basal contact gradational over 20cm, contact sheared at 70°.													
			97.1 - 101.5 Sovite Carbonatite													
98			white, coarse xline, massive dark green amphibole 1 cm common vermiculite, brown on core surface 1 cm common, magnetite <1 cm common with embayed boundaries			3	1	3	1			10	.01	3.55	97.1	3212
							3	3				20	.01	0.25	98.6	3213
100							3	2	2			29	.02	1.17	100.1	3214
							3	2	2			48	.02	1.67	101.5	3215
102			Basal contact sharp & irregular, 30°													
			101.5 - 118.4 Gneiss feldspar biotite, amphibole, Medium grained well banded & well foliated		50 common banding & foliation											
104																
106					55											
108					50											
110					50											
112																

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 1 OF 11

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/11/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
114																	
116																	
118			Basal contact lost in broken core.												118.4		
B42			118.4 - 125.25 Sovite Carbonatite white, medium xline, well foliated magnetite <1 cm common, locally 2cm long, elongate in foliation, edges embayed. vermiculite as thin <1mm sheets apatite white 2mm common amphibolite black <1cm. 22.8-24.5 amphibole rich unit green amphibole, xls elongate in foliation, contacts sharp. Basal contact sharp at 50°		55	4	2	3	3			20	.01	4.58	119.9	3216	5
120						3	3	3	2			13	.01	4.72	121.4	3217	5
122					45	3	3	2	2			37	.01	4.35	122.8	3218	30
124							10	40	1			31	.04	1.10	124.5	3219	
B43						2	10	15	1			25	.01	3.07	125.25	3220	35
126			125.25 - 127.7 Gneiss as to 118.4 Basal contact irregular at 55°														
128															127.7		

ANSCHUTZ MINING CORP. HOLE NO. H-16 PAGE 10 OF 11

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 6/11/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			127.7 - 131.6 Savite Carbonatite as to 125.25, amphibole xls are embayed like the magnetite. Basal contact lost in broken core		foliation varies locally, at 130.3 it parallels core	5	3	2	2	tr		160	.06	4.54	129.2	3221
130						tr	15	2	1			76	.05	2.59	130.2	3222
						5	7	3	1			84	.04	2.77	131.6	3223
132																
			Box was DROPPED & core mixed													
134																
			131.6 - 142.8 Gneiss as to 118.4 local thin bands of carbonate													
136																
138																
140																
142			Basal contact sharp at 80°												142.8	
			142.8 - 152.0 Savite			3	3	1	tr			25	.01	4.24	143.4	3224
144																

AN[illegible]CHUTZ MINING CORP. HOLE NO. H-16 PAGE 11 OF 11

BLUE RIVER CARBONATITES LOGGED BY BRAD BROWN DATE 6/20/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
						tr	7	7				22	.03	1.65	144.9	3225
146						4	1	1	2			10	ND	4.51	146.5	3226
148						5	1	½	2			<5	ND	4.40	148.0	3227
				75		2	5	1	1			29	.03	3.23	149.6	3228
150						2	3	3				16	.02	3.21	151.0	3229
152			BASAL CONTACT AT 70°			3	2	3	tr			42	.04	4.65	152.0	3230
			152.0 - 159.7 Gneiss	65												
154																
				65												
156																
158																
			159.7 END OF HOLE													

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-17 PAGE 1 OF 7

PROPERTY: VERITY AREA N.T.S. NO. 83D /6E

DEPTH: 86.7 AZIMUTH: 360 ANGLE: -60 ELEVATION: 898± 900

NORTHING: 49 872 ± EASTING: 49847 ±

DATE STARTED 6/09/81 DATE COMPLETED: 6/11/81

LOGGED BY: R. E. Baguict

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: DRILL SITE WAS DESTROYED IN ORDER TO GET TO H-19. ALL TOOLS RECOVERED FROM HOLE

SAMPLE NUMBERS IN HOLE ARE 3231 TO 3251.

NOTE! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP. HOLE NO. H-17 PAGE 2 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Daguet DATE 6/22/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 8.0 CASING - no core recovered													
4																
6																
8		c	8.0 - 11.0 Sovite Carbonatite		core broke into coarse sand to 9.0m & 10.7 to 11.0		Tr?		Br						8.0	
		c	med. to coarse xline, down to 9 m.													
		c	is orange to white, rest is mostly													
	83	c	dark gray due to amph & vermiculite													
10		c	Basal contact lost in broken core.				15	30				<5	ND	1.49	11.0	3232
		c	0.1 m of white massive feldspar occurs below carbonatite.													
			11.0 - 26.5 Gneiss		65											
12			gray, m.g., massive to banded well foliated.													
14					70											
16																

No Tadini K.K.

ANSCHUTZ MINING CORP. HOLE NO. H-17 PAGE 3 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Oaquist DATE 6/22/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18			65												
20															
22			65												
24															
26		Basal contact lost in broken core.	65											26.5	
		26.5 - 38.0 Sovite Carbonatite white medium xline magnetite & amphibole <1cm apatite 1-2 mm. Vermiculite locally occurs as books 3mm thick		26.5 - 28 some core crumpled like coarse sand. vermiculite imparts a weak foliation											
28	50				5	H	2	2			14	ND	5.00	29.6	3233
30	100	31.8 - 36.0 amphibole - vermiculite rich carbonatite, green	60	ground core 30-31											
	33	at 31.6-31.8 is a white coarse xline feldspar, contact irregular			5	4	2	2			23	.01	4.47	31.8	3234
32															

ANSCHUTZ MINING CORP. HOLE NO. H-17 PAGE 4 OF 7

BLUE RIVER CARBONATITES LOGGED BY R.E. Baguist DATE 6/22/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			f.g. pyrrhotite and light green apatite occur locally in the amphibolite rich phase, pyrite also occurs locally		ground core at 34 m.	1	15	40			1	9	.03	1.12	33.0	3235
34	50					2	15	40			1	22	.02	2.47	34.5	3236
						2	15	40			1	37	.02	1.90	36.0	3237
36						8	3	2	2			18	.01	4.93	37.0	3238
			Basal contact lost in broken core 38.0-43.0 Gneiss			6	3	3	1			27	.01	4.72	38.0	3239
38			as above													
			40.5 - 40.6 and 41.1 41.4 & 41.6 - 42.4 Feldspar & minor quartz - white, coarse xline, massive. Local minor pyrrhotite contacts sharp; vary from 70°-90°		75°											
40																
			Basal contact sharp 90°													
42			Bands of ampl & vermiculite & calcite in basal 30 cm.		80°										43.0	
			43.0 - 46.7 Amphibolite Sovite Carbonatite			2	10	35	tr		1	57	.04	2.70	44.5	3240
44			green, coarse xline, vermiculite imparts a foliation in upper 0.5 m. from 40°-90°. As To 31.8 - 36.0				15	50				32	.03	3.00	45.6	3241
			pyrite & pyrrhotite locally occur together				15	50			1	50	.04	2.64	46.7	3242
46			46.7 - 47.7 Sovite Carbonatite as above			6	3	2	1			77	.04	4.63	47.7	3243
			Basal contact sharp at 70°		70°											
48																

ANSCHUTZ MINING CORP. HOLE NO. H-17 PAGE 5 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Daguist DATE 6/22/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
50			47.7 - 52.5 Gneiss as above Local bands of carbonate & amphibole (light green)														
52					75										52.5		
			52.5 - 61.4 Sovite Carbonatite white, med xline, poorly developed foliation due to vermiculite 53.0 - 53.4 massive, green, med xline amphibole 53.8 - 55.3 local bands of gneiss 52.5 - 53.0 much vermiculite in books up to 5mm thick			3	10	30		1		52	.03	2.29	53.8	3244	20
54							4	2			1	40	.04	2.77	55.3	3245	10
56			one 3mm pyrochlore xl at 53.5		60	5	3		2		1	5	.01	4.77	56.7	3246	10
58					70	5	3		2		1	29	.02	4.54	58.2	3247	20
					70	5	5	3	1			61	.02	3.46	59.5	3248	20
60			2-3 mm pyrochlore xls 61.0-61.4 Basal contact, irregular vermiculite rich zone 1 cm thick			1	15	10				40	.04	2.27	60.1	3249	
			61.4 - 62.7 Beforsite Carbonatite white, coarse xline, massive Basal contact lost in broken core			8	7	4		1		80	.04	5.22	61.4	3250	20 to 80
62						4	5	3			1	98	.17	6.46	62.7	3251	30
			62.7 - 86.7 Gneiss as above														
64																	

ANSCHUTZ MINING CORP. HOLE NO. H-17 PAGE 6 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Oquist DATE 6/23/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			64.8 - 65.2 Feldspar - Quarte white, coarse xline, massive		60														
66			Augen texture developed locally																
68																			
					65														
70																			
72					80														
74																			
76																			
78					75														
80																			

ANS[illegible]HUTZ MINING CORP. HOLE NO. H-17 PAGE 7 OF 7

BLUE RIVER CARBONATITES LOGGED BY R. E. Daguist DATE 6/23/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
82					75														
84			85.1 to 85.4 } Feldspar - Quartz 85.75 to 86.25 } white, coarse xline massive																
86			contacts irregular, vague.		75														
86.7 T.D.			Local books of muscovite in Feldspar & quartz.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-18 PAGE 1 OF 7

PROPERTY: VERITY N.T.S. NO. 83D/6E

DEPTH: 87.5 AZIMUTH: 360 ANGLE: -60° ELEVATION: 886

NORTHING: 49.845 EASTING: 47.798

DATE STARTED 6/14/81 DATE COMPLETED: 6/16/81

LOGGED BY: R.E. Aaquist

DRILL COMPANY: Boart Specialties CORE SIZE: NQ

HOLE & SITE DESCRIPTION: All tools recovered from hole.

Sample numbers in hole are 3252 - 3287

Note! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP. HOLE NO. H-18 PAGE 2 OF 7

BLUE RIVER CARBONATITES LOGGED BY B E Onquist DATE 6/23/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			0 - 8.2 Casing - broken bedrock													
8			8.2 - 28.5 Beforsite Carbonatite light orange, coarse xline, massive apatite 2-4 mm common amph. green, needles 1cm or less magnetite up to 1cm with embayed edges		core broken locally, weathered bedrock.										8.2	
						5	1	3	1			140	.15	3.62	9.4	3252
10						5	1	2				37	.06	3.85	10.8	3253
12						4	1	2	1			38	.07	3.96	12.3	3254
						5	1	2	1			5	.12	3.73	13.8	3255
14						5	<1	3	1			150	.09	3.00	15.3	3256
16																

ANSCHUTZ MINING CORP. HOLE NO. H-18 PAGE 3 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/23/81

DEPTH metres	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
16																	16
						4	1	3	1			59	.05	3.09	16.8	3257	30-50
																	50-65
18			locally pyrochlore xls 1-2 mm.			5		3	2	1		65	.05	4.42	18.3	3258	18
	60				locally ground core is core crumples to coarse sand												50-120
20						3		2	1	1		120	.08	2.96	20.1	3259	20
	30																
22						3		2	2			50	.05	3.53	23.2	3260	22 20
			24-26 local bands of green amphibole at all angles to core														
24	100					3	1	5	1			26	.04	3.53	24.7	3261	24 10
					a shear with film of clay at 20° to core.	2	1	5	1			—	.03	3.53	25.6	3262	5
26																	26
	65					2			1			9	.03	4.70	27.4	3263	0
							good mt			est. limonite possible		7	.02	4.97	28.5	3264	28 0
28	75		Basal contact lost in broken core														
		C	28.5 - 29.5 Sovite Carbonatite white, med. xline, black hornblende x/s up to 2 cm with embayed edges. Vermiculite <1 cm long. Basal contact irregular. There is a 16 cm zone of calcite, feldspar and green amph. below contact.			1	2		2		1	19	.04	0.60	29.5	3265	0
		C		70	foliation in sovite												
30			29.5 - 44.8 Gneiss feldspar, biotite, amphibole, med. grained, gray	80	well foliated locally banded												30
32																	32

ANS HUTZ MINING CORP. HOLE NO. H-18 PAGE 4 OF 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 6/23/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
34			core breaks on foliation in biotite rich layers.											
36														
38														
40														
42														
44		Basal contact lost in broken core. 44.8 - 53.9 Sovite' Carbonatite white, med - coarse xline, vermiculite imparts foliation. There are a number of amphibole rich sections: 44.8 - 46.7, 50.1 - 51.2, 51.6 - 52.4, 52.8 - 53.6. Top 10 cm is massive vermiculite											44.8	
46					10	80				27	.06	1.56	45.7	3266
					2	80				26	.06	2.15	46.7	3267
48	85			7	2	3	2			15	.04	4.47	48.4	3268

ANSCHUTZ MINING CORP. HOLE NO. H-18 PAGE 5 OF 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 6/24/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
50			magnetite commonly x1 cm, embayed edges dark green hornblende 5mm common apatite 1-2 mm massive amph units are medium green	60	poorly developed foliation	6	2	2	3			9	.03	4.86	50.1	3269	5
							5	50				36	.05	1.79	51.3	3270	0
52			Basal contact lost in broken core			2	5	35				26	.05	1.70	52.4	3271	0
			53.9 - 57.5 Gneiss			4	5	20				23	.04	2.57	53.9	3272	10
54			as above	80													
56															57.5		
			Basal contact an irregular shear	30													
			57.5 - 58.6 Sovite & Amphibolite														
58			top 40 cm is Sovite as above then there is a 20 cm zone of interbanded sovite - vermiculite - amphibole. The bottom 50 cm is green, med. xline, amph. with vermiculite & carbonate. Basal contact is sharp & irregular.		a couple of pyrochlore xls 2mm at 57.8 magnetite is tied up in sovite	3	7	35	1	1		100	.13	2.98	58.6	3273	15.7
			58.6 - 60.82 Feldspar														
60			white coarse xline, massive local amph xls, and an inclusion of amph & vermiculite. Basal contact indistinct				1	2				18	.06	0.80	60.85	3274	
			60.85 - 64.2 Sovite														
	95		white, med. xline, foliated														20
62			1-4 mm apatite up to 1 cm magnetite & hornblende apatite locally occurs in magnetite hornblende & vermiculite. a 3 mm pyrochlore x1 at 62.3	30		6	3	1	2	1		170	.09	4.31	62.4	3275	50
			amph rich band 63.5 - 63.7			6	2	2	1			41	.05	4.65	63.5	3276	
64						3	4	10				97	.08	2.38	64.2	3277	

ANSCHUTZ MINING CORP. HOLE NO. H-18 PAGE 6 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. August DATE 6/26/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			64.2 - 74 Zone of Mixing													
			Interbanding of amphibole, feldspar gneiss & carbonate. Med-coarse xtlng; amph zones are green bands vary from a few mm to 60 cm in thickness. Contacts are sharp to gradational & locally interfinger	70								16	.06	0.94	65.7	3278
66																
				70								7	.07	1.49	67.2	3279
68				80				?	X			10	.09	0.64	68.7	3280
												19	.06	1.24	70.2	3281
70				70												
												6	.05	0.92	72.0	3282
72																
					a couple of pieces of core missing, drill							19	.06	1.35	74.0	3283
74	80		74-78.3 Suite as to 64.2													
			Basal contact lost in broken core.	75		5	2	1	1		1	24	.04	4.10	75.0	3284
						5	2	2	1		1	17	.05	3.23	76.0	3285
76				65		5	2	1	2		1	41	.04	4.06	77.0	3286
						5	2	1	2		1	92	.05	4.06	78.3	3287
78			78.3 - 87.5 Gneiss as above													
	50				broken core ground											
80				60												

5-10
5-10
5-40
5-10

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-18

LOGGED BY B. E. Aagaard

PAGE 7 OF 7

DATE 6/26/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
82					75														
84																			
86					70														
87.5 T.D																			

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-19 PAGE 1 OF 8

PROPERTY: VERITY N.T.S. NO. 83D/6E

DEPTH: 105.2 AZIMUTH: 020 ANGLE: -60 ELEVATION: 1047

NORTHING: 49.816 EASTING: 50.143

DATE STARTED 6/19/81 DATE COMPLETED: 6/22/81

LOGGED BY: R.E Ragnist

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: BACK SIGHT WAS DESTROYED DURING FINAL SITE PREPARATION, THEREFORE DRILL WAS NOT ALIGNED NORTH-SOUTH. ALL TOOLS RECOVERED FROM HOLE.

SAMPLE NUMBERS IN HOLE ARE 3289 - 3318.

NOTE! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP. HOLE NO. H-19 PAGE 4 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 6/27/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
			32.5 - 46.6 Beforsite													32.5		
			light orange, coarse xline massive, local bleached zones green actinolite 5mm long vermiculite 5mm long common apatite 1-5mm - it is reddish in the strongly orange sections local magnatite up to 3cm with embayed edges & carbonate inclusions			7.36	<1	3	5				57	.06	1.44	33.5	3288	10
34	Bt 5					4.99	2	2	2		visible <1		140	.10	2.20	34.5	3289	20-5
						4.49	1	<1	4				140	.09	2.45	35.5	3290	25-4
36						4.19	1	<1	5			1	150	.09	2.38	36.5	3291	20
						4.81	3	3	2	<1			160	.11	2.61	37.5	3292	20
38			upper contact lost in broken core.		core broken because of fractures at all angles.	4.30	4	<1	2	1			130	.08	3.83	38.5	3293	25
			local irregular masses of amphibole.			4.30	5	<1	2	<1	<1		130	.08	2.61	39.5	3294	25-3
40	Bt 6		pyrite main sulphide ~1mm			4.66	5	<1	2	<1			150	.10	4.42	40.5	3295	25-3
			Amph. masses occur in & adjacent to fractures near parallel to core axis.			3.68	5	<1	2	<1			190	.10	3.57	41.5	3296	30-6
42			Pyrochlore xls 1-2mm locally, at 39.3 one xl occurs in an apatite xl.			4.08	3	1	2	1		1	120	.07	4.10	42.5	3297	30-9
			From 38-42 apatite xls 3-5mm.			12.16	1	2	2	1			23	.04	4.10	43.5	3298	20
44			* Below 43' there are local irregular bands of Sovite with hornblende contacts are irregular & indistinct			11.65	1	1	1	2		<1	24	.04	2.59	44.5	3299	20
	Bt 7					13.11	1	<1	1				16	.03	3.80	45.5	3300	10
46			Basal contact irregular at 50' 46.6 - 47.0 Feldspar white, coarse xline, massive, based contact sharp & irregular			52.43	1	1	3				4	.03	4.42	46.6	3301	10
			47.0 - 70.3 Gneiss															
48																		

ANSCHUTZ MINING CORP. HOLE NO. H-19 PAGE 5 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/27/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50			gray, med. xline, poorly developed banding, mostly feldspar & biotite. local green amph rich bands		core broke on fracture parallel to core axis.											
52																
54																
56																
58																
60																
62																
64																

B×8 B×9 B×10

70 80 80 80 70

ANSCHUTZ MINING CORP. HOLE NO. H-19 PAGE 6 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 6/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66																
Bx 11																
68																
			Basal contact lost in broken core.	35												
70															70.3	
			70.3 - 85.25 Sovite													
			white, med. xline, massive to weakly foliated, local amph. rich sections with abrupt to gradational changes in mineralogy hornblende & magnetite 5-8 mm common, embayed edges & fig. inclusions magnetite occurs as individual xls and in the rims of hornblende		core crumbled to coarse sand size.	<1	10	20	tr			31	.06	1.60	71.0	3302
	50					4	5	5	2			29	.04	4.58	72.0	3303
72																
Bx 12						4	2	2	3			7	.03	6.23	73.0	3304
				30												
						4	1	3	2			6	.03	5.36	74.0	3305
74																
				30		4	1	3	2			14	.03	5.32	75.0	3306
						4	1	3	2			11	.03	5.36	76.0	3307
76																
			pyrrhotite is intergrown with magnetite & amph at 77.9			4	2	3	2			27	.04	4.01	77.0	3308
				50												
						4	2	2	2		1	68	.04	4.83	78.2	3309
78																
Bx 13							10	30				80	.07	1.70	79.1	3310
				70												
						2	3	20	2			28	.04	2.50	80.0	3311
80																

ANSCHUTZ MINING CORP. HOLE NO. H-19 PAGE 7 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			80.0-80.1 5-10% zircon xls up to 1 cm, most are skeletal.			2	2	30	1			5	.04	2.04	81.0	3312
82						4	2	2	1			8	.03	4.65	82.0	3313
						4	3	3	2			9	.03	5.06	82.95	3314
84				70		1	10	40				22	.05	1.76	84.1	3315
Bf/g			Basal contact sharp at 55°			4	3	3	3			20	.04	4.40	85.25	3316
			85.25 - 90.3 Gneiss as to 70.3													
86																
88																
				70												
	95		Basal contact sharp, irregular												90.3	
90			90.3 - 93.6 Amphibolitic Suite													
Bf/g	75		mostly green, med.-coarse xline	60	core broken locally on clay filled fractures slickensides developed on some faces.	4	2	10			<1	130	.15	2.75	91.9	3317
92			local masses of vermiculite in massive amphibolite.													
	60		Basal contact lost in broken core.			1	10	70			<1	21	.05	1.90	93.6	3318
			93.6 - 98.5 Amphibolitic Gneiss													
94			green, med.-coarse xline, poorly banded. Hairline fractures along core axis have a film of carbonate.													
	83		Basal contact lost in broken core.	90												
96																

ANSCHUTZ MINING CORP. HOLE NO. H-19 PAGE 8 O. 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 6/20/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
			6 cm thick band of Suite at 96.5		65												
98			98.5 - 99.3 Gneiss as to 90.3														
			99.3 - 100.0 Feldspar white coarse xline, massive, contacts lost in broken core.														
100			100.0 - 104.0 Gneiss as to 90.3		75												
			local bands of gneiss as to 98.5 about 2 cm thick														
102																	
			Basal contact lost in broken core														
104			104.0 - 105.2 Feldspar as to 100.0														
105.2 T.D.																	

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-20 PAGE 1 OF 7

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 89.0 m AZIMUTH: 360° ANGLE: -60 ELEVATION: 1034 m

NORTHING: 49,841 EASTING: 50,121

DATE STARTED 6/23/81 DATE COMPLETED: 6/26/81

LOGGED BY: B. E. Aaquist

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ABOUT 45 METERS OF RODS, CORE TUBE, INNER TUBE, BIT, A ROD TAP, ETC. LOST WHEN RODS BECAME WEDGED IN HOLE.

SAMPLE NUMBERS IN HOLE: 3319 - 3364

NOTE! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP. HOLE NO. H-20 PAGE 2 of 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 7/01/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb_2O_5 %	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER	
														~~Nb~~ ppm					
			0 - 9.0 Overburden & broken bedrock																
2																			
4																			
6																			
8																	9.4		
			9.0 - 9.4 Gneiss gray, med x/line banded feldspar biotite. Basal contact sharp at 55°	45															
10			9.4 - 21.3 Belorsite, light orange, coarse x/line, massive pyrite, 1-2 mm, locally green actinolite up to 1cm long magnetite, up to 2cm, embayed edges local irregular bleaching local x-cutting veins of actinolite - calcite - irregular contacts		fractures almost parallel to core axis	4.86	2	1	3	1		1	230	.16	2.75		11.1	3319	5
12						7.40	3	2	2	1	tr		85	.09	2.70		12.3	3320	10
						11.44	4		3	2		1	110	.18	2.57		13.3	3321	35
14						8.16	2		1			1	120	.14	2.93		14.3	3322	35
						3.50	2		2			1	140	.07	4.10		15.3	3323	35-10
16	90					4.45	2		2			2	110	.07	2.18		16.3	3324	

ANSCHUTZ MINING CORP. HOLE NO. H-20 PAGE 3 OF 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 7/01/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
16	90				local ground core, most core probably lost at 17.4 – 18.0 (?)	4.3	2		1		tr			130	.08	2.73		17.4	3325	70
18						5.72	2	2	2	2				110	.09	2.80		18.9	3326	25
20	70		an oxidized zone extends up core for 0.6m from 20.4			7.99	2	1	1	2		1		35	.04	1.42		20.4	3327	20-7c
			Basal contact lost in broken core			4.30	1		5	1				130	.08	2.93		21.3	3328	0.7c
22	90		21.3 - 22.8 Feldspar white, coarse xline, massive, contacts lost in broken core.			8.74			N/A					32	.04	0.09		22.8	3329	—
			22.8 - 37.9 Beforsite as above			5.83	1		5			1		72	.06	1.92		23.8	3330	50-12c
24					local broken core on fracture almost parallel to core axis	3.73	1	1	3					300	.16	4.06		25.0	3331	70
26	95					5.66	2	1	3			2		210	.17	3.57		26.2	3332	30
						4.89	2	1	3	2		1		100	.07	3.64		27.4	3333	30
28	95					4.66	4		2	tr		1		180	.12	2.89		28.6	3334	30-5c
	100					3.68	3	1	2	1	tr			190	.10	3.00		29.6	3335	30-20c
30						2.59	3	1	2	1		1		620	.23	3.73		30.5	3336	
	65				below 30.5 core crumbles due to fractures at all angles	16.45	0 good	0 free broken			to estimate	0 for		17	.04	4.35		32.6	3337	
32																				

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-20

LOGGED BY B.E. Aaquist

DATE 7/01/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %			
B×4 1																		
34	30				core broken on fractures				N/A				11	.03	5.06		35.7	3338
36					35.7 - 37.9 core broken, locally to a coarse sand.	19.06												
			Basal contact lost in broken core.			39.94			M/A				7	.04	3.00		36.9	3339
			37.9 - 38.7 Syenite white, coarse xline. magnetite & hornblende xls 1cm common with embayed edges. vermiculite 3mm to 2 cm apatite 1-2 mm			19.97			N/A				14	.04	1.49		37.9	3340
38				50		13.31	2	2	2	2		tr	21	.04	0.71		38.7	3341
B×5 1				60														
40			38.7 - 59.0 Gneiss as above. locally feldspar pure bands with biotite rich bands adjacent															
42				50														
				80														
44				75														
B×6 1																		
46																		
				75														
48																		

ANSCHUTZ MINING CORP. HOLE NO. H-20 PAGE 5 of 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 7/01/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50					75											
52					35											
54																
56																
58			Basal contact lost in broken core		70										59.0	
			59.0 - 76.75 Interbanded Sovite and Amphibolite			5	3	1	1			31	.04	4.17	59.8	3342
60	80		Sovite is white, med xline, weakly foliated magnetite & hornblende xls <1 cm with embayed edges apatite 1-2 mm		ground core 61.0 - 61.3		10	60				20	.06	1.03	61.3	3343
62						5	2	2	2			13	.03	4.58	62.2	3344
						2	10	45	1			19	.05	1.83	63.0	3345
64			Amph is green, med to coarse xline massive contacts sharp to gradational			5	2	3	3			12	.03	5.36	64.0	3346

ANSCHUTZ MINING CORP. HOLE NO. H-20 PAGE 6 c. 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/01/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
65 B×9						5	3	3	2				13	.03	5.36		65.0	3347
66				*	core broken to coarse sand	5	3	3	3				13	.03	5.55		66.0	3348
				*		5	3	3	2				27	.04	5.45		66.7	3349
68							5	85					18	.05	0.89		68.0	3350
							3	90					21	.06	0.71		69.3	3351
70 B×10						1	5	40					25	.05	1.60		70.3	3352
				70		4	2	2	3				12	.04	4.15		71.0	3353
72						3	2	10	2		tr		14	.03	3.16		72.0	3354
						1	5	60			1		67	.06	1.56		73.2	3355
74						1	5	60					9	.04	1.58		74.4	3356
			75.6 - 75.7 Feldspar white coarse xline, massive, with coarse xline amph locally & med. xl at contacts Basal contact lost in broken core			1	5	40					30	.05	2.29		75.6	3357
76 B×11				65		5	3	3	2				22	.04	3.85		76.75	3358
			76.75 - 83.2 Gneiss gray, med. xline, banded to massive, local zones of massive white feldspar.	65														
78																		
80																		

5

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-20

LOGGED BY B. E. Aagnist

DATE 7/02/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
82				65											83.2	
84			Basal contact sharp at 70° 83.2 - 88.3 Sovite white, med.- coarse xline, weakly foliated 84.0 - 84.3 vermiculite rich 85.3 - 85.6 amphibolite			3	4	1	2			65	.08	3.96	84.0	3359
						2	25	2	5			25	.04	4.97	84.5	3360
						3	3	2	1			37	.04	3.83	85.3	3361
						1		50			1	87	.05	10.8	85.7	3362
86				60		3	3	2	2			35	.04	4.12	86.7	3363
88	75				core broken on fractures near parallel to core axis			N/A				220	.11	2.31	88.3	3364
89 T.D.			88.3 - 89.0 Amphibolite - Feldspar Gneiss green, coarse xline, massive fractures have calcite film in them.													

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-21 PAGE 1 OF 8

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 104.5m AZIMUTH: 360 ANGLE: -60 ELEVATION: 1055m

NORTHING: 49,845 (approx) EASTING: 50,200 (approx)

DATE STARTED 6/27/81 DATE COMPLETED: 6/30/81

LOGGED BY: B. R. Bryniot

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: HOLE TIGHT LAST 20 METRES BROKEN GROUND. ALL TOOLS RECOVERED. HOLE SHOULD HAVE BEEN DRILLED DEEPER. THERE SHOULD BE ANOTHER SOVITE UNIT BELOW THE INTERBANDED GNEISS (80/20 HAND SIZE).

SAMPLE NUMBERS IN HOLE 3365 - 3412.

NOTE! Nb values are Nb_2O_5 in %

ANCHUTZ MINING CORP. HOLE NO. H-21 PAGE 2 of 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/02/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
			0-4.0 Casing - Overburden															
2																		
4			4.0 - 12.0 Gneiss light gray, med xline, poorly foliated, locally banded.															
6	50																	
8																		
10																		
12 Bnx!			white feldspar at basal contact contact lost in broken core														12.0	
			12.0 - 37.9 Beforsite white to light orange, locally irregular bleaching. coarse xline, massive			22.79	1		2	1		1	46	.15	3.05		13.5	3365
14			actinolite 5mm long common pyrite, pyrrhotite are sulphide minerals			29.96	2		2	2		1	7	.03	3.71		15.0	3366
16			magnetite <1 cm common, embayed edges			27.18	3	1	1	2		1	18	.07	3.28		16.5	3367

AN CHUTE MINING CORP. HOLE NO. H-21 PAGE 3 OF 3

BLUE RIVER CARBONATITES LOGGED BY B.E Aaquist DATE 7/02/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES			SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %		
						Nb/Ta												
Box 2 18						7.49	2	2	3	1		1		140	.15	1.97	18.0	3368
						4.84	1		1	1		1		130	.09	2.50	19.0	3369
20						5.59	1	2	2	1		1		200	.16	3.44	20.0	3370
						6.99	1	2		1		1		60	.06	2.27	21.0	3371
22						7.53	2		2	1		<1		130	.14	2.70	22.0	3372
			22-26 core has a breccia texture 1cm fragments cemented in carbonate			11.18	3		3	<1		1		100	.16	3.16	23.0	3373
Box 3 24						13.17	2		1			1		69	.13	2.04	24.0	3374
						7.23	1		1			1		87	.09	1.72	25.0	3375
26						4.37	2	<1	2			1		320	.20	2.84	26.0	3376
					45 weak banding of accessory minerals	4.37	2	<1	2			<1		160	.10	3.60	27.0	3377
						4.84	2		1					130	.09	2.50	27.9	3378
28						4.33	3		3	<1	1	1		210	.13	3.28	28.7	3379
Box 4						4.66	<1		<1		<1			150	.10	2.31	29.7	3380
30						3.99	2	<1	1			<1		140	.08	2.91	30.7	3381
			irregular fractures filled with amphibole below 31.0			4.78			3					190	.13	3.55	31.7	3382
32																		

ANCHUTI MINING CORP. HOLE NO. H-21 PAG 4 of 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/02/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
						2.86	1	<1	3	1				220	.09	4.03		32.7	3383
						6.08	1	2	2	2		1		46	.04	3.67		33.7	3384
34 Box 5						13.31	2	3	2					21	.04	2.50		34.7	3385
						5.22	1	2	1	1				67	.05	4.31		35.7	3386
36					36.8 - 37.8			2	2	1				<5	.03	4.01		36.8	3387
			Basal contact lost in broken core		core crumbled to coarse sand	31.07		N/A		core too Big				9	.04	4.03		37.9	3388
38		c	37.9 - 41.25 Sovite			13.98	1	2	2	2				20	.04	2.57		38.9	3389
		c	white, med- coarse xline, massive hornblende & magnetite <1 cm with embayed edges																
		c	vermiculite <1 cm common.		local fractures parallel core axis with amph xls.	27.96	2	2	3	1				10	.04	2.25		40.0	3390
40 Box 6		c																	
		c	Basal contact irregular & gradational.			23.30	2	2	3	1				12	.04	1.56		41.25	3391
		c	41.25 - 62.3 Gneiss																
42			as above		55														
44																			
46 Box 7					65														
48																			

ANCHUTE MINING CORP. HOLE NO. H-21 PAGE 5 OF 8

BLUE RIVER CARBONATITES LOGGED BY B.E Ragnist DATE 7/02/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50					65											
52																
54			54.6 - 55.0 Feldspar white coarse xline, massive, sharp irregular contacts													
56																
Box 9																
58					65											
60																
					75											
62			Basal contact sharp at 55°												62.3	
Box 10			62.3 - 79.5 Sovite													
			white, med. xline, weakly foliated		60	4	2	1.5	1.5			13	N.D.	6.20	63.3	3392
64			apatite 1mm common			4	2	1.5	1.5			43	.01	4.49	64.3	3393

ANCHUTZ MINING CORP. HOLE NO. H-21 PAGE 2 OF

BLUE RIVER CARBONATITES LOGGED BY B.E Aaquist DATE 7/14/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
		magnetite & amph. commonly <5mm locally up to 2 cm. vermiculite <1 cm long, local thin bands of pure bands		4	1.5	1.5	1.5			15	ND	5.09	65.3	3394
66			75	4	2	1.5	1.5			8	ND	5.12	66.3	3395
				4	2	2	1.5			12	ND	4.56	67.3	3396
68		amph rich unit at 68.2 feldspar dyke at 68.6		4	2	2	1.5			54	.01	5.08	68.2	3397
Box 11				4	2	5	1.5			20	.01	3.34	69.2	3398
70				4	2	1.5	1.5			8	ND	4.61	70.0	3399
		feldspar dykes: 70.8 - 71.0 71.4 - 71.8		4	2	1.5	1.5			11	ND	4.61	70.8	3400
			45	2	1	.5	.5			9	ND	1.90	71.8	3401
72		Amph rich units locally with vermiculite rich zones 72.1 - 72.6 73.0 - 76.9			10	80				18	.01	2.18	72.6	3402
				3	1.5					30	.01	3.46	73.0	3403
74						90				41	.03	0.93	74.4	3404
Box 12						80				27	.02	0.83	75.6	3405
76					5	70				16	ND	1.49	76.1	3406
	95	Sovite below amph. below has pin heads of rusty spots	60 crumbly to coarse sand	4	2	1	1			17	ND	4.59	77.8	3407
78				4	1.5	1	1			5	ND	4.71	78.7	3408
	75		65	4	5	1	1			39	.01	4.20	79.5	3409
80		Basal contact sharp 65°												

ANSCHUTZ MINING CORP. HOLE NO. H-27 PAGE 7 of 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aquist DATE 7/15/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 13			79.5 - 87.7 Gneiss as to 62.3	60												
82				50												
84			feldspar bands at 84.8 & 85.9.													
86 Box 14				55												
			Basal contact lost in broken core.	50											87.7	
88			87.7 - 90.1 Sovite as above			4	2	3	.5	tr		62	.03	3.37	88.5	3410
			local concentration of amph & vermiculite	60	massive to foliated, foliation varies											
			Basal contact is gradational by interfingering with underlying unit	55		4	2	1	1	tr		26	.01	4.42	89.3	3411
90			90.1 - 101.5 Interbanded green amphibolite, feldspar, gneiss & minor sovite as above			3	3	3		tr	tr	56	.02	3.77	90.1	3412
92 Box 15			contacts sharp to interfingering amph & feldspar is commonly intergrown	45												
					[illegible] bands to core axis varies, ranges are gradual											
94				55												
96																

ANSCHUTZ MINING CORP. HOLE NO. H-21 PAGE 8 8

BLUE RIVER CARBONATITES LOGGED BY B.E. Aquist DATE 7/15/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
78 Box 16																			
100																			
Box 17 ~101.5 T.D.																			

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-22 PAGE 1 OF 10

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 141.7m AZIMUTH: — ANGLE: -90 ELEVATION: 962m

NORTHING: 49 785 (approx) EASTING: 49 855 (approx)

DATE STARTED 7/02/81 DATE COMPLETED: 7/05/81

LOGGED BY: B. E Aquist

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL TOOLS PULLED. HOLE DRILLED ON SITE OF HOLE H-16.

SAMPLE IN HOLE: 3413 - 3481.

NOTE! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP. HOLE NO. H-22 PAGE 2 of 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Anglist DATE 7/15/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	SEC.	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	F...	SAMPLE DEPTH	SAMPLE NUMBER
			0 - 5.2 Overburden															
2																		
4																		
			5.2 - 31.1 Gneiss															
6			gray, med xline, foliated, locally banded, feldspar biotite, muscovite quartz, locally garnet															
8					60													
10 Box 1																		
					60													
12																		
14																		
16 Box 2					55													

ANSCHUTZ MINING CORP.

HOLE NO. H-22 PAGE 3 of 10

BLUE RIVER CARBONATITES

LOGGED BY B. E. Aaquist DATE 7/15/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
18					60														
20																			
22 Brx 3					55														
24																			
26					65														
28 Brx 4					60														
					70	Nb/Ta													
30			Basal contact sharp at 75°. One cm of amph & biotite at contact.		65 minor broken core in lower ½ m., fractures at all angles													31.1	
32			31.1 - 76.8 Beforsite			1.66	2	1	1	1		tr		210	.05	3.32		32.1	3413

AN[illegible]CHUTZ MINING CORP. HOLE NO. H-22 PAGE 4 OF 10

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 7/15/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
33 Box 5			orange - locally bleached white coarse xline ; massive			1.49	1		.5	2		tr		47	.01	4.48		33.1	3414
34			as to beforsite in preceeding 'H' series holes		local fractures of all angles.	1.89	1	.5	.5	.5		tr		37	.01	3.48		34.1	3415
			Local black, f.g. oxide pits with adjacent brown oxide stain		Local bands of biotite at 70° one cut off by a shear at 35°	1.29	.5		tr	tr		tr		54	.01	2.93		35.1	3416
36							-	-	-	-	-	-		5	ND	2.59		36.1	3417
						4.11	1	1		1		tr		17	.01	3.30		37.1	3418
38 Box 6						13.98	1.5	.5	.5	1		tr		20	.04	3.59		38.1	3419
						25.06	1.5		1.5			-		53	.19	2.54		39.1	3420
40						32.42	1.5		2	.5		tr		69	.32	3.23		40.1	3421
			below 41 m, beforsite has a sugary down to 44-3			3.50	2	1	.5			tr		40	.02	4.12		41.1	3422
42						7.77	1	tr	tr	tr				27	.03	2.23		42.1	3423
						5.64	1.5		1			.5		62	.05	2.35		43.1	3424
44 Box 7						4.11	1.5		1			.5		68	.04	1.74		44.1	3425
						11.83	1.5		1.5	1		.5		130	.22	3.39		45.1	3426
46			amph-sovite dikes cut beforsite sharp irregular contacts			5.64	1		1			.5		62	.05	1.47		46.1	3427
						2.91	1.5		1	tr		tr		48	.02	1.85		47.1	3428
48						4.30	1.5		1.5		tr	tr		130	.08	3.74		48.1	3429

AN CHUTZ MINING CORP. HOLE NO. H-22 PAGE 5 OF 10

BLUE RIVER CARBONATITES LOGGED BY B. E. Aquist DATE 7/16/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
					Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
		below 49 m, accessory minerals occur in bands with mostly barren beforsite between. Bleaching is present & cross cut mineral banding.	common orientation of bands	12.58	3		1.5	tr		tr		150	.27	2.69		49.3	3430
50				4.56	1		.5		tr	.5		230	.15	2.15		50.2	3431
				2.87	tr	tr	.5			.5		73	.03	1.73		51.1	3432
52				3.99	1	.5	.5	tr		.5		140	.08	2.84		52.0	3433
				4.05	tr		.5			tr		69	.04	1.07		52.8	3434
				5.59	1		1	tr	tr	tr		200	.16	4.01		53.4	3435
54				3.00	.5		1	tr		tr		140	.06	2.65		53.9	3436
		Below 55 beforsite has a sugary texture to 62.5'		4.81	2		1.5	1	tr	.5		320	.22	3.94		54.5	3437
				3.93	2	1	1	tr		tr		160	.09	2.56		55.3	3438
56				3.81	1.5	tr	1	tr				110	.06	2.03		56.1	3439
				4.49	3		1			.5		140	.09	3.44		56.7	3440
				3.29	3	tr	1	1		.5		170	.08	3.94		57.3	3441
58				3.50	1.5		.5			.5		120	.06	3.85		58.0	3442
				4.19	2		.5	tr		tr		100	.06	2.99		59.0	3443
				2.85	1		.5			tr		49	.02	1.89		60.0	3444
60				4.57	2.5	tr	1			.5		260	.17	3.33		60.5	3445
Bot 10				3.93	2		1			.5		160	.09	2.31		61.0	3446
				2.33	1		tr	tr		tr		30	.01	1.67		61.3	3447
				5.40	2	tr	1	tr	.5	.5		220	.17	2.57		61.8	3448
62		local 1-2 cm pyrochlore x/s		5.89	2	tr	1	1	.5	.5		760	.64	4.27		62.4	3449
				4.89	1.5	1	1	tr	tr	tr		200	.14	3.36		63.1	3450
		a mass of biotite at 64.0		3.76	2.5	tr	1			.5		130	.07	2.75		64.0	3451
64																	

AN CHUTZ MINING CORP. HOLE NO. H-22 PAG 6 OF 10

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 7/17/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
		local amph-sovite dikes		3.26	.5	tr	1			.5	150	.07	2.66	65.0	3452
Box 11			irregular fractures common at 45°	2.62	1.5	.5	1.5			tr	160	.06	3.35	65.5	3453
66				5.67	2	.5	0.5				37	.03	3.94	66.5	3454
				5.67	2	.5	.5		tr		37	.03	4.20	66.9	3455
				10.75	2.5	.5	.5				26	.04	4.15	67.9	3456
68				8.74	2	.5	.5	.5			40	.05	3.81	68.6	3457
			68.4 - 69.5 fracture parallel to core axis - core partly crumbled	10.28	2	1		tr			34	.05	3.92	69.4	3458
				4.84	2	tr	.5	tr			130	.09	3.02	69.9	3459
70				4.66	2	tr	1	.5			60	.04	4.06	70.6	3460
				6.59	2	.5	tr	tr			53	.05	3.89	71.6	3461
72				3.50	2.5	.5	tr	.5	tr		340	.17	3.35	72.5	3462
Box 12				7.77	1	tr	.5	1			18	.02	4.41	73.6	3463
74	*	local rusty spots	* 0.1 m core crumbled to coarse sand	3.08	1.5	tr	1	tr			68	.03	3.78	74.7	3464
				2.43	2	tr	1	tr			230	.08	3.40	75.6	3465
76	*	Basal contact at 76.8 lost in broken core.	* .2 m lost core core crumbled to coarse sand.	2.10	2	.5	.5	tr		tr	100	.03	4.24	76.8	3466
		76.8 - 79.6 Feldspar-Quartz white, med-coarse xline, massive													
78		77.1 - 77.5 - amph-sovite intrusive(?) in feldspar - shear contact at top & bottom.													
Box 13															
		Basal contact a shear at 40°												79.6	
80		79.6 - 82.4 Beforsite assimilated in sovite			2	.5	.5	.5			9	ND	5.10	80.2	3467

AN CHUTZ MINING CORP. HOLE NO. A-22 PAG 7 OF 10

BLUE RIVER CARBONATITES LOGGED BY B. E Aagaard DATE 7/17/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
		c	orange coarse xline beforsite with inter xline sovite, at 81.0 core become white sovite. Local bands of beforsite @2.2 to @2.4	60	amph-biotite rich band.	2	2	2	tr			5	ND	5.02	81.0	3468
		c	sovite has black hornblende 1cm common & brown biotite			.5	1.5	1.5	.5		tr	25	.02	0.35	81.7	3469
82		c	sovite-beforsite contacts gradational. Basal contact vague, irregular.			.5	.5	1.5	.5			17	.01	0.64	82.4	3470
			82.4 - 105.2 Gneiss feldspar, biotite, quartz grey, med. xline, well foliated locally banded	65												
84																
				55												
86																
88																
				60												
90																
92				54												
94																
				60												
96																

Box 14

Box 15

Box 16

ANS HUTZ MINING CORP.

HOLE NO. H-22 PAGE 8 10

BLUE RIVER CARBONATITES

LOGGED BY B. E Dagnist DATE 7/17/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
98					60 core breaks on foliation in biotite rich bands											
100					55											
Box 17																
102																
104			Basal contact sharp & irregular		60 40 cm broken core above basal contact										105.6	
106		c	105.2 - 105.6 Feldspar Quartz as above. Basal contact sharp, irregular at 55°													
		c	105.6 - 108.2 Syenite, white, med xline, weakly foliated		70	4	1	1	.5			17	ND	4.02	106.6	3471
		c	apatite 1-2 mm hornblende & magnetite <1 cm common.													
Box 18 108	30	c			core broken into coarse sand.	4	1.5	1	.5			18	ND	4.30	108.2	3472
		c	108.2 - 124.6 Interbanded Amph. - Feldspar, Gneiss & locally Syenite													
110	20															
112																

ANCHUTZ MINING CORP. HOLE NO. H-22 PAGE 9 of 10

BLUE RIVER CARBONATITES LOGGED BY B. E Aagaard DATE 7/17/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
114	20				angle of banding varies											
116				65												
118				80												
120			120.2 - 121.1 a series of sovite bands, gradational contacts with amph-feldspar	80		25	tr	3			tr	56	.21	2.00	120.2	
						1	1	8				64	.04	2.42	120.6	3473
122				35											121.1	3474
124			Basal contact lost in broken core. 124.6 - 125.9 Feldspar - Quartz dike white, coarse xline, massive, local coarse Basal contact green sharp, amph irregular x/s													
126			125.9 - 133.4 Gneiss - as above with local bands of green amph & white feldspar	80												
128																

ANSCHUTZ MINING CORP. HOLE NO. H-22 PAGE 10 OF 10

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/18/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
130				70												
132				70												
			Basal contact sharp, irregular												133.4	
			133.4 - 134.2 INTER BANDED Sovite & Gneiss units as above													
134			134.2 - 135.5 Biotite rich sovite local gneiss 10 cm feldspar dike at 135.5	60		1	.5				tr	34	.03	1.80	134.2	3475
			135.5 - 140.0 Sovite, white, med. xline moderately foliated, 1-2mm apatite			2.5	10	3				37	.04	2.84	135.5	3476
136			abrupt changes in accessory mineral content indicate multiple intrusion(?)	60		2.5	1		tr		.5	11	ND	4.44	136.5	3477
				70		2.5	1	tr	.5			12	.01	3.89	137.5	3478
138						3	1		1			14	ND	4.16	138.3	3479
							5	10				26	.03	1.24	138.7	3480
			Basal contact gradational over one cm	55		3	2	2	tr			41	.04	4.48	140.0	3481
140			140.0 - 141.7 Gneiss as above													
				65												
141.7 T.D.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-23 PAGE 1 OF 9

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 115.5 AZIMUTH: 360 ANGLE: -75 ELEVATION: 980 (approx)

NORTHING: 49,815 (approx) EASTING: 49,950 approx

DATE STARTED 7/09/81 DATE COMPLETED: 7/11/81

LOGGED BY: B. E. Aaquist

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL TOOLS PULLED; 69 - 87.5 m ROCK IS BADLY BROKEN - POOR RECOVERY; HOWEVER, STRATIGRAPHY APPEARS TO BE SIMILAR TO OTHER HOLES IN AREA.

SAMPLE NUMBERS IN HOLE ARE 3482 - 3527

NOTE! Nb values are Nb_2O_5 in %

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAGE 2 OF 9

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 07/18/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			0 - 6.0 Overburden																
2																			
4																			
6			6.0 - 13.6 Gneiss																
			gray, med. xline, massive, weakly foliated locally																
8																			
10																			
12	1 Box																		
					65	Nb/Ta													
			Basal contact sharp & irregular																
			13.6 - 13.9 Feldspar-Quartz dike white, coarse xline, massive, basal contact 32/8st in broken core															13.9	
14						12.71	1.5	.5		3		tr		11	.02	4.48		14.7	3482
			13.9 - ~~29.8~~ Befersite light orange to white, coarse xline, massive, locally cut by amph dikes with sovite borders			19.47	1.5	tr	1			.5		79	.22	2.27		16.2	3483
16																			

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAGE 3 OF 9

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 7/18/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
					Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
18 Box 3		local black rusty spots ½%		11.77	2		1					95	.16	2.12		17.7	3484
				8.58	2		1					57	.07	1.64		19.2	3485
20			core broken on irregular fractures	2.00	2	tr	.5	tr		tr		35	.01	3.08		20.7	3486
			21.7 - 25.0 core has a breccia texture, core breaks or crumbles locally	4.19	2.5	tr	.5	tr				100	.06	3.60		21.7	3487
22				4.37	1.5		tr			tr		16	.01	1.02		22.7	3488
24 Box 3				2.59	2	tr	tr					27	.01	0.81		23.7	3489
				6.21	2	tr	.5					180	.16	2.51		24.7	3490
			1 mm fracture at 10°	6.58	1.5	tr	1					170	.16	2.30		25.7	3491
26				5.91	2		.5			.2		260	.22	2.79		26.7	3492
		pyrrhotite is the sulphide mineral, a couple of grains of pyrite at 31.7		6.58	2		1			.4		170	.16	1.95		27.7	3493
28				5.66	1		.5			tr		210	.17	1.35		28.7	3494
		29.8 - 30.5 Fe Wspar - Quartz dike as above, contacts sharp & irregular. Adjacent to dike is an amph. biotite band 2 - 20 cm thick		4.66	1		.5			tr		240	.16	3.31		29.8	3495
30 Box 4								NO				SAMPLE				30.5	
				3.15			1			.5		200	.09	2.09		32.0	3496
32																	

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAGE 4 of 9

BLUE RIVER CARBONATITES LOGGED BY B E Agnist DATE 7/18/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
			32.0 - 34.8 Feldspar - Quartz dike as to 30.5.															34.8	
34																			
Box 5			34.8 - 39.7 Beforsite as above apatite 1-3 mm common, locally 5 mm.			1.84	25		1	tr				190	.05	3.79		35.7	3497
36						1.75	3	tr	1	tr	tr			160	.04	3.73		36.7	3498
						2.00	2.5	tr	1	tr				140	.04	3.73		37.7	3499
38			calcite occurs as fracture filling in beforsite, assoc shears			1.27	3	.5	tr	.5				110	.02	5.13		38.7	3500
			Basal contact vague (gradational ?)				3	.5		.5				8	ND	4.30		39.7	3501
			39.7 - 42.3 ZONE of Mixing Suite in Beforsite, Suite is white, med xline I am hornblende x/s common. Contacts appear gradational. Amph - Suite dikes cut beforsite phase		shear at 45° 39.5 - 39.7	2.91	1	2	15	5				48	.02	2.49		40.5	3502
40																			
Box 6			41.0 - 41.5 - beforsite breccia with Suite cement			3.33	.5		1	1		tr		21	.01	3.03		41.5	3503
42			42.3 - 50.9 Beforsite as above			5.38	2	.5	.5	.5		tr		13	.01	3.09		42.3	3504
							2.5	.5	.5	.5				5	ND	4.05		43.0	3505
44							1	.1	.1	.1				5	ND	3.79		44.5	3506
							2	.5	.5	tr				18	ND	4.35		45.6	3507
46							2	.5	.5	tr				15	ND	3.75		46.8	3508
Box 7					beforsite is fractured by shears parallel to core axis @ at 60°		1	tr	.2	.5		tr		6	ND	4.94		47.9	3509
48																			

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAGE 3 OF 9

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 7/19/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50			Basal contact . gradational		core locally crumbles because of shears	2	.5		.5			<5	ND	4.96	48.9	3510
			50.9 - 52.6 Sovite white, med. xline			2	.2		.5			<5	ND	7.06	49.9	3511
			apatite - content varies 0-1% black hornblende & a green amph		lost core because sovite locally crumbled to coarse sand	2	.5		1			<5	ND	4.42	50.9	3512
52	65		Basal contact irregular at ±5°, 1 cm band of amph at contact.			.5	1	1	.1			20	.01	1.34	52.6	3513
			52.6 - 53.2 Feldspar - Quartz dike as above, basal contact sharp, irregular													
54	Box 8		53.2 - 69.2 Gneiss		20											
			feldspar, biotite, quartz													
56			grey, med. xline, well. foliated, locally banded		80											
58	Box 9				70											
60																
62					55											
64																

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAGE 6 of 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/19/21

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66	Box #1														
68			Basal contact lost in broken core												
			69.2 - 82.6 Sovite											69.2	
70	18		white, med. xline, weakly foliated most of the core crumbled to a coarse sand, low recovery local amph rich phases								15	.02	0.61	70.1	3514
72	21										5	ND	4.80	72.2	3515
	Box #1										20	.01	4.27	73.75	3516
74	58										<5	ND	5.04	75.3	3517
76				65							16	.01	2.70	78.3	3518
78	35														
	11										12	.01	1.70	81.4	3519
80															

CORE TOP BROKEN FOR GOOD VALID ESTIMATE

ANSCHUTZ MINING CORP. HOLE NO. A-23 PAGE 7

BLUE RIVER CARBONATITES LOGGED BY B.E Aagaard DATE 7/19/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
	11															
82	39		82.6 – 84.4 Gneiss as above core ground									20	.02	0.53	82.6	3520
	90											<5	.01	0.21	83.1	3521
84	50		84.4 – 86.6 Sovite as above									7	.02	0.46	84.4	3522
	41											110	.03	4.05	86.6	3523
86			86.6 – 105.9 Interbanded amph-feldspar sovite & gneiss angle of banding varies													
	12		Box 12													
88	15															
90					55											
92			Box 13		80											
94					85											
96																

N/A CORE TOO BROKEN

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAG 8 of 9

BLUE RIVER CARBONATITES LOGGED BY B. E Aagaard DATE 7/19/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
98	Box 14		some bands are lens like in shape, contacts are sharp to gradational, most bands are less than 10 cm thick		80											
100																
102					80											
104	Box 15		Basal contact interfingering with 2-5 mm thick bands.													
106			105.9 - 110.1 Syenite white, med. xline, foliated local abrupt changes in grain size without change in accessory mineral content, but with corresponding change in their size		85										105.9	
						4	3			tr	tr	65	.02	3.06	106.9	3524
108					75	3.5	1	.5	.5			12	ND	4.85	107.9	3525
			Basal contact sharp at 70°			4	.5	.5	1			11	ND	4.35	108.9	3526
110			110.1 - 115.5 Gneiss as above			4	2	.5	.5			34	.02	4.56	110.1	3527
			110.3 - 110.4 Feldspar-Quartz dike													
112																

ANSCHUTZ MINING CORP. HOLE NO. H-23 PAG 9 F 9

BLUE RIVER CARBONATITES LOGGED BY B.E Aagaard DATE 7/19/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
	50				mica rich gneiss core crumbled.														
114				45															
	100																		
-115.5 T.D.																			

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-24 PAGE 1 OF 5

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 55.5 AZIMUTH: 360 ANGLE: -70 ELEVATION: 1076

NORTHING: 49828.8 EASTING: 50265.2

DATE STARTED 8/12/81 DATE COMPLETED: 8/14/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL CASING PULLED

SAMPLE NUMBERS IN HOLE ARE: 3672 - 3702

ANSCHUTZ MINING CORP. HOLE NO. H-24 PAG 2 of 5

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 5.5 Overburden													
4																
6			5.5 - 24.5 Gneiss - well banded, greyish color - local feldspar - quartz dikes - some of the dikes appear to contain orthoclase (orange) - biotite & muscovite present in local bands. Also associated with high conc. of amph. - there are no visible sulphides.		fractured core											
8																
10	71% Rec.															
12	80% Rec.				fractured core											
14	Box 1															
16																

ANSCHUTZ MINING CORP.

HOLE NO. A-24 PAG 3 of 5

BLUE RIVER CARBONATITES

LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb_2O_5 ppm/%	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
18	Box 2				fractured														
					80														
20					70														
					Broken Core														
22	Box 3 84% Rec				90														
					85														
24																		24.5	
			24.5 - 52.4 Beforesite Carbonatite		65 Hanging Wall Contact	1.66	1	1	1	3	–	2	≈	160	.038	4.02		25.0	3672
26			- orange color		75	1.84	3	1	1	3	tr	1		91	.024	4.62		26.0	3673
			- local magnetite			1.36	2	1	1	2	tr	tr		41	.008	3.56		27.0	3674
			- local amph			11.38	1	1	2	1	tr	1		51	.083	3.61		28.0	3675
28	Box 4		- weakly magnetic, local, pyrrhotite			1.40	1	1	1	4	–	1		40	.008	4.38		29.0	3676
					20	6.12	2	2	1	3	tr	1		8	.007	3.78		30.0	3677
30						1.40	1	1	2	3	tr	1		30	.006	3.34		31.0	3678
32						13.34	2	tr	1	1	–	tr		11	.021	3.30		32.0	3679

ANSCHUTZ MINING CORP. HOLE NO. UH-24 PAGE 4 OF 5

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %				
34 Box 5						12.90	1	1	1	4	-	.5	39	.072	3.45		33.0	3680	
					55	6.20	1	1	2	3	-	2	160	.142	1.75		34.0	3681	
					60	4.26	1	1	1	2	-	2	110	.067	1.54		35.0	3682	
36						4.94	tr	1	3	3	tr	2	160	.113	2.70		35.9	3683	
					35	4.84	1	2	4	6	tr	1	430	.298	3.91		36.4	3684	90
						4.05	1	1	2	1	tr	1	200	.116	2.52		37.0	3685	
					65	3.22	1	2	4	5	tr	2	280	.129	3.45		37.5	3686	90
38						4.12	2	1	3	4	tr	1	56	.033	2.50		38.5	3687	70
					70	6.46	1	3	2	2	tr	1	170	.157	2.94		39.5	3688	100
40 Box 6						2.27	1	-	15	-	-	-	83	.027	1.50		40.5	3689	60
					55	2.73	1	10	25	3	-	tr	110	.043	2.20		41.5	3690	
42						3.76	2	1	2	1	<.5	1	130	.070	2.95		42.3	3691	70
			Fractured Core		73	2.77	1	-	1	2	tr	tr	250	.099	3.65		42.8	3692	
						2.80	2	1	1	1	tr	tr	140	.056	2.81		43.8	3693	
44						2.56	1	-	1	2	tr	1	90	.033	3.67		44.6	3694	100
					90	3.27	2	3	2	2	-	1	94	.044	3.56		45.6	3695	
46 Box 7						2.10	1	1	5	2	tr	1	100	.030	2.48		46.6	3696	
					80														
			Fractured Core		97.5	2.69	1	2	5	2	tr	-	130	.050	2.70		47.9	3697	70
48																			

ANSCHUTZ MINING CORP. HOLE NO. H-24 PAGE 5 OF 5

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %			
50						2.40	1	1	8	2	tr	1	180	.062	3.10		48.9	3698
						1.67	1		10	2	tr	2	130	.031	3.43		49.4	3699
						2.10	1	1	4	1	tr	1	220	.066	3.42		50.0	3700
					Fractured Core.	2.80	1	3	2	2	tr	1	10	.004	4.03		51.0	3701
52			52.4 - 55.5 Gneiss - well banded, grey color - non magnetic pyrrhotite locally - biotite & muscovite present.		Basal Contact not possible To fractured.	5.59	1	2	2	3	–	–	5	.004	4.24		52.4	3702
Box 8 / Box 9																		
54																		
			55.5 END OF HOLE															
56																		
58																		
60																		
62																		
64																		

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-25 PAGE 1 OF 5

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 62.8 AZIMUTH: 360 ANGLE: -75 ELEVATION: 1071

NORTHING: 49791.9 EASTING: 50198.8

DATE STARTED 8/14/81 DATE COMPLETED: 8/16/81

LOGGED BY: B. E. AAQUIST

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL CASING PULLED

SAMPLE NUMBERS IN HOLE ARE: 3723-3739

ANSCHUTZ MINING CORP. HOLE NO. BH-25 PAGE 2 of 3

BLUE RIVER CARBONATITES LOGGED BY B.E. Anquist DATE 8/28/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 6 Overburden.													
4																
6			6 - 43.9 Gneiss gray; med. xline, mostly massive poor to well foliated quartz, feldspar, biotite local muscovite & pink garnets. local white quartz-feldspar units		broken bedrock											
8	65			75												
10		Box 1														
12				85												
14		Box 2		80												
16																

ANCHUTA MINING CORP. HOLE NO. H-25 PAGE 3 of 5

BLUE RIVER CARBONATITES LOGGED BY R.E Aaquist DATE 8/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 2				70	core breaks along foliation every 10-20 cm											
18				85												
20				85												
Box 3 22																
24				85												
26																
Box 4 28				60												
30																
Box 5 32				75												

ANSCHUTZ MINING CORP. HOLE NO. H-25 PAGE 4 of 5

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
34	Box 5		0.3 meters of med. to coarse xline amph.		local broken core in biotite rich sections														
36																			
38																			
40	Box 6																		
42			Basal 2 meters have feldspar bands & feldspar rich gneiss															44.7	
44	Box 7		43.9 - 44.7 Feldspar - Quartz white, med xline, massive basal contact lost in broken core		fractures at 25°	Nb/Ta													
46			44.7 - 58.7 Beforsite orange, med. to coarse xlines, massive with local banding of accessory minerals.		broken core	2.13	1	tr	2		tr	1		230	.070	3.15		46.0	3723
						2.83	1	tr	5		tr	1		190	.077	3.05		46.7	3724
			local amph.-sovite filled fractures py altered to black oxide locally		Broken core	2.54	3	tr	2	1				110	.040	2.64		47.5	3725
48						3.78	3	tr	1	1		tr		74	.040	3.53		48.2	3726

ANSCHUTZ MINING CORP. HOLE NO. H-25 PAGE 5 of 5

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 8/28/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
					Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
50		core locally pitted 1-2 mm deep. 3-4 mm across	fractures parallel to core axis, locally calcite filled	2.78	3	1	1	1				93	.037	3.65		48.7	3727
				2.58	3	1	1	1	.1	1		330	.122	3.70		49.3	3728
				3.13	3	.2	1	.1	tr			96	.043	1.32		49.9	3729
				2.85	3	1	1	1	tr			140	.057	3.71		50.7	3730
		51.6 - 54.3 beforsite gouge	50.1 - 50.7 broken core	4.13	3	1	1	1	tr			320	.189	3.80		51.6	3731
52	37			2.43			N/A					210	.073	3.93		52.4	3732
	15			2.10			N/A					170	.051	4.10		53.3	3733
54		a couple of zircon xls.	broken core breccia texture due to fractures 55.5 - 56.4 sand size broken core	1.75			N/A					52	.013	5.46		55.0	3734
	90	below 56.4 beforsite has a breccia texture cemented with white calcite local, irregular amph. - calcite filling veinlets.		1.96	2	1	1	1				57	.016	3.29		55.5	3735
56				2.86			N/A					22	.009	2.43		56.4	3736
				3.50	1	2	1	1				18	.009	2.79		57.2	3737
58		basal contact lost in broken core.		4.25	2	2	2	1				23	.014	2.16		58.0	3738
				2.47	3	1	.5	1		1		17	.006	4.11		58.7	3739
		58.7 - 62.8 Gneiss															
60		light gray as above. local irregular qtz-feldspar masses	irregular banding, locally parallel to core axis														
62																	
62.8 T.D																	

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-26 PAGE 1 OF 7

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 93.3 AZIMUTH: 360 ANGLE: -75 ELEVATION: 1047

NORTHING: 49779.8 EASTING: 50 112.4

DATE STARTED 8/17/81 DATE COMPLETED: 8/20/81

LOGGED BY: B.E. Oaquist

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL CASING PULLED.

SAMPLES NUMBERS IN HOLE ARE: 3740-3747

NOTE Nb VALUES ARE Nb_2O_5 IN %

ANCHUTZ MINING CORP. HOLE NO. H-26 PAGE 2 of 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 8/29/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
			0 - 5 Overburden															
2																		
4																		
			5 - 77.7 Gneiss Quartz, feldspar, biotite, local muscovite med. x line, gray, well foliated local boudinaged quartz-feldspar masses.		70													
6																		
8	Box 1				70													
10																		
12					70													
14	Box 2				70													
16																		

ANCHUTE MINING CORP. HOLE NO. H-26 PAGE 3 OF 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 8/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
18																			
20 Box 3																			
22																			
24																			
26 Box 4																			
28																			
30 Box 5																			
32																			

ANSCHUTZ MINING CORP. HOLE NO. H-26 PAGE 4 of 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 8/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 5				70												
34			local pink garnets													
36				45												
Box 6			37.38 quartz feldspar bands with local amph bands		lenjen gneiss in garnet muscovite rich phases											
38				55												
40																
42				75												
Box 7																
44				75												
46																
	1		6 cm qtz vein at 47.1	85												
49																

ANSCHUTZ MINING CORP. HOLE NO. H-26 PAGE 5 of 7

BLUE RIVER CARBONATITES LOGGED BY B.S. August DATE 8/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50 Box 8					core broken locally on foliation											
52					vuggy fracture calcite filled											
54					broken core locally											
56 Box 9				70												
58				75												
60																
62 Box 10				70												
64																

ANSCHUTZ MINING CORP. HOLE NO. H-26 PAGE 6 of 7

BLUE RIVER CARBONATITES LOGGED BY B. E Aagaard DATE 8/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
66			qtz - feldspar rich, gneiss with local amph bands 64–67		78														
68	Box 11		quartz bands		broken core														
70	75		below 68 gneiss is more biotite rich																
72					55														
74	Box 12	70																	
76			white [illegible] core broken basal contact lost in broken core.		broken core														
78	50		77.7 – 81.2 Amph-Syenite, green, med. to coarse xline, coarsely banded due to variations in x'l. size. local fg. pyrrhotite, c.g. biotite		70														
80																			

ANSCHUTZ MINING CORP. HOLE NO. [illegible] PAGE 7 of 7

BLUE RIVER CARBONATITES LOGGED BY B.S Taylor DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			basal contact lost in broken core												81.2	
82	Box 13		81.2 - 88.5 Sovite white, med. x'line, weakly banded. olivine x/s up to 1cm. magnetite up to 4 cm; some magnetite has olivine & apatite in it local books of biotite up to 2 cm long. 1 mm apatite common. biotite locally green amph-sovite as to 81.2 @ 86.5 basal contact lost in broken core		sovite locally crumbles to coarse sand.	3	3	2	3			21	.003	4.78	82.1	3740
84						3	2	3	2			5	.004	5.33	83.0	3741
						3	3	3	2			5	.004	4.97	84.0	3742
						3	3	2	1			17	.007	4.30	84.8	3743
86						4	4	1	1			13	.007	4.76	85.8	3744
						4	4	1	1			36	.011	3.88	[illegible]	3745
88	Box 14					4	3	2	2		tr	18	.006	5.29	87.8	3746
						4	2	3	3		.5	13	.006	4.87	88.5	3747
90																
			91.5 - 91.9 quartz-feldspar													
92	Box 15															
93.3 T.D.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-27 PAGE 1 OF 8

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 99.1 AZIMUTH: — ANGLE: -90 ELEVATION: 998

NORTHING: 49 744.4 EASTING: 4997.6

DATE STARTED 8/21/81 DATE COMPLETED: 8/23/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

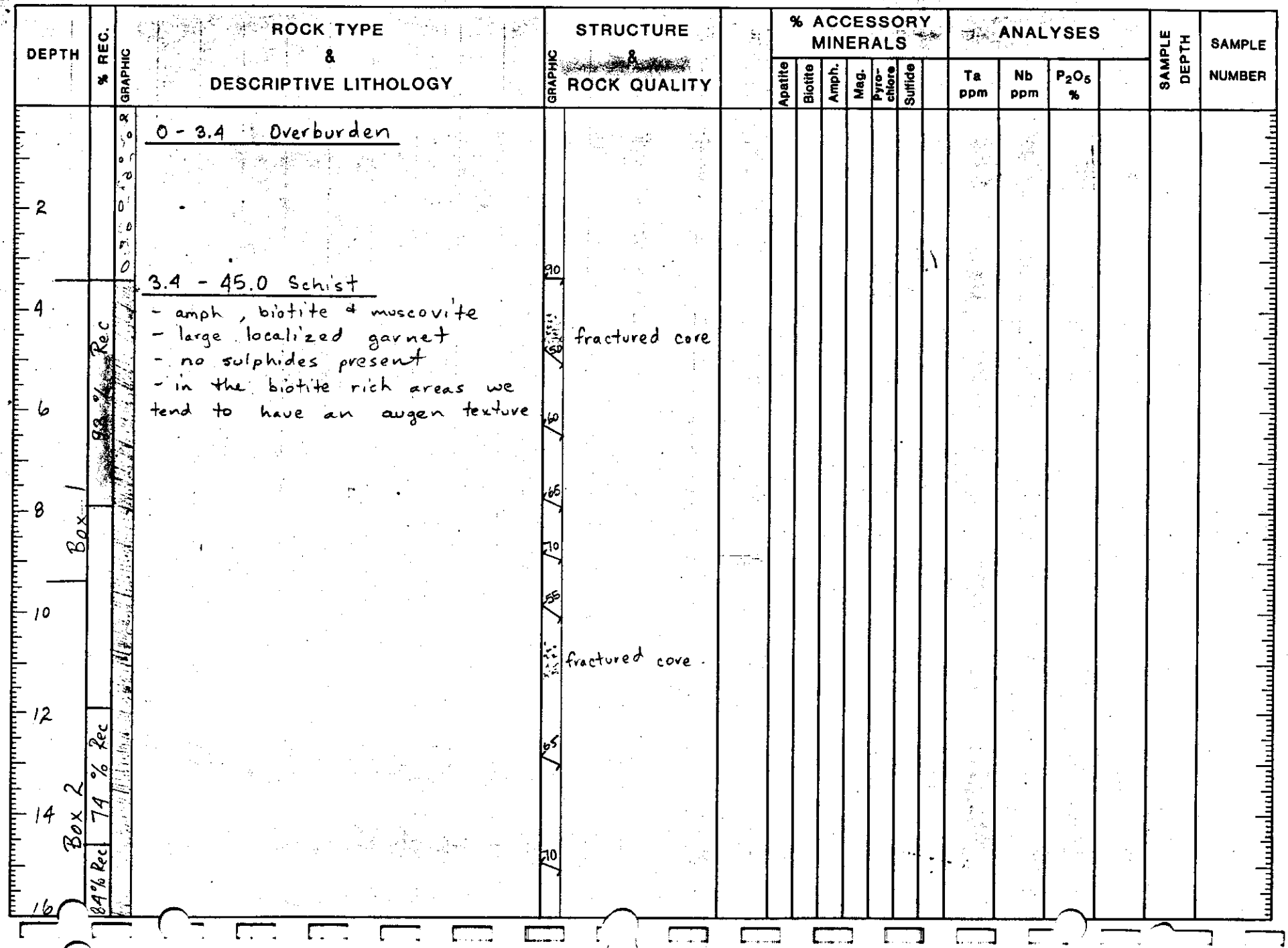
HOLE & SITE DESCRIPTION: ALL CASING PULLED.
SAMPLE NUMBERS FROM HOLE ARE 3748 - 3788

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H - 27 PAGE 2 OF 8

LOGGED BY BRADLEY BROWN DATE 8/30/81



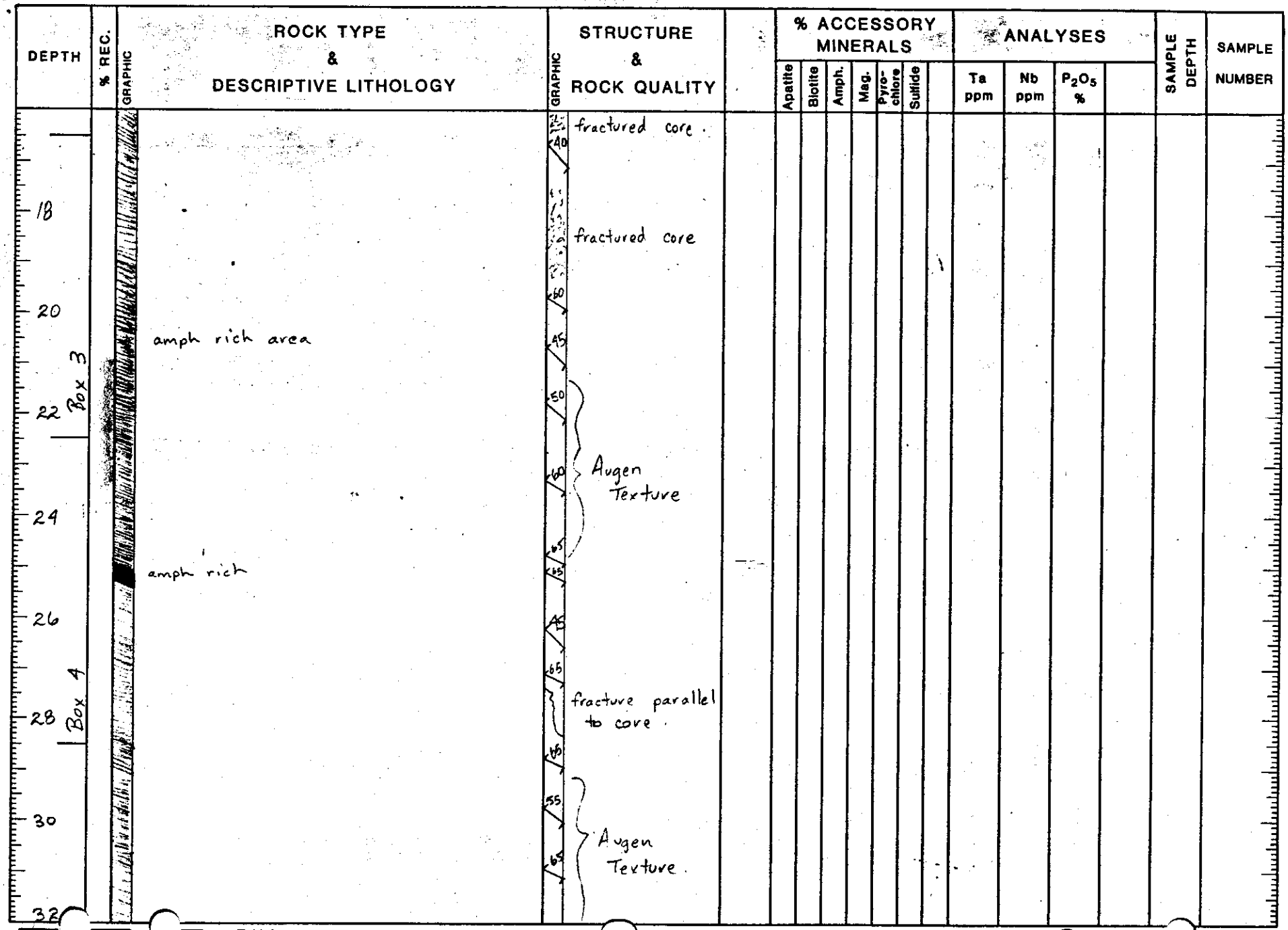
ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-27

LOGGED BY BRADLEY BROWN

DATE 8/30/81



ANSCHUTZ MINING CORP.

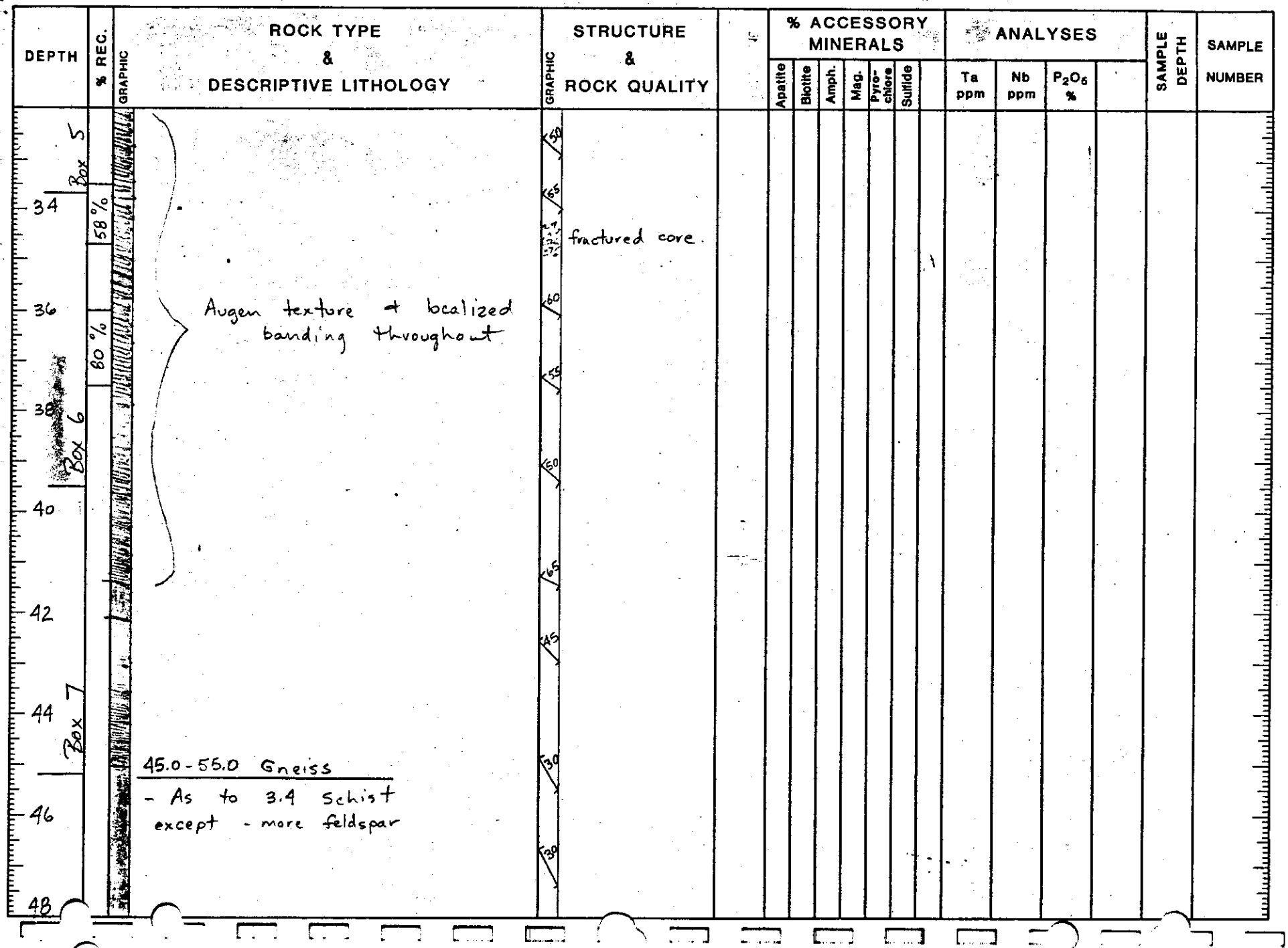
BLUE RIVER CARBONATITES

HOLE NO. H-27

LOGGED BY BRADLEY BROWN

PAGE 4 OF

DATE 8/30/81



ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H - 27

LOGGED BY BRADLEY BROWN

DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
50 Box 8																55.0		
52			55.0 - 94.5 Beforesite Carbonatite - orange color - local, magnetite, amph, & magnetic pyrrhotite.		Hanging Wall Contact	4.19	1	-	tr	tr	tr	tr	55	.033	1.04	56.0	3748	
54						2.91	1	2	2	1	tr	tr	240	.100	2.45	57.0	3749	
56 Box 9						2.45	1	1	2	1	tr	1	60	.021	2.22	57.9	3750	
58						3.22	1	1	3	2	.5	1	280	.129	3.93	58.5	3751	130
						2.55	1	2	2	2	tr	2	140	.051	1.38	59.5	3752	
60					fractured core	2.95	tr	2	1	3	tr	1	140	.059	2.53	60.0	3753	90
						3.05	1	2	3	2	tr	1	190	.083	3.29	61.0	3754	
62 Box 10						3.91	1	1	3	1	tr	.5	220	.123	3.30	62.0	3755	90
						4.06	1	1	2	4	tr	1	210	.122	2.97	63.0	3756	
64					fractured core.	4.49	-	1	2	1	-	1	120	.077	2.90	63.5	3757	
									N	/	A							

ANSCHUTZ MINING CORP. HOLE NO. H - 27 PAGE 6 OF 8

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/31/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
66	16 % Rec				Sandy, fractured Core.	3.50			N/			A		120	.060	4.70		66.4	3758
						3.22	1	1	2	1	-	-		100	.046	2.25		67.0	3759
68	58 %				To chalky & worn for angles.	3.00	1	-	1	1	-	-		140	.060	2.57		68.0	3760
						3.81	1	-	1	1	-	-		110	.060	2.87		69.0	3761
70						2.74	1	-	2	1	tr	-		120	.042	2.42		70.0	3762
						3.12	1	1	2	2	tr	1		150	.067	2.03		71.0	3763
72	80 %					2.92	1	2	2	3	tr	1		220	.092	3.01		72.0	3764
	Box 11					3.06	1	2	2	2	tr	1		160	.070	2.47		73.0	3765
74						5.61	2	2	2	2	tr	1		71	.057	4.18		74.0	3766
						6.07	2	5	3	2	tr	1		99	.086	4.43		75.0	3767
76					fractured core	16.98	2	5	8	6	tr	1		70	.170	2.99		76.0	3768
						14.35	1	10	7	3	-	2		150	.308	3.22		77.0	3769
78	Box 12					5.74	2	3	4	2	-	1		78	.064	4.01		78.0	3770
						6.52	3	1	2	2	-	1		30	.028	3.42		79.0	3771
80					fracture parallel to core	5.15	2	3	3	2	tr	1		38	.028	3.19		80.0	3772

ANSCHUTZ MINING CORP. HOLE NO. H-27 PAGE 7 OF 8

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/31/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
							Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %				
82					fractured core	2.23	1	2	3	3	tr	tr		210	.067	3.05		81.0	3773	70
						3.16	3	2	1	4	tr	1		31	.014	3.97		81.9	3774	
						2.19	3	1	3	4	tr	1		230	.072	4.46		82.4	3775	120
						3.72	2	2	3	2	tr	2	1	62	.033	2.52		83.4	3776	60
84						2.00	2	1	2	2	.5	1		220	.063	3.18		83.9	3777	60
					fracture parralel to core	2.78	2	1	1	3	tr	2		68	.027	4.29		85.0	3778	
86						2.15	3	5	4	8	tr	1		13	.004	2.95		86.0	3779	
						1.75	2	3	6	4	tr	.1		12	.003	2.98		87.0	3780	
88							1	4	8	2	-	1		7	<.001	2.99		88.0	3781	
						1.00	2	3	4	3	-	2		7	.001	4.51		89.0	3782	
90						3.50	2	1	3	4	-	1		5	.003	6.38		90.0	3783	
							1	4	4	4	tr	2		<1	.001	5.54		91.0	3784	
92					fractured core	3.81	1	7	3	2	tr	2		11	.006	2.27		92.0	3785	
							1	3	4	3	-	1		12	.007	3.18		93.0	3786	
94						3.18	1	3	4	3	-	tr		22	.010	.88		94.0	3787	
					BASAL CONTACT	5.05	1	6	10	3	-	1		18	.013	.63		94.5	3788	
96																				

Box 13

Box 14

Box 15

← checked for zonite BEA 10/14/81

Probably syenite BEA 12/21/81

94.5 - 99.1 gneiss
(As to 45.0)

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. H-27

LOGGED BY BRADLEY BROWN

DATE 8/31/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
98			END OF HOLE (99.1)		20° 10°											
100																
102																
104																
106																
110																
112																
114																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-28 PAGE 1 OF 7

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 90.8 AZIMUTH: — ANGLE: -90 ELEVATION: 1001

NORTHING: 49704.0 EASTING: 49933.4

DATE STARTED 8/23/81 DATE COMPLETED: 8/26/81

LOGGED BY: B.E. Aquist

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: CASING LEFT IN HOLE
NO CARBONATITE WAS INTERSECTED. THE
VERITY BEFORSITE SHOULD HAVE BEEN INTERSECTED
BASED ON CROSS SECTION PROJECTIONS.

ANSCHUTZ MINING CORP. HOLE NO. H-28 PAGE 2 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 4 Casing													
4			4 - 90.8 Gneiss - Schist gray, med. xline, well foliated local boudinaged qtz feldspar.		55											
6																
8					minor broken core in mica rich sections											
10					55											
12																
14					55											
16																

ANSCHUTZ MINING CORP. HOLE NO. H-28 PAGE 3 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.A. Aaquist DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18					60											
20			garnets present locally													
22					55											
24					48											
26																
28					55 local broken core in mica rich section											
30					65											
32																

ANSCHUTZ MINING CORP. HOLE NO. H-28 PAGE 4 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E Aagaard DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
34				60	local broken core, shears x-cut foliation														
36																			
38				65															
40				65															
42			chlorite - amph rich schist locally																
44			locally garnet & bluish micaceous schist	65															
46				55															
48				60															

ANSCHUTZ MINING CORP. HOLE NO. H-28 PAGE 5 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
50			gradational changes in mineral ratios		70														
52																			
54					60														
56					70														
58																			
60					65														
62					60														
64					55														

ANSCHUTZ MINING CORP. HOLE NO. H-28 PAGE 6 OF 7

BLUE RIVER CARBONATITES LOGGED BY R.E. Aaquist DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66				55	core broken locally along foliation											
68																
70				65												
72					cored well											
74				69												
76				70												
78				80	broken - core											
80																

ANSCHUTZ MINING CORP. HOLE NO. H-28 PAGE 1 OF 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Bergquist DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
82					cored well												
84																	
					25												
86																	
88																	
					10												
90																	
90.8 T.D.																	

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-29 PAGE 1 OF 2

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 15.5 AZIMUTH: 360 ANGLE: -75 ELEVATION: 1101

NORTHING: 49835.6 EASTING: 50364.0

DATE STARTED 8/28/81 DATE COMPLETED: 8/30/81

LOGGED BY: R. D. ROQUIST

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: HOLE COLLARED IN VERITY BEFORSITE UNIT, CORE BROKEN WITH MUCH CLAY. HOLE ABANDONED AT 15.5 m & DRILL BACKED UP 50 METERS.

ANSCHUTZ MINING CORP. HOLE NO. H-29 PAGE 1 OF 2

BLUE RIVER CARBONATITES LOGGED BY B.E. August DATE 8/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			0-5.5 Casing													
2																
4																
			5.5-8.5 Graval													
6																
	20															
8																
			8.5-15.5 Beforsite													
			broken bedrock with seams of clay													
10			beforsite is orange med-coarse xline		fractures at 1/cm cut beforsite at all angles											
	27															
12																
	57															
14																
	55															
15.5 T.D.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. H-30 PAGE 1 OF 3

PROPERTY: VERITY AREA N.T.S. NO. 83D/6E

DEPTH: 24.4 AZIMUTH: 360 ANGLE: -75 ELEVATION: 1107

NORTHING: 49,790 EASTING: 50 346

DATE STARTED 8/30/81 DATE COMPLETED: 9/01/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BOART SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL CASING PULLED

SAMPLE NUMBERS IN HOLE ARE: 3789 - 3798.

ANSCHUTZ MINING CORP. HOLE NO. H-30 PAGE 1 OF 3

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 9/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 6.1 Overburden													
4																
6			6.1 - 6.2 Gneiss - grey, not enough sample to identify.												6.1	
8	Recovery 57 %		6.2 - 22.0 Beforesite Carbonatite - orange color - very weathered, broken, sandy texture. - amph, magnetite, chlorite & biotite locally.		Sandy Texture			N/A				70	160	3.30	8.5	3789
10								N/A				23	120	3.91	10.9	3790
12								N/A				5	10	4.36	13.2	3791
14	30x							N/A				5	20	4.48	15.6	3792
16																

No RAD.

ANSCHUTZ MINING CORP. HOLE NO. 11-30 PAGE 2 OF 3

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 9/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	U ppm	SAMPLE DEPTH	SAMPLE NUMBER
								N	/	A		<1	10	4.69		16.6	3793
					Sandy			N	/	A		8	70	2.40		17.5	3794
18								N	/	A		12	40	2.08		18.6	3795
						2	3	4	4	–	1	8	40	2.56		20.0	3796
20						2	2	3	3	–	1	14	70	1.86		21.0	3797
					Sandy												
					BASAL CONTACT			N	/	A		12	50	2.66		22.0	3798
22			22.0 – 24.4 Gneiss – well banded, augen texture – local amph, chlorite, feldspar & biotite.														
			24.4 END OF HOLE														
24																	
26																	
28																	
30																	
32																	

NO RAD.

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. M-8 PAGE 1 OF 7

PROPERTY: MILL AREA N.T.S. NO. 83D/6E

DEPTH: 66.75 AZIMUTH: 090 ANGLE: -60° ELEVATION: ~807

NORTHING: 52,000 EASTING: 50380

DATE STARTED MAY 17, 1981 DATE COMPLETED: MAY 21, 1981

LOGGED BY: B. E. AAQUIST

DRILL COMPANY: BORTZ CORE SIZE: NQ

HOLE & SITE DESCRIPTION: SITE ON ROAD, COLLAR EAST SIDE OF ROAD. HOLE WAS STARTED AT -56° EAST BUT BECAUSE THE DRILL WAS NOT PROPERLY ANCHORED THE DRILL SHIFTED & BOTH RODS & CASING BROKE. DRILL WAS MOVED NORTH 1 METER & THE HOLE REDRILLED AT -60°. CORING WAS STARTED ON THE SECOND HOLE AT 14.6 METERS. ALL TOOLS, EXCEPT 3 METERS OF CASING, WERE REMOVED FROM THE FIRST HOLE. ON THE ATTACHED LOG, THE SECOND HOLE IS CALLED M-8a.

AMAX MINING CORP. HOLE NO. [illegible] PAGE [illegible]

BLUE RIVER CARBONATITES LOGGED BY B.B. AAQUIST DATE 5/21/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
1			0 - 11 Overburden													
2																
3																
4																
5																
6																
7																
8																
9																
10																
11			11.0 - 16.10 Gneiss feldspar, biotite, amphibolite well to poorly banded, local variations in mineral content results in a light gray to green color		rock cores well, core breaks on foliation											
12																
13																
14																
15			Contact with carbonatite lost in broken core.													
16																

ANCHOR MINING CORP. HOLE NO. [illegible] PAG [illegible]

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 5/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			16.1 - 16.8 Amphibolite Feldspar Carbonate light green medium to coarse x/ine amphibole in irregular bands & masses in white feldspar & minor calcite. Basal contact sharp & irregular.												16.1	
								50				44	.03	1.88	16.8	3002
17			16.8 - 17.2 Sovite Carbonatite upper half is light gray, lower half dark gray contact between the two is sharp at 90°. Magnetite up to 5mm		Sovite has an irregular, discontinuous laminar texture similar to welded tuffs. Basal contact sharp at 30°	5			3			15	.01	5.50	17.2	3003
18												8	.01	0.69	18.2	3004
			17.2 - 18.2 Gneiss as to 16.1 basal contact sharp at 60°													
19			18.2 - 19.2 Sovite Carbonatite light gray & banded as to 17.4		a mass of amphibolite at 19.0 as to 16.7	4	5	3	2			55	.03	3.48	19.2	3005
			19.2 - 19.45 Amphibolite as to 16.7 contacts sharp & irregular									13	.03	3.19	19.45	3006
20			19.45 - 20.3 Sovite Carbonatite as to 19.2			4	5	3	1			57	.03	2.93	20.3	3007
			20.3 - 21.8 Amphibolite as to 16.7 feldspar pure phases appear to x-cut amphibole - calcite, basal contact irregular & indistinct													
21								50				22	.04	0.89	21.8	3008
			21.8 - 22.4 Sovite Carbonatite as to 19.2 some bands of amph. x/s, x/s up to 5mm magnetite clots up to 1cm.													
22					banding locally distorted around amph-vermiculite clots	4	8	5	2			33	.03	3.82	22.4	3009
23			22.4 - 24.4 Amphibolite as to 16.7													
								80				31	.09	3.05	24.4	3010
24																
24.4			HOLE ABANDONED WHEN RODS & CASING BROKE IN HOLE.													

ANSHUTZ MINING CORP. HOLE NO. M-8 PAGE 4 of 7

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 5/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER	
			0 – 14.6 Casing, no core recovered															
14			14.6 – 15.85 Gneiss feldspar, biotite m.g. gray		banding developed only locally													
15			Basal contact sharp 70°	70°	good core													
16			15.85 – 17.40 Sovite Carbonatite light grey, f.g. carbonate with 2mm apatite xls, up to 5 mm magnetite basal contact lost in broken core.	60	irregular 1mm laminae of vermiculite											15.85		
17			17.4 – 18.6 Gneiss as above with local bands of light green m.g. masses of amphibole basal contact irregular			5	5		2			6	.01	0.44		17.4	3011	10
18			18.6 – 20.4 Sovite Carbonatite as above, local magnetite masses up to 1cm	70								14	.02	2.89		18.6	30	0
19			19.0 – 19.3 green, coarse xline amph with coarse vermiculite, 2 cm of coarse xline calcite at contacts. basal contact irregular.															
20			20.4 – 21.2 Amphibole, Feldspar Vermiculite light green & white, medium xline basal contact indistinct	60		5	5	10	2			55	.04	3.14		20.4	3013	10
21			21.2 – 22.3 Sovite Carbonatite as to 20.4. Amph & vermiculite content varies locally. basal contact indistinct	55	irregular banding		5	40				38	.09	2.25		21.2	3014	0
22			22.3 – 24.2 Sovite Carbonatite as above with local amphibolite rich phases & altered gneiss(?).	65		4	4	2	2			48	.03	3.28		22.3	3015	15
23																		
24			24.2 – 26.5 Amphibole, Feldspar-Carbonate m.g., green, down to 25.1 is banded below 25.1 is massive, to poorly banded with green amphibole, white feldspar. Feldspar appears to be intrusive into amphibole locally. basal contact lost in broken core			4	7	7				92	.09	2.54		24.2	3016	15
25												15	.08	0.94		25.1	3017	
26			26.5 – 27.0 Sovite Carbonatite as to 20.4. basal contact lost in broken core	70								18	.06	1.21		26.5	3018	
27			27.0 – 28.6 Amphibole, Mica, Calcite green, m.g. – c.g., mostly massive basal contact gradational over 1 cm.									37	.04	3.21		27.0	3019	
28							40	30				21	.04	2.82		28.6	3020	

ANA NORTH MINING CORP. HOLE NO. M-82a PAGE 5 of 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 5/29/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER	
				Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %				
29		28.6 - 32.2 Sovite Carbonatite as to 17.4. 29.0 - 29.7 is a mica, amph. enriched zone.		4	20	15				15	.02	3.25		29.7	3021	10
30				4	5		2			5	.01	4.83		31.0	3022	5
31		basal contact lost in broken core.	55													
32		32.2 - 32.65 Sovite Carbonatite light green to white c.g. massive basal contact sharp & irregular		3	5	2	1		1	37	.03	3.61		32.2	3023	5
33		32.65 - 41.15 Sovite Carbonatite coarse xline, white, massive pyrrhotite occurs as f.g. masses 2-5mm, locally a black submetallic mineral occurs, with pyrrhotite at 33.6 chalcopyrite grains occur with it also. Magnetite x/s up to 6 cm long occur locally, 1cm is common.	above 35 m carbonatite has a breccia texture with fractures at 25° common.	1	2	10		1	2	130	.09	6.14		32.65	3024	50
34				2	1		1		2	—	.19	3.00		34.0	3025	
35				2			2		2	92	.22	2.75		35.5	3026	
36				2			4		1	110	.42	4.58		37.0	3027	
37																
38				4	2		2		1	49	.25	4.33		38.5	3028	
39	80			3	2		1		1	95	.37	2.73		40.0	3029	
40																
41	20	Basal contact lost in ground core								5	.01	0.25		41.15	3030	
42	90	41.15 - 66.75 Gneiss - feldspar, mica m.g., mica defines foliation mineralogy is uniform throughout														
43	40	local white massive m.g. feldspar units: 58.4 - 59.7 65.3 - 66.75	core lost rock broken & mislatch													
44	5															

ANSCHUTZ MINING CORP. HOLE NO. M-8a PAGE 6 OF 7

BLUE RIVER CARBONATITES LOGGED BY R.E. Aagaard DATE 5/29/

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
45																
46				60												
47																
48																
49																
50				77												
51				78												
52																
53																
54																
55																
56																
57				60												
58																
59			Both contacts lost in broken core both feldspar units have a couple of % muscovite occuring in clusters.													
60																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. M-8a

LOGGED BY B.E. Aaquist

DATE 5/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
61																
62				35												
63																
64																
65			gneiss is f.g. adjacent to contact (contact metamorphism?)													
66																
66.75 T.D.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. M-9 PAGE 1 OF 5

PROPERTY: Mill Area N.T.S. NO. 83D/6E

DEPTH: 76.2 m AZIMUTH: 090° ANGLE: -60° ELEVATION: 806 m

NORTHING: 51,900 (approx) EASTING: 50,455 (approx)

DATE STARTED May 22, 1981 DATE COMPLETED: May 23, 1981

LOGGED BY: B. E. Aaquist

DRILL COMPANY: Boart Specialties CORE SIZE: NQ

HOLE & SITE DESCRIPTION: Hole drilled west of road just north of M-7. Hole makes water >1 liter/minute

Sample numbers 3097 - 3116.

ANSCHUTZ MINING CORP. HOLE NO. M-9 PAGE 2 of 5

BLUE RIVER CARBONATITES LOGGED BY [illegible] DATE 5/03/81

DEPTH	% REC.	ROCK TYPE & DESCRIPTIVE LITHOLOGY
5		0 – 16.5 Overburden
16		
		16.5 – 35.3 Sovite Carbonatite
	50	white, coarse xline, massive
		magnetite masses up to 4 cm
18	65	vermiculite commonly 1 cm long
	50	apatite 2-4 mm common
	65	
20	75	
6x1		
22		
24	80	
		pyrite is the main sulphide
26		
		pyrochlore occurs in 3 separate pieces between 26 & 27 meters f.g.
28 6x2		From 29-31 carbonatite is light orange

Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
										16.5	
a good estimate not possible						41	.03	4.28		18.9	3097
2	3		3			8	.01	3.30		20.3	3098
6	2	1	3		1	5	ND	3.94		21.6	3099
2	2		1		1	12	.01	3.87		[illegible]	3100
1	2		2		1	5	.02	3.80		23.9	3101
3	1		2		1	11	.01	4.38		25.0	3102
2	2		1		1	65	.02	4.17		26.0	3103
	2	1	2	1	1	130	.05	2.96		27.0	3104
	2		2		1	67	.04	3.25		28.0	3105
2	2		2			40	.02	3.21		29.9	3106

ANSCHUTZ MINING CORP. HOLE NO. M-9 PAGE 3 of 5

BLUE RIVER CARBONATITES LOGGED BY B E Bagnick DATE 6/24/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
30					27-31 meters core crumbles locally											
	50					3	2	2	1			20	.01	2.96	31.0	3107
32			a 1 cm zircon xl at 32.5 below 31 meters there are locally black xl masses up to 4.5 cm made up in part of magnetite, minor vermiculite, it is probably an amphibole. Locally amphibole has altered to chlorite Basal contact sharp & irregular.			2	3	2	2			27	.03	0.46	32.5	3108
34						1	3	2	2		1	40	.04	0.41	34.0	3109
			35.3 - 50.0 Feldspar Biotite Gneiss			5	3	3	2		1	15	.02	0.80	35.3	3110
36			gray, m.g., well foliated but not well banded, mostly uniform mineralogy. Local augen texture Feldspar pure phases locally. also local green amphibole rich phases		65											
38					30											
40																
42					70											
44					75											

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. M-9 PAGE 4 of 5

LOGGED BY B.E Aagaard DATE 6/23/21

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
46				70												
48			Basal contact gradational over 2cm.													
50			50.0 - 50.9 Sovite Carbonatite white, med xline, 1-2 mm apatite vermiculite occurs as thin discontinuous sheets, magnetite is t, amph 2-5 mm common but up to 4 cm masses local ilmenite xls up to 1 cm. Basal contact lost in broken core	70	poorly developed foliation by vermiculite										50.0	
						7	3	2	2			11	.01	3.94	50.9	3111
52			50.9 - 52.0 Gneiss as to 50.0													NO SAMPLE
			52.0 - 57.3 Sovite Carbonatite as to 50.9												52.0	
						7	4	2	3			15	.01	4.31	53.5	3112
54			a magnetite rich zone at 54 40%	60		7	3	4	5			16	.01	4.70	55.0	3113
56			56.9 - 57.3 vermiculite rich ~15%, local pyrrhotite	65		7	3	3	3			22	.01	4.31	56.3	3114
			Basal contact sharp at 50°			7	7	5	3	1		29	.02	3.85	57.3	3115
58			57.3 - 61.0 Gneiss as to 50.0													
60				70												

ANSCHUTZ MINING CORP. HOLE NO. M-9 PAGE 5 of 5

BLUE RIVER CARBONATITES LOGGED BY B. E Aequist DATE 6/04/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
62			61.0 - 61.85 Beforsite Carbonatite White, coarse xline, massive local specular hematite occurs as skeletal masses. Both contacts ost in broken core.				2				1	70	.21	3.69	61.85	3116
			61.85 - 76.2 Gneiss as to 50.0													
64					core broken locally in biotite rich phases											
66																
				80												
68																
70																
72																
74																
				77												
76.2 T.D.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC-13 PAGE 1 OF 7

PROPERTY: BONE CREEK N.T.S. NO. 83D/6E

DEPTH: 90.2 AZIMUTH: — ANGLE: -90 ELEVATION: ____

NORTHING: 38,626 EASTING: 49,125

DATE STARTED 7/14/81 DATE COMPLETED: 7/15/81

LOGGED BY: B.E Baquiet

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL TOOLS PULLED. HOLE STOPPED WHEN THE DEPTH EXCEEDED THE MAXIMUM PROJECTED DIP FOR THE CARBONATITE IN THE AREA.

DEPTH MARKERS IN CORE BOXES IN THIS HOLE ARE IN FEET ONLY.

ANSCHUTZ MINING CORP. HOLE NO. BC-13 PAGE 2 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 7/21/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			0 - 3.7 Casing NO recovery													
2																
4			3.7 - 71.9 Gneiss - Schist Light gray, locally green because of amph. med xtine, moderately to well foliated, locally banded. feldspar, quartz, biotite ± amph. garnet													
6					85											
8	Box 1															
10			9.8 - 11.6 amph - biotite schist green, minor crenulations, sharp contacts													
12					75											
14	Box 2				80											
16																

ANSCHUTZ MINING CORP. HOLE NO. BC-13 PAGE 3 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 7/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
18	Box 3	*	pyrrhotite filling a fracture in gneiss, present on only one side of core 18.4-18.6 diss pyrrhotite in gneiss 2-4%		75 70														
20					70														
22																			
24	Box 4		24.7-25.0 amph-biotite schist as above		70														
26					50														
28																			
30			at 30.2, 4 cm of garnet biotite schist		70														
32	Box 5																		

ANSCHUTZ MINING CORP. HOLE NO. BC-13 PAGE 1 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
34					70														
36																			
38	Box 6		37.8 - 38.0 Feldspar - Quartz dike		16 cm of gouge 70° angles														
40																			
42	Box 8		41.8 - 43.9 gneiss is feldspar rich with bands of white feldspar local amph. rich sections		80														
44			45.7 - 46.3 Feldspar - Quartz, massive 46.45 - 46.65 " " "		80														
46																			
48																			

ANSCHUTZ MINING CORP. HOLE NO. BC-13 PAGE 5 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 7/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
Rx 8																	
50			50.3 - 52.4 Feldspar - Quartz local muscovite														
52			massive weakly foliated		75												
54																	
Rx 9																	
56																	
58			59.1 3 cm Feldspar-Quartz-Garnet zone		75												
60																	
62					80												
64																	

ANSCHUTZ MINING CORP. HOLE NO. BC-13 PAGE 6 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. August DATE 7/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	...	SAMPLE DEPTH	SAMPLE NUMBER
66	Box 11				75												
68																	
70																	
72	Box 12		Basal contact gradational over 2cm 71.9-75.0 Feldspar - Quartz Top *50cm green amph with local pyrrhotite masses.		70												
74			Basal contact gradational over 1cm														
76					85												
78	Box 13		78.8-79.15 Feldspar - Quartz sharp irregular contacts														
80																	

ANSCHUTZ MINING CORP. HOLE NO. BC-13 PAGE 7 OF 7

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 7/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %	ppm		
82			local amph rich sections		90°														
84																			
86																			
88																			
90 -90.2 T.D.																			

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC-14 PAGE 1 OF 4

PROPERTY: Bone Creek Claims N.T.S. NO. 83D/6E

DEPTH: 39.9 AZIMUTH: — ANGLE: -90 ELEVATION: 1057 m

NORTHING: 38,550 EASTING: 49,135

DATE STARTED _____ DATE COMPLETED: _____

LOGGED BY: R.E. Aagaard

DRILL COMPANY: Bortz Specialties CORE SIZE: NQ

HOLE & SITE DESCRIPTION: All tools pulled

Sample Numbers in Hole: 3528-3530, 4522, 4523

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. B.C. - 14

LOGGED BY B.E. Aaquist

DATE 7/19/81

DEPTH meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
0			0 - 3.4 Overburden													
2																
4			3.4 - 13.1 Gneiss: gray, med. xline, moderately foliated massive to banded feldspar, quartz, biotite		65											
6																
8	Box 1				75											
10			11 - 13 gneiss has 1-3% pyrrhotite (? - nonmagnetic), graphite & trace chalcopyrite, as fg., diss.												11.3	
12											3	34 ELEMENT ANALYSIS			11.6	4522
14	Box 2		13.1 - 21.1 mica - amph schist: green, massive, well foliated med. xline.		70 / 1											
16					shear parallel to core axis, slickensides at 65°											

3528

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. BC-14 PAGE 3 OF 4

LOGGED BY B.E. Aaquist DATE 7/19/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18	Box 3			70	chlorite slickensides on foliation											
20			21.1 – 33.1 Gneiss as to 13.1 locally muscovite & garnet rich.													
22			diss graphite & pyrrhotite common throughout, abundant at 23 & below 30.0 m. graphite locally on slickensides parallel to foliation.	72												
24																
26	Box 4															
28				70												
30			locally minor chalcopyrite	65							4	34 cement			30.3	
32	Box 5				Broken core muscovite rich section										30.4	4523

ANSCHUTZ MINING CORP. HOLE NO. BC-14 PAGE 4 OF 4

BLUE RIVER CARBONATITES LOGGED BY B.E. Aquist DATE 7/19/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER	
	50		Basal contact lost in broken core		ground core mica rich										33.1		
34			33.1 - 35.15 Beforsite white coarse xline white to light green massive apatite 1-5mm green amph 3-5mm long. pyrrhotite 1-2mm common		local hairline fractures with amph & sovite	2.5		1		?	.5	460	.520		34.1	3528	15
			34.4 - 34.6 a zone of coarse xline Beforsite with only minor accessories basal contact irregular, indistinct			2		1			.5	120	.02		35.15	3529	15-25
36			35.15 - 35.4 Sovite, light gray med. xline, massive, basal contact lost in broken core.			2		.5			1	150	.03		35.4	3530	15
			35.4 - 35.7 Feldspar - Quartz dike, white, coarse xline, massive contacts lost in broken core.		hairline fractures parallel to core axis												
38			35.7 - 39.9 Gneiss gray - greenish gray, med xline, massive to banded. feldspar, amph, biotite														
			36.4 - 37.1 Feldspar - Quartz as above sharp irregular contacts														
39.9 T.D																	

KAMLOOPS
RESEARCH & ASSAY
LABORATORY LTD.

B.C. CERTIFIED ASSAYERS

2095 WEST TRANS CANADA HIGHWAY — KAMLOOPS B.C.
V1S 1A7
PHONE: (604) 372-2784 — TELEX: 048-8320

CTA
Member
Canadian Testing
Association

To Anschutz (Canada) Mining Ltd.
1470, 700 - 4th Ave. S.W.
Calgary, Alberta
T2P 3J4

Date: September 15, 1981

File No.: K-4284

SEMI-QUANTATIVE SPECTROGRAPHIC ANALYSIS CERTIFICATE

Fe, Mg, Ca, Ti, Na, K, Si, Al and P reported in %: all other elements reported in ppm.

Element	Lower Detection Limit	Sample # 4522	Sample # 4523	Element	Lower Detection Limit	Sample# 4522	Sample # 4523
Au	10	N	N	Zr	10	100	30
Ag	.5	N	N	B	10	10	15
Cu	5	200	700	Ba	10	700	300
Pb	10	50	15	Be	1	5	2
Zn	200	700	N	La	20	100	N
Mo	5	L	L	Nb	10	N	N
Fe	0.05%	3.0	7.0	Sc	5	7	N
W	50	N	N	Sr	100	500	100
Ni	5	30	100	Y	10	50	10
Co	10	15	30	Ca	0.05%	0.5	0.3
Cr	20	300	500	Mg	0.02%	0.5	0.2
Cd	20	N	N	Ti	.001%	0.2	0.05
As	200	N	N	Na	.02%	1.0	0.5
Sb	100	N	N	K	.5%	1.0	1.0
Mn	10	1500	200	Si	1%	30.0	30.0
V	10	150	100	Al	.5%	3.0	1.0
Bi	10	N	N	P	.1%	0.1	0.1
Sn	10	N	N				

N — Not detected
L — Detected but below limit of determination
G — Greater than value shown

This certificate refers to analysis performed by Specomp Services.

Values expressed in these analyses may be considered accurate to within plus or minus 35 to 50% of the amount present.

Signed

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC-15 PAGE 1 OF 9

PROPERTY: BONE CREEK N.T.S. NO. 83D/6E

DEPTH: 127.1 AZIMUTH: — ANGLE: -90 ELEVATION: 1092

NORTHING: 38,505 EASTING: 49,209

DATE STARTED 7/17/81 DATE COMPLETED: 7/21/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: CASING LEFT IN HOLE
SAMPLE NUMBERS IN HOLE ARE 4524-4530.
ASSAY FOR Au, Ag, Cu, Zn - SULPHIDES IN GNEISS.

ANSCHUTZ MINING CORP. HOLE NO. B.C. 15 PAGE 2 OF 9

BLUE RIVER CARBONATITES LOGGED BY Bradley Brown DATE July 23/81

DEPTH Meters	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 – 3.0 Overburden													
4			3.0 – 29.5 Gneiss gray, med xline, massive, locally banded, feldspar, biotite most abundant minerals		70°											
6																
8																
10		Box 1	9.3 – 10.4 Rich in Vermiculite & amph 9.3 – 16.7 Masses of Pyrrhotite (magnetic) in carbonate (± feldspar) dykes, cross cutting gneiss and in amph., dolomite (feldspar?) blobs in gneiss locally 2-3%		65° 40° (10.4)											
12					65°											
14		Box 2	x T.S													
16																

ANSCHUTZ MINING CORP. HOLE NO. B.C. 15 PAGE 3 OF 9

BLUE RIVER CARBONATITES LOGGED BY Bradley Brown DATE July 23/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
												Au oz/T	Ag oz/T	Cu %	Zn %	28.7	
18			x graphite film on shear surfaces		60°												
20	Box 3				80°												
22																	
24			24.5 – 27.6 Muscovite Garnet schist		55°												
26	Box 4		27.6 – 27.7 Feldspar dike		75°												
28			27.7 – 42.2 Gneiss as to 24.5 locally banded 28.7 – 30.6 well banded with amph. feldspar, biotite & thin bands of pyrrhotite in calcite-dolomite					1			½	.006	.08	.01	.01	29.2	4524
30	Box 5				70°			2			1	.007	.08	.01	.01	29.8	4525
											½	.003	.06	.01	.01	30.1	4526
					80						1	.004	.06	.01	.01	30.6	4527
32																	

ANSCHUTZ MINING CORP. HOLE NO. B.C. 15 PAGE 4 OF 9

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE July 24/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
												oz/T Au	oz/T Ag	% Cu	% Zn		
34			35.8 - 36.1 Amph-biotite Schist as to 10.4		75												
36			36.5 - 37.4 has irregular, discontinuous laminae of pyrrhotite & graphite, carbonate laminae 1-25mm thick locally discontinuous 37.4 - 38.4 Garnet Muscovite Schist as to 29.6.													36.5	
38	Box 6		38.4 - 38.9 Gneiss with irregular masses of pyrrhotite in carbonate dikes graphite occurs on hairline fractures from 39-40		90							.004	.11	.01	.01	37.4	4528
												.003	.07	<.01	.01	38.4	4529
												"	"	"	"	38.9	4530
40					70												
42			42.2 - 43.2 Amph-biotite Schist as to 10.4		80												
44	Box 7		43.2 - 49.0 Gneiss, gray, banded feldspar & amph-biotite rich bands cyclic banding with amph-biotite grading up into feldspar rich band, the feldspar will be in sharp contact with next amph-biotite band.		70												
46					85 hairline fractures at 20° some with 1-2 cm offsets												
48					80												

ANSCHUTZ MINING CORP. HOLE NO. BC-15 PAGE 5 OF 9

BLUE RIVER CARBONATITES LOGGED BY B. E Aaquist DATE 7/26/81

basal contact gradational

49.0 - 54.0 Garnet Muscovite Schist
as to 27.6.

10 cm quartz with pyrrhotite masses

54.0 - 55.6 Garnet Amph. Gneiss
dark green, coarse xline, massive

55.6 - 56.2 Gneiss as to 37.4
56.2 - 56.4 Schist as to 27.6
56.4 - 56.9 Gneiss as to 37.4
56.9 - 57.3 Schist as to 27.6
57.3 - 57.7 Gneiss as to 37.4
57.7 - 59.6 Schist as to 27.6

basal contact gradational over 20 cm

59.6 - 63.0 Garnet Amph. Gneiss
as to 54.0

63.0 - 64.0 Amph - Biotite Schist
(As to 10.4)

ANSCHUTZ MINING CORP. HOLE NO. B.C. 15 PAGE 6 OF 9

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/1/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
66			64.0 - 67.8 Biotite - Gneiss (As to 3.0)	65														
				70														
68			67.8 - 70.7 Muscovit, Garnet, Schist As to 24.5 - small local bands of feldspar	90														
				65														
70																		
			70.7 - 72.4 Amph, Biotite, Gneiss - Well banded (greenish-grey) - local pyrrhotite masses	70														
72																		
			72.4 - 73.2 Garnet, (Biotite, Muscovite) Schist As to 24.5 except biotite — muscovite mixed throughout.	45														
74				60														
			73.2 - 78.2 Amph, Biotite, Gneiss (As to 70.7)	90														
76																		
78			78.2 - 78.6 - Amph - Biotite	80														
			78.6 - 82.1 Muscovite Schist - local masses of pyrrhotite															
80																		

Box 11 | Box 12 | Box 13

ANSCHUTZ MINING CORP. HOLE NO. B.C.-15 PAGE 7 OF 9

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/1/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
82	Box 14		82.1 - 85.8 Gneiss - locally banded - grey - local bands of massive pyrrhotite - small amounts of graphite cutting core.		70											
84					75											
86			85.8 - 88.3 Biotite Gneiss (As to 3.0)		85 60											
88	Box 15		88.3 - 92.1 Amph - Biotite Schist (As to 10.4) - large amounts of local pyrrhotite + pyrite masses (magnetic)		70 80											
92			92.1 - 92.7 Feldspar Dike													
94	Box 16		92.7 - 93.9 Muscovite Schist As to 78.6		80											
96			93.9 - 112.8 Gneiss (grey) - biotite + muscovite present - local amph. - fine grained massive													

ANSCHUTZ MINING CORP. HOLE NO. B.C.-15 PAGE 8 OF 9

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
98					75													
100					65													
102 Box 17																		
104					80													
106																		
108 Box 18					75													
110					Very Fractured													
112					85													

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. D.C. - 15

LOGGED BY BRADLEY BROWN

DATE 8/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 19			112.8 - 114.0 Feldspar Dike calcite occurs in hairline fractures		80											
114			114.0 - 118.1 Amph-Biotite Schist (As to 10.4)		75											
116																
118 Box 20			118.1 - 121.7 Amph-Muscovite Gneiss - grey, massive.													
120					85											
122			121.7 - 123.6 Biotite Schist - no real banding (fractures) - local pyrrhotite													
124 Box 21			123.6 - 127.1 Amph-Gneiss - large amount of massive amph evenly dist. throughout gneiss - green color - very small traces of pyrrhotite & pyrite.		90											
126																
127.1 T.D																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC-16 PAGE 1 OF 6

PROPERTY: BONE CREEK N.T.S. NO. 83D/6E

DEPTH: 78.6 AZIMUTH: — ANGLE: -90° ELEVATION: 1085

NORTHING: 38 400 N EASTING: 49 208E

DATE STARTED 7/22/81 DATE COMPLETED: 7/24/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL TOOLS PULLED

SAMPLE NUMBERS IN HOLE ARE 3703 TO 3711.

NOTE Nb VALUES ARE Nb_2O_5 IN %

ANSCHUTZ MINING CORP. HOLE NO. DC-16 PAGE 1 OF 6

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 3.7 Overburden													
4			3.7 - 16.2 Amph - Gneiss - well banded - greenish color - local quartz - feldspar dikes - local magnetic pyrrhotite - minor local garnet		Fractured Core											
6																
8	83% Rec				80 Mineral Banding Fractured Core											
10 Box 1																
12					60											
14 Box 2					70											
16					70											

ANSCHUTZ MINING CORP. HOLE NO. DC-16 PAGE 3 OF 6

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18			16.2 - 17.9 Feldspar Dike - local magnetic pyrrhotite - local garnet & amph,		65											
					45											
			17.9 - 29.7 Gneiss - grey, massive, not well banded - local feldspar banding - massive biotite - massive magnetic pyrrhotite & local bands present.													
20 Box 3					45											
22					75											
24					55											
26 Box 4					25											
28					70											
30 Box 5			29.7 - 30.8 Amph - Biotite - dark green, well banded		75											
			30.8 - 36.1 Gneiss - grey, well banded, biotite & amph - local & massive magnetic pyrrhotite		45											
32 Box																

ANSCHUTZ MINING CORP. HOLE NO. UC-16 PAGE 4 OF 6

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
34				95												
				90												
				85	fractured core											
36			36.1 - 47.5 garnet - gneiss	65	* graphite at the contact											
			- large garnet crystals massively distributed.	70												
			- well banded, grey color													
38 Box 6			- local feldspar banding													
			- local & massive pyrrhotite (magnetic)	70												
			* graphite present at many of the core angles.													
40				70	fracture parralell to core											
42				80												
44 Box 7				65												
				80												
46																
48			47.5 - 49.5 Transitional Zone - green & white, well banded, Beforesite Amph - Biotite rich	60												

ANSCHUTZ MINING CORP. HOLE NO. DC-16 PAGE 5 OF 6

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
															49.5	
50	Box 8		49.5 - 54.5 Beforesite Carbonatite - non magnet pyrrhotite, massive - massive, large amph crystals (olivine?) (PEA) - brecciated & non brecciated carbonatite - apatite associated with non brecciated, more than brecciated.	35	Hanging Wall Contact 35°	1	–	4	–	–	4	250	.023	2.99	50.0	3703
				35		2	–	4	–	–	3	270	.129	3.04	50.5	3704
52						2	–	4	–	–	3	220	.019	2.76	51.0	3705
				65		2.5	–	4	–	<.5	1	290	.057	3.67	51.5	3706
						3	–	3	–	tr	1	200	.023	3.92	52.0	3707
						3	–	2	–	tr	1	130	.017	3.74	52.5	3708
						1	–	3	–	tr	1	170	.023	4.42	53.0	3709
						1	–	5	–	–	1	150	.069	2.92	53.5	3710
54				65		1	–	1	–	–	1	98	.069	2.09	54.5	3711
	Box 9		54.5 - 55.4 Transitional Zone. (As to 47.5)	65	Basal Contact 65°											
			55.4 - 56.2 Feldspar Dike. - weakly magnetic local pyrrhotite.	55												
56	Box		56.2 - 60.5 Gneiss As to 30.8	50												
				75												
58					fractured core.											
				75												
60	Box 10		60.5 - 61.0 Amph - Biotite (As to 29.7)	85												
				80												
62	Box		61.0 - 63.5 Gneiss (As to 30.8)	60												
				60												
64																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. BC - 16

LOGGED BY BRADLEY BROWN

DATE 8/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66	Box 11		63.5 - 70.9 Gneiss (As to 3.7)		80 75 75 70 70											
68																
70					80											
70.9 - 72.5 Feldspar Dike (As to 55.4)																
72	Box 12		72.5 - 76.6 Gneiss (As to 17.9)		70											
74					80											
76			76.6 - 77.0 Feldspar Dike (As to 55.4)		80											
			77.0 - 78.5 Gneiss (As to 17.9)		50											
78	Box 13		78.5 - 78.6 Feldspar Dike (As to 55.4)		80											
			78.6 END OF HOLE													
80																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC-17 PAGE 1 OF 4

PROPERTY: BONE CREEK N.T.S. NO. 83D/6E

DEPTH: 45.1 AZIMUTH: — ANGLE: -90 ELEVATION: 1077

NORTHING: 38,278 N EASTING: 49,207 E

DATE STARTED 7/25/81 DATE COMPLETED: 7/26/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: ALL TOOLS PULLED

SAMPLE NUMBERS IN HOLE ARE 3712-3715.

ANSCHUTZ MINING CORP. HOLE NO. DC-17 PAGE 2 OF 4

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 6.7 Overburden													
4																
6																
			6.7 - 25.1 Gneiss - grey, massive - amph & feldspar local dikes. - local magnetic pyrrhotite present		fractured core											
8					75											
					55											
10					55											
12 Box 1					fractured core											
					50											
14					30											
	67% Rec															
16																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. BC-17 PAGE 3 OF 4

LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18				90 / 85												
					fracture parallel to core											
20					fractured core.											
22				45												
24				55												
			25.1 - 35.2 Amph - Biotite - Garnet Schist.	90												
26			- large garnet crystals are throughout the interval.		fractured core											
			- no visible sulphides	55												
			- local feldspar dikes.	70												
28																
30				75												
32				90												

ANSCHUTZ MINING CORP. HOLE NO. DC-17 PAGE 4 OF 4

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/25/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
34				45												
				55												
				65												
36 Box 5			35.2 - 40.0 Transitional Zone - well banded - large amount of amph, biotite + beforesite													
38				55												
				50												
40				85	Hanging Wall Contact										40.0	
			40.0 - 42.1 Beforesite Carbonatite - brecciated texture - amph + massive non-magnetic pyrrhotite.			1	-	3	-	.5	2	190	.219	2.31	40.5	3712
Box 6						1	1	3	-	.5	2	150	.140	2.63	41.0	3713
						2	tr	3	-	tr	1	220	.129	3.01	41.5	3714
42 Box 7			42.1 - 43.2 Transitional Zone (As to 35.2)	85	Basal Contact	2	1	4	-	<.5	1	180	.172	2.68	42.1	3715
			43.2 - 45.1 gneiss - well banded, green color - garnet crystals (large + throughout)	65												
			45.1 END OF HOLE	45												
46																
48																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC-18 PAGE 1 OF 15

PROPERTY: FIR-AZ 1 CLAIMS N.T.S. NO. 83D/6E

DEPTH: 218.8 AZIMUTH: 360 ANGLE: -65 ELEVATION: 880

NORTHING: 39,741 EASTING: 48,682

DATE STARTED 7/26/81 DATE COMPLETED: 8/01/81

LOGGED BY: BRADLEY BROWN & BENT AAQUIST

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: CASING LEFT IN HOLE 4.3 METERS.

SAMPLE NUMBERS IN HOLE 4531 & 4532 FOR Au, Ag, Cu, Zn & 34 ELEMENT EMISSION SPEC. 3540 - 3602.

NOTE Nb VALUES ARE Nb_2O_5 IN %

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE -- OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 4.3 - Overburden		4.3 - 11.9 - fractured - weathered - core loss											
4			4.3-27.9 Biotite - Muscovite Gneiss - grey, massive - no sulphides		70											
6																
8																
10	Box 1				90											
12																
					55											
14																
					80											
16																

ANSCHUTZ MINING CORP. HOLE NO. BC 18 PAGE ____ OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 2				50												
18			18.7 - 18.9 - Feldspar Dike													
20				75												
Box 3			20.8 - 21.2 Feldspar Dike													
22																
24	CORE LOSS															
26				65												
Box 4			27.9 - 29.6 Amph - Gneiss - green - well banded - local pyrrhotite (magnetic) - local magnetite.	70												
30			29.6 - 32.0 Gneiss - grey, massive - local magnetic pyrrhotite	60												
32																

ANSCHUTZ MINING CORP. HOLE NO. B. C. - 18 PAGE 1 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/3/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
34	Box 5		32.0 - 32.3 Amphi - Garnet Gneiss - local garnet (spotty) 32.3 - 33.6 Gneiss (As to 29.6) 33.6 - 33.8 - Feldspar Dike. 33.8 - 40.5 Amph - Biotite Schist - local, massive pyrrhotite.		70 75												
36																	
38																	
40	Box 6				50							Au	Ag	Cu	Zn	40.85 41.9	4532
			40.5 - 55.2 Gneiss light gray, med xline, quartz, feldspar, biotite, massive to weakly banded at 40.85 - 15 cm section of irregular pyrrhotite masses in a qtz - feldspar rich phase local biotite rich phases								3	<.001	.09	.04	.01		
42					70												
44																	
46	Box 7		46.6 - 47.3 quartz - feldspar minor pyrrhotite														
48																	

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. BC-18 PAGE 5 OF 15

LOGGED BY B.E. Aaquist DATE 8/13/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50	Box 8				85											
52																
54			Basal contact sharp & irregular													
56	Box 9		55.2 - 55.5 Biotite Schist green, med. xline., irregular foliation at 60°		60											
58			55.5 - 64.0 Gneiss as to 55.2		70											
60					60											
62	Box 10															
64			Basal contact sharp at 70°		70											

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 6 OF 15

BLUE RIVER CARBONATITES LOGGED BY B. E Aaquist DATE 8/13/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66	Box 11		64.0 - 64.5 Amphibole Biotite Schist green & black, med-coarse xline, wavy foliation Basal contact lost in broken core 64.5 - 79.5 Gneiss as to 64.0		70											
68																
70					70											
72	Box 12				70											
74			biotite rich section		70											
76																
78	Box 13		Basal contact sharp, irregular at 70°													
80																

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 7 OF 15

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 8/13/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
82	Box 14		79.5 - 82.3 Quartz & Feldspar white, coarse xline, massive locally minor biotite in books. Basal contact lost in broken core 82.3 - 85.3 Gneiss, green amph-biotite med to coarse xline grading into gneiss as to 79.5		60													
84			Basal contact lost in broken core															
86			85.3 - 87.3 Amphibolite Biotite Schist, as to 64.5 Basal contact sharp at 75°		60	foliation crenulated locally.												
88			87.3 - 87.5 Gneiss as to 79.5 Basal contact sharp at 55° 87.5 - 87.7 Amph-Biotite Schist as to 87.3, basal contact sharp at 40° 87.5 - 89.6 Gneiss as to 79.5 basal contact indistinct															
90	Box 15		89.6 - 95.1 Amph, Feldspar Garnet Schist, green & white med. xline, poor to moderate foliation garnets red, anhedral, up to 1cm locally irregular masses of pyrrhotite Overall unit appears massive.															
92					65													
94			95.1 - 96.0 Gneiss as to 79.5 Basal contact sharp at 60°															
96																		

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 8 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 8/13/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
98 Box 16			96.0 - 96.3 Amph-Biotite Schist as to 87.3, interfingering basal contact.													
			96.3 - 116.0 Gneiss as to 79.5													
100																
102 Box 17																
104			Between 104 & 107 are local thin bands of amph-biotite schist													
106 Box 18																
108																
110					60											
112																

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 1 OF 15

BLUE RIVER CARBONATITES LOGGED BY BENT F AAQUIST DATE 8/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
114	Box 17		feldspar, biotite, muscovite garnet schist, m/g, gray well foliated, garnets up to 2cm Basal contact sharp & irregular biotite schist basal 10 cm.		114.5 - 114.6 local grains of chalcopyrite											116.0	
116			116.0 - 128.2 Beforsite white, coarse xline, massive 4 mm long dark green amph. f.g. non-magnetic pyrrhotite 2 mm white apatite 119 - 119.5 - stressed beforsite only minor accessory minerals biotite in shears.		local shears no broken core, breccia texture, fractures at 60°± throughout	2.4	2.5		2			.5	200	.069	3.65	117.0	3540
						1.43	2.5		2			.5	190	.039	4.01	118.0	3541
118						1.38	3		2			.5	86	.017	3.85	119.0	3542
	Box 20					1.89		2					63	.017	0.95	119.5	3543
120						1.40	3		2			.5	140	.028	3.70	120.2	3544
					120.8 - 122.4 amph., shears // parallel core axis slicken sides at 60° to axis	1.20	3		2			.5	210	.036	4.01	120.8	3545
122						2.24			85				100	.032	2.33	122.4	3546
						.59	3		2			1	190	.016	2.49	123.1	3547
			apatite up to 5 mm			1.50	3		2			.5	270	.058	3.02	124.4	3548
124						6.58	4		2			.5	170	.160	3.09	125.4	3549
	Box 21		below 125.4 xl size is med., coarse above, weakly banded			4.37	3		2		tr	.5	160	.100	2.76	126.4	3550
126						2.66	2.5		2			.5	150	.057	3.05	127.4	3551
			Basal contact sharp.			3.78	2.5		2		tr	.5	170	.092	3.49	128.2	3552
128																	

Nb/Ta $\bar{x}$ = 2.42 σ = 1.57

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE ___ OF 15

BLUE RIVER CARBONATITES LOGGED BY BENT F. ARQUIST DATE 8/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
114	Box 17		feldspar, biotite, muscovite garnet schist, mig, gray well foliated, garnets up to 2cm		114.5 - 114.6 local grains of chalcopyrite														
			Basal contact sharp & irregular biotite schist based 10 cm.			Nb/Ta												116.0	
116			116.0 - 128.2 Beforsite																
			white, coarse xline, massive		local shears	2.4	2.5		2			.5		200	.069	3.65		117.0	3540
			4 mm long dark green amph.		no broken core,														
			f.g. non-magnetic pyrrhotite			1.43	2.5		2			.5		190	.039	4.01		118.0	3541
118			2 mm white apatite		breccia texture, fractures at 60° ± through out	1.38	3		2			.5		86	.017	3.85		119.0	3542
			119 - 119.5 - stressed beforsite			1.89		2						63	.017	0.95		119.5	3543
			only minor accessory minerals biotite in shears.			1.40	3		2			.5		140	.028	3.70		120.2	3544
120	Box 20				120.8 - 122.4 amph., shears // core axis	1.20	3		2			.5		210	.036	4.01		120.8	3545
						2.24			85					100	.032	2.33		122.4	3546
122					slicken sides at 60° to axis														
						.59	3		2			1		190	.016	2.49		123.4	3547
			apatite up to 5 mm			1.50	3		2			.5		270	.058	3.02		124.4	3548
124																			
			below 125.4 xl size is med., coarse above,			6.58	4		2			.5		170	.160	3.09		125.4	3549
	Box 21		weakly banded																
126						4.37	3		2		tr	.5		160	.100	2.76		126.4	3550
						2.66	2.5		2			.5		150	.057	3.05		127.4	3551
			Basal contact sharp.			3.78	2.5		2		tr	.5		170	.092	3.49		128.2	3552
128																			

Nb/Ta $\bar{x}$ = 2.42 σ = 1.53 *

ANSCHUTZ MINING CORP. HOLE NO. DC 18 PAGE ____ OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/2/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 2																
18			18.7 - 18.9 - Feldspar Dike		50											
20					75											
			20.8 - 21.2 Feldspar Dike													
Box 3																
22																
24	CORE LOSS															
26																
Box 4					65											
28			27.9 - 29.6 Amph - Gneiss - green - well banded - local pyrrhotite (magnetic) - local magnetite.		70											
30			29.6 - 32.0 Gneiss - grey, massive - local magnetic pyrrhotite		60											
32																

ANSCHUTZ MINING CORP. HOLE NO. B.C. - 18 PAGE 1 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/3/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
												Au	Ag	Cu	Zn		
34			32.0 - 32.3 Amphi - Garnet Gneiss - local garnet (spotty) 32.3 - 33.6 Gneiss (As to 29.6) 33.6 - 33.8 - Feldspar Dike. 33.8 - 40.5 Amph - Biotite Schist - local, massive pyrrhotite.		70 75												
36			Box 5														
38																	
40			Box 6		50												
			40.5 - 55.2 Gneiss light gray, med xline, quartz, feldspar, biotite, massive to weakly banded at 40.85 - 15 cm section of irregular pyrrhotite masses in a qtz - feldspar rich phase local biotite rich phases								T	<.001	.09	.04	.01	40.85 41.0	4532
42					70												
44																	
46			Box 7 46.6 - 47.3 quartz - feldspar minor pyrrhotite														
48																	

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 3 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
130	Box 23		128.2 - 139.0 Amphibolite dark green, coarse xline massive to banded, beforsite locally interbanded & interxline. minor, fg., diss pyrrhotite.		55											
132																
134			134 - 139 has irregular patches of beforsite 1-2 cm.													
136	Box 23															
138			Basal contact gradational over 30 cm. 139.0 - 142.5 Schist as to 116													
140																
142	Box 24		Interfingering contact 142.5 - 145.4 Amphibolite Beforsite green & white, med. to coarse xline, weakly banded.		60 50 45											
144																

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 1 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %			
			local biotite rich bands, basal 20 cm biotite, basal contact sharp at 70°			NB/fa											145.4	
146			145.4 - 166.6 Beforsite white, coarse x/line, massive similar to 128.2, but this has less apatite.			3.61	1		2			1	190	.098	3.44		146.4	3553
						4.27	<1		2		tr	1	180	.110	3.80		147.4	3554
148		Box 25				5.53	—		2			1	48	.038	1.23		148.4	3555
						2.97	—		2			1	120	.051	2.03		149.4	3556
150						3.81	<1		2		tr	1	220	.120	2.98		150.4	3557
						3.57	<1		2			1	180	.092	3.13		151.4	3558
152						2.85	2		2		tr	1	270	.110	2.98		152.0	3559
					smooth shears parallel core axis beforsite has a breccia texture, healed by carbonate, pyrrhotite is common in fractures.	.62	2		2			1	190	.017	3.21		153.0	3560
						.81	2		2			1	52	.006	3.54		154.0	3561
154		Box 26				.67	2		2			1	73	.007	4.09		155.0	3562
						1.50	—		2			1	93	.020	3.65		156.0	3563
156						1.04	—		1			1	74	.011	4.26		157.0	3564
			157.4 - 157.9 coarse x/line amph with carb, x-cutting beforsite.			1.16	—		40			.5	120	.020	3.75		158.0	3565
158		Box 27				.71	—		2			1.5	99	.010	3.75		159.0	3566
						.64	—		2			1.5	120	.011	3.05		160.0	3567
160																		

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 2 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
162	Box 27		amph rich section much of the sulphides could be slightly tarnished pyrite?			.52	–		2			1.5	380	.028	3.46	161.0	3568
						.49	–		2			1	230	.016	3.44	162.0	3569
						2.95			5			1	180	.076	2.14	163.0	3570
164						8.39	1		2			1	100	.120	2.29	164.0	3571
	Box 28					3.66		.5	2		tr	1	210	.110	3.49	165.0	3572
166			Basal contact sharp at 70° 166.6 – 169.7 Biotite Carbonate Schist black, med. xline, well foliated to massive ~70% biotite & some amph.		local fold	2.67			2			1.5	180	.069	2.81	166.0	3573
						2.95		.5	2			1.5	140	.059	3.02	166.6	3574
168																169.7	
170	Box 29		Basal contact sharp 65° 169.7 – 183.3 Beforsite as above		65° breccia texture down to ~171.5	2.80			2		tr	1	150	.060	3.51	170.7	3575
						4.33	1.5		2		tr	1	210	.130	3.26	171.7	3576
172						1.00	3		1.5			1	140	.020	4.48	172.7	3577
						1.44	3		1.5		tr	1	170	.035	4.40	173.7	3578
174						1.95	4		2			.5	200	.056	4.58	174.7	3579
						2.41	3		2		tr	.5	290	.100	3.90	175.7	3580
176																	

1% = 2.518 ± = 1.194

ANSCHUTZ MINING CORP. HOLE NO. BC - 18 PAGE 3 OF 15

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 8/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %			
178	Box 30		local very coarse xline sections amph locally is concentrated in bands.		breccia texture throughout apatite not apparent in breccia sections	3.13	–		2		tr	1	380	.170	4.19		176.7	3581
						2.90	–		2		tr	1	410	.170	4.19		177.7	3582
						2.55	–		2			1	140	.051	2.92		178.7	3583
180						2.70	–		2			1	150	.058	3.44		179.7	3584
						2.20	–	tr	2		tr	1	130	.041	3.01		180.7	3585
182	Box 31					2.42	–		2			1	150	.052	3.18		181.7	3586
			Basal contact sharp at 55°			2.86	–		3			1.5	110	.045	2.58		182.7	3587
			183.3 - 186.2 Biotite Carbonate Amphibole Schist, black & white med. to coarse xline, well foliated			3.61	–		2			1	310	.160	3.90		183.3	3588
184					foliation parallel core axis													
			Basal contact shear at 45°															
186			186.2 - 200.1 Beforsite as above local very coarse dolomite xls. amph occurs locally in bands 188.2 - 188.5 - coarse pyrrhotite favouring fractures														186.2	
	Box 32					6.45	–	5	2			1	130	.120	2.68		187.2	3589
188					biotite shear parallel core axis	5.11	–	5.	5			1	52	.038	2.14		188.2	3590
						3.33	–		2			1.5	86	.041	1.88		189.2	3591
190						3.30	–		2			1	140	.066	3.59		190.2	3592
					breccia texture absent below 191.2	2.68	–		2		tr	1	120	.046	3.02		191.2	3593
192						2.55	3		2		tr	1	140	.051	3.40		192.2	3594

b = 0.80

IX = 2.573

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 4 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Raquict DATE 8/12/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	Nb/Ta	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide		ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
194	Rx 33					2.66	4		2	tr	tr	1		210	.080	3.08		193.2	3595
						2.40	4		2	tr	tr	1		140	.048	3.26		194.2	3596
196						2.96	4		2	tr		1		260	.110	3.74		195.2	3597
						2.17	3.5		2		tr	.5		190	.059	4.44		196.2	3598
198	Rx 34					2.61	3.5		2		tr	.5		190	.071	4.12		197.2	3599
					breccia texture below 198	1.98	3		2		.1	.5		180	.051	3.78		198.2	3600
			Basal contact sharp & irregular			2.00	.5		2			1		140	.040	3.22		199.2	3601
200			201.1 - 203.3 Biotite Carbonatite			4.13	4		2	tr		1		220	.130	3.36		200.1	3602
			black & white, med. xline, weakly banded, basal contact a shear at 70°																
202																			
204	Rx 35		203.3 - 218.8 Gneiss																
			light gray, med. xline, banded to massived.																
			Green amph, biotite, quartz-feldspar																
206			locally laminae of pyrrhotite garnets up to 1.5 cm, locally some skeletal.		70														
208														Au	Ag	Cu	Zn	207.5	
														<.001	.08	.01	.01	207.9	4531

$\bar{x} = 3.166$ $\sigma = 1.23$

ANSCHUTZ MINING CORP. HOLE NO. BC-18 PAGE 15 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/12/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			local muscavite rich sections.																
210					75														
Box 36																			
212																			
					70														
214																			
Box 37																			
216																			
					80														
Box 38																			
218																			
218.8 T.D.																			

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC - 19 PAGE 1 OF 15

PROPERTY: FIR - AZ 1 CLAIMS N.T.S. NO. 83D/6E

DEPTH: 209.7 AZIMUTH: — ANGLE: -90 ELEVATION: 880

NORTHING: 39,741 EASTING: 48,682

DATE STARTED 8/06/81 DATE COMPLETED: 8/09/81

LOGGED BY: BRADLEY BROWN

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: CASING LEFT IN HOLE 4.9 METERS
SAMPLE NUMBERS IN HOLE 3603 - 3671.

NOTE Nb VALUES ARE Nb_2O_5 IN %

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. BC-19

LOGGED BY BRADLEY BROWN

DATE 8/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
2			0 - 4.9 Overburden														
4																	
			4.9 - 30.9 Gneiss - muscovite + biotite - local feldspar dikes - magnetic pyrrhotite located in feldspar dikes. - well banded - greyish color		Broken Core (weathered)												
6																	
8																	
10	90% Recovery																
12	Box 1																
14					55												
16																	

ANSCHUTZ MINING CORP. HOLE NO. BC-19 PAGE 2 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18 Box 2				70												
				75												
20				85												
22 Box 3				75												
24 Box 1				50												
				90												
26					fracture											
28 Box 4				75												
30 Box 1				50	fractured											
				90												
32			30.9 - 31.7 Garnet Amph Gneiss - green, local red garnet	75												

ANSCHUTZ MINING CORP. HOLE NO. BC - 19 PAGE 1 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
34 Box 5			31.7 - 35.4 Gneiss - muscovite + biotite (local bands) - massive pyrrhotite - local feldspar dikes - grey, well banded.	55	fracture											
36			35.4 - 36.1 Biotite - Hornblende Schist - black - flaky, easily broken	50												
38			36.1 - 39.0 Amph - Biotite Schist - Sovite Carbonatite fractures throughout	50												
40 Box 6			39.0 - 45.6 Sovite - Gneiss - grey, well banded - sovite carbonatite fracture fillings, (very fine fractures)	75 70												
42				70												
44					fractures											
46 Box 7			45.6 - 46.0 Feldspar Dike - magnetic pyrrhotite, local 46.0 - 49.8 Biotite Schist - local feldspar dikes - sovite fractures very fine	80 65 60												
48																

ANSCHUTZ MINING CORP. HOLE NO. BC-19 PAGE 3 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/21/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	—	SAMPLE DEPTH	SAMPLE NUMBER
50	Box 9		49.8 - 50.1 Amph - Biotite - Garnet Schist	15 / 85													
52			50.1 - 52.2 Amph - Biotite - Schist - green color, massive amph - banding very poor, core is folding in parts. - a few small fractures filled with soviite	75	folding in core												
54			52.2 - 58.0 Amph - Biotite gneiss - grey, well banded - local feldspar banding - magnetic pyrrhotite, local	65													
56	Box 9		← fractures	75													
58			58.0 - 58.3 Amph - Biotite		fractures are running opposite to core angles												
60			58.3 - 69.4 Biotite Graphite Schist - blue - grey color - local banding - graphite is massive, however there are local bands in the sharp breaks in core. - local magnetic pyrrhotite - some small fractures fizz under acid - possibly soviite carbonatite.	70	Broken Core.												
62	Box 10			65	Broken Core.												
64				50													

ANSCHUTZ MINING CORP. HOLE NO. BC-19 PAGE 6 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/22/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66					fine smooth slabs of graphite at each core break.											
68																
70	Box 11		69.4 - 71.6 Amph - Biotite Schist (As to 50.1)		Slick-in-side - long thin grooves of amph. Pyrrhotite in grooves.											
72			71.6 - 71.9 Amph Garnet Gneiss (As to 30.9)													
			71.9 - 74.3 Amph - Biotite Schist (As to 50.1)													
74	Box 12		74.3 - 75.7 Gneiss (As to 4.9)		Broken Core											
76			75.7 - 76.1 Amph - Garnet Gneiss (As to 30.9)													
			76.1 - 82.8 Biotite - Muscovite Schist - local feldspar dikes - local traces of pyrrhotite - greyish - silver color.													
78																
80																

ANSCHUTZ MINING CORP. HOLE NO. 3C - 19 PAGE 7 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 8/22/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
Box 13																
82			82.8 - 89.9 Amph - Gneiss - greenish - grey - poorly banded - massive pyrrhotite present		← Core splits are at 60° etc. The mineral banding is at 60° with the opposite tilt. 60°											
84																
Box 14																
86																
88																
90			89.9 - 91.4 Amph - Biotite Schist - red + green colored mica - no banding, fractured into small pieces, very weak.													
Box 15			91.4 - 92.9 Gneiss As to 31.7													
92			92.9 - 93.4 Feldspar Dike													
			93.9 - 94.6 Gneiss (As to 4.9)													
94			94.6 - 95.7 Amph Garnet Gneiss (As to 30.9)													
			95.7 - 96.4 Amph Biotite Gneiss (As to 58.2)													
96																

ANSCHUTZ MINING CORP. HOLE NO. BC - 19 PAGE 8 OF 15

BLUE RIVER CARBONATITES LOGGED BY B. BROWN DATE 8/12/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
98	Box 16		94.6 - 100.4 Amph - Biotite Gneiss (As to 52.2)	55 65 70 75 70												
100			100.4 - 105.8 Biotite - Muscovite Garnet Schist - well banded - garnet tends to be massive.		fracture											
102				75												
104	Box 17			85	Broken Core.											
			105.8 - 106.3 Quartz - Feldspar, white coarse xline, massive	55	Core extremely fractured in all directions										106.3	
106			106.3 - 112.6 Beforesite Carbonatite - greyish - white - alternating brecciated & massive - apatite does not appear to be in the brecciated areas. - amphi (dark-green to black) - local calcite phenocrysts (≈1-2 mm) - amph + apatite med grain size. - local pyrrhotite & minor pyrite (non magnetic) - pyrrhotite appears to follow fractures.	45												
108	Box 18			65		½	-	3	-	-	2	180	.150	2.59	107.3	3603
						2	-	2	-	-	1	190	.087	3.40	108.2	3604
						3	-	2	-	-	1	190	.086	3.49	109.2	3605
110	Box					2	-	1	-	-	½	140	.015	3.27	109.8	3606
				90		tr	-	2	-	-	1	120	.033	2.26	110.8	3607
112						tr		2			1	91	.023	2.59	111.8	3608

ANSCHUTZ MINING CORP. HOLE NO. 2-19 PAGE 1 OF 15

BLUE RIVER CARBONATITES LOGGED BY B. Brown / B. Aarquist DATE 8/13/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
						Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			112.6 - 113.6 Sovite Carbonatite	40		1		2			1		160	.039	4.09		112.6	3609
			white, coarse xline, massive, local coarse amph.					10					37	.013	1.34		113.6	3610
114			113.6 - 121.5 Beforesite Carbonatite	75				10			1		210	.019	3.24		114.6	3611
	Box 19		(Same as 106.3)			-		3			2		170	.011	2.90		115.6	3612
116			mostly breccia texture, locally massive			÷		3	-	-	1		160	.014	3.65		116.6	3613
			breccia fragments 1-2cm common.	35		2	tr	3	-	-	2		190	.024	2.26		117.6	3614
118						<1		2			1		110	.007	1.75		118.1	3615
	Box 20					3	-	3	-	-	1		260	.096	2.90		119.0	3616
			black skeletal pyrochlore sovite-biotite dike cuts beforsite parallel to core axis			1		1		1	1		1800	7.5	8.51		119.6	3617
120			Basal contact sharp & irregular	60	irregular fracture: parrallel to core.	1	<1	3			<1		210	.110	2.29		120.0	3618
			121.5 - 122.1 Biotite Schist	75		1	3	3		tr	2		78	.059	2.46		120.5	3619
			black, med. xline, well foliated local irregular masses of qtz & feldspar, basal contact sharp & irregular	80		1		3		tr	1.5		220	.170	2.80		121.0	3620
122						3		3		tr	1		140	.091	2.90		121.5	3621
			122.1 - 130.9 Amphibolite Gneiss															
			green & white, 2-4 mm xls, banded to massive local masses of magnetic pyrrhotite in fractures.															
124				70														
	Box 21																	
126			127.4 - 128 1cm garnets ~ 7% with a 1-2 mm white feldspar halo.	60														
128																		

ANSCHUTZ MINING CORP. HOLE NO. DC-19 PAGE 10 OF 15

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 8/13/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
130			Basal contact gradational													
			130.9 - 140.5 Gneiss													
			gray, med xline, mostly massive pink garnets diss. throughout 5 mm common, 25 mm max.													
132	Box 22		below 137 the garnets are reddish brown in color there is no apparent distortion of minerals around the garnets		65°											
134																
136																
138	Box 23		Irregular veins of the underlying unit in basal 0.5 m.		65°											
140			140.5 - 141.8 Quartz Feldspar white, coarse xline, massive basal contact a shear at 35°		local irregular fractures											
142			141.8 - 143.2 Amphibolite dark green, coarse xline, massive, basal contact gradational.													
144																

ANSCHUTZ MINING CORP. HOLE NO. BC - 19 PAGE 11 OF 15

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist / B BROWN DATE 8/13/81

143.2 - 151.1 Amph Gneiss
as to 130.9

151.1 - 154.5 Transitional Zone
- Amph with local stringers of carbonatite + feldspar.
- local pyrite associated with amph.

154.5 - 172.3 Beforesite Carbonatite
(As to 106.3)

DEPTH	% REC.	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
													154.5	
				–	1	2	–	<1	1.5	340	.140	3.63	155.0	3622
				–	–	2	–	<1	1.5	150	.065	2.93	155.5	3623
				–	–	2	–	<1	1.5	120	.055	2.59	156.1	3624
				–	–	2	–	tr	1	120	.061	2.56	156.7	3625
				–	–	3	–	tr	1.5	160	.072	2.76	157.2	3626
				–	–	3	–	tr	1	100	.048	2.59	157.7	3627
				–	–	5	–	tr	1	180	.096	3.13	158.2	3628
				–	–	4	–	<1	1	210	.092	4.26	158.7	3629
				–	–	4	–	tr	1	190	.093	4.23	159.2	3630
				–	–	3	–	1	1	550	.262	4.64	159.7	3631
				–	1	2	–	1	1.5	220	.222	3.04	160.2	3632

No RAD.

ANSCHUTZ MINING CORP. HOLE NO. BC-19 PAGE 12 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 08/17/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
						-	5	2	-	1	1	290	.319	3.30	160.7	3633
					65	-	1	3	-	1	3	250	.328	3.17	161.2	3634
162						-	tr	3	1	1	1	160	.268	2.49	161.9	3635
						2	-	3	-	1	1.5	300	.288	3.59	162.7	3636
						1	-	2	-	tr	1	84	.112	2.29	163.2	3637
						<1	-	2	-	<1	1	220	.200	3.65	163.7	3638
164						<1	-	2	-	tr	2	160	.166	3.26	164.2	3639
						-	-	2	-	<1	1	120	.209	2.69	164.7	3640
					35	-	-	1.5	-	tr	1	77	.066	2.46	165.2	3641
						-	-	2	-	tr	2	86	.066	1.77	165.7	3642
166						-	-	3	-	tr	1.5	100	.104	2.27	166.2	3643
						tr	-	2	-	1	2	220	.235	3.54	166.7	3644
					80	1	-	1.5	-	<1	1	240	.185	2.38	167.2	3645
168	Box 28					1	-	1	-	-	1	200	.056	2.58	167.7	3646
						2	-	2	-	-	1	150	.014	3.22	168.2	3647
					VRJ fractured core.	1	-	1	-	tr	1	60	.009	2.72	168.7	3648
						<1	-	1	-	-	<1	85	.010	2.91	169.2	3649
						2	-	2	-	-	1	200	.019	3.30	169.7	3650
170						1	-	2	-	tr	1	310	.172	3.49	170.2	3651
						-	-	2	-	tr	1.5	230	.157	3.35	176.7	3652
					fracture parrallel	-	-	2	-	tr	1	170	.113	2.08	171.2	3653
					to core axis.	-	-	5	-	-	1	160	.183	2.58	171.7	3654
172					90° Basal contact	-	-	4	-	tr	1	220	.143	4.01	172.3	3655
	Box 29		172.3 - 184.4 Transitional Zone		to tranzitional zone.											
			- Banded amph - gneiss													
174			- local bands of beforesite (small)		65											
176																

RAD, NO

ANSCHUTZ MINING CORP. HOLE NO. DC-19 PAGE 13 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 08/17/01

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS						ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
						Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	Ta ppm	Nb ppm	P_2O_5 %			
178																	
180 Box 30																	
182																	
184 Box 31																184.4	
186			184.4 → 192.6 Beforesite Carbonatite (As to 106.3)		fractured core.	-	-	1	-	tr	1	220	.166	3.70		185.0	3656
						-	-	1	-	-	1	200	.119	3.70		185.5	3657
						.5	-	1.5	-	tr	1.5	190	.099	3.44		186.0	3658
						.5	-	1.5	-	tr	1	170	.087	3.65		186.5	3659
						2	-	2	-	tr	1	250	.197	3.65		187.0	3660
188						1.5	-	2	-	tr	2	230	.180	2.58		187.5	3661
						2	-	2	-	tr	1	1100	>.5	4.37		188.0	3662
						.5	-	1	-	<.5	1	200	.120	2.78		188.5	3663
						1	-	2	-	<1	1	140	.094	2.08		189.0	3664
190 Box 32						1	-	1	-	.5	<1	290	.169	3.17		189.5	3665
						1	-	2	-	.5	1	320	.340	3.65		190.0	3666
						1	-	2	-	<1	1	280	.144	3.08		190.5	3667
						2	-	2	-	<1	1	150	.084	2.41		191.0	3668
						2	-	2	-	tr	1	230	.074	2.81		191.5	3669
192						2	-	1	-	tr	1	190	.096	3.54		192.0	3670

No RAD.

ANSCHUTZ MINING CORP. HOLE NO. DC - 19 PAGE 14 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN DATE 08/17/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			192.6 - 197.8 Transitional Zone (As to 151.1)		70 Basal Contact	-	-	4	-	tr	2	70	.037	1.93	192.6	3671
194					50											
					70											
					70											
196	Box 33				90											
					60											
198			197.8 - 202.7 Gneiss (As to 31.7)		fracture											
					Broken core											
			- local bands of graphite													
200	62% Recovered				80											
	Box 34				80											
202			202.7 - 206.1 Amph - Biotite Schist - green, well banded													
					40											
204																
206	Box 35		206.1 - 209.7 Gneiss (As to 31.7)		50											
208																

ANSCHUTZ MINING CORP. HOLE NO. DC-19 PAGE 5 OF 15

BLUE RIVER CARBONATITES LOGGED BY BRADLEY BROWN. DATE 8/22/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
210			209.7 END OF HOLE																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC 20 PAGE 1 OF 12

PROPERTY: Fir-Az 1 Claims N.T.S. NO. 83D/6E

DEPTH: 171.9 AZIMUTH: 180 ANGLE: -65° ELEVATION: 880

NORTHING: 39,741 EASTING: 48,682

DATE STARTED 9/03/81 DATE COMPLETED: 9/11/81

LOGGED BY: B.E. Nagvist

DRILL COMPANY: Boart Specialties CORE SIZE: NQ

HOLE & SITE DESCRIPTION: Hole abandoned when driller twisted off bit & new reaming shell in bottom. Casing left in hole but the upper part was twisted when drill moved to BC-21.

Sample numbers in hole 3799-3814.

Note Nb values are Nb_2O_5 in %.

ANSCHUTZ MINING CORP. HOLE NO. B.C. 20 PAGE 2 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/07/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
			0 - 4.9 Casing																
2																			
4																			
			4.9 - 120.0 Schist - Gneiss																
6			light gray, med. x'line, well foliated, quartz, feldspar muscovite ± biotite		60	core locally broken													
8																			
10																			
12					55														
14																			
16					60														

ANSCHUTZ MINING CORP. HOLE NO. B.C - 20 PAGE 2 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 9/07/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18			local thin qtz bands parallel to foliation													
20	3				60											
	Box															
22																
24					60											
26	4															
	Box				80											
28																
30			local red garnets 5-6 mm		55											
32					core sandy 31.7 - 32.0											

ANSCHUTZ MINING CORP. HOLE NO. B.C. -20 PAGE 7 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/07/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
34			34 - 39 - quartz bands up to 1 meter thick, sharp to gradational contacts, locally boudinaged.		70											
36			Box 6		50											
38																
40					65											
42			Box 7													
			42.6 - 43.0 Quartz band with minor pyrite, diss.													
44																
46					55											
			46.7 disseminated pyrite in schist, also graphite locally.													
48																

ANSCHUTZ MINING CORP. HOLE NO. B.C. 20 PAGE 5 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/07/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50	Box 9		local diss graphite. muscovite content absent below 50m. rock becomes quartz, feldspar biotite gneiss		60											
52																
54			below 54 local diss. graphite with trace of pyrrhotite		55											
56																
58	Box 10				60											
60			@ 61 irregular fractured quartz mass with pyrrhotite in fractures		63.0-63.4 mica rich crumbled.											
62																
64																

ANSCHUTZ MINING CORP. HOLE NO. B.C. - 20 PAGE 6 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.S. Ragnist DATE 7/07/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66	Box 11				60											
68																
70	Box 12		@ 71 5mm band of pyrrhotite in contact with a quartz band diss graphite in adjacent gneiss muscovite common below 72m		55											
72																
74	Box 13				55											
76					65											
78					50											
80					muscovite rich sections crumble to sand											

ANSCHUTZ MINING CORP. HOLE NO. B.C. 20 PAGE 7 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	ppm	SAMPLE DEPTH	SAMPLE NUMBER
82	Box 14		82.0 - 82.5 biotite chlorite schist below 82.5 there are local bands with chlorite poorly developed banding due to varying muscovite content		60												
84																	
86	Box 15				65												
88																	
90					65												
92	Box 16		92.8 - 93.0 green garnet amph. schist.		60 slickensides present on foliation @ 93.2												
94					65												
96																	

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. B.C 20

LOGGED BY B.E Aaquist

DATE 2/08/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
98 Box 12					60 65 60											
100			103-104 biotite rich section locally crenulated foliation		below 101 local slickensides on foliation											
102 Box 8																
104					local clay gauge in foliation											
106			garnets, 1-2 mm common, locally below 106		55											
108 Box 19					55 60											
110																
112																

ANSCHUTZ MINING CORP. HOLE NO. B.C 20 PAGE 7 OF 12

BLUE RIVER CARBONATITES LOGGED BY B. E. Aaquist DATE 9/09/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm (Nb_2O_5 %)	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
114																
116			Basal contact gradational		65°											
118			120.0 - 120.7 Biotite Amphibolite green, coarse xline, poorly banded with local crenulations													
120															120.7	
122			120.7 - 140.7 Beforsite white, coarse xline, as in holes BC. 18 & 19; texture varies from breccia to massive. The massive phase carries apatite, the breccia has pyrrhotite (non-magnetic).		inner tube did not lock core was ground.	?	.5	3	–	.5	1	190	.132	3.44	121.9	3799
124	50					1.5	–	3	–	.5	1	150	.139	2.15	123.2	3800
126	35		124.6 - 124.7 vein of coarse xline amph cut beforsite			2	–	3	–	.5	1.5	160	.106	1.91	124.4	3801
128						?	–	3	–	.5	1.5	220	.133	2.49	125.9	3802
						?	–	3	–	.5	1.5	200	.194	2.94	127.4	3803

ANSCHUTZ MINING CORP.

HOLE NO. B.C. 20 PAGE 10 OF 12

BLUE RIVER CARBONATITES

LOGGED BY B.E Gaquirt DATE 9/11/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
130	33					1	.5	3	–	.5	1.5	180	.124	2.97	130.5	3804
			131.4 – 134.1 Amphibolite			?	–	3	–	tr	1.5	260	.182	3.63	131.4	3805
132			as to amph unit at 124.7.													
	40							90				230	.144	2.50	134.1	3806
134			local amph stringers out beforsite at all angles													
						?	–	3	–	.5	1.5	130	.047	2.39	135.0	3807
136						1		3		.5	1.5	100	.041	2.99	136.0	3808
						1		3		.5	1.5	160	.069	2.24	137.0	3810
138						1		3		.5	1.5	320	.130	2.82	138.0	3811
						1		3		.5	1.5	130	.063	1.80	139.0	3812
			a skeletal (columbite) pyrochlore xl @ 140 1cm long		flow folding above a shear @ 140	1		3		.5	1.5	210	.140	2.73	139.8	3813
140			basal contact lost in broken core			1		3		.5	1.5	230	.129	2.97	140.7	3814
			140.7 – 170.5 Gneiss													
142			amph, qtz, feldspar, carbonate white & green, coarse xline moderate to poorly banded													
144																

sample tag # 3809 lost

ANSCHUTZ MINING CORP. HOLE NO. BC-20 PAGE 11 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.S. Daniel DATE 9/12/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
146																			
148																			
150																			
152			153-157 is garnet bearing up to 4 cm, muscovite rich schist, contourted foliation																
154																			
156																			
158																			
160																			

ANSCHUTZ MINING CORP. HOLE NO. BC-20 PAGE 12 OF 12

BLUE RIVER CARBONATITES LOGGED BY B.E. Oquist DATE 9/12/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
162			162.3 - 163.1 quartz-feldspar sharp irregular contacts		@165.5 is a shear parallel to core axis with 1 cm displacement											
164			161 - 167 coarse x/line massive mostly nonbanded													
166																
168			local biotite rich bands.		55											
170			170.5 - 171.9 Biotite Schist black, med. to coarse grained, local white blobs of feldspar		35											
171.9 T.D.																

ANSCHUTZ MINING CORPORATION

BLUE RIVER CARBONATITES
BRITISH COLUMBIA

HOLE NO. BC - 21 PAGE 1 OF 16

PROPERTY: FIR - AZ 1 CLAIMS N.T.S. NO. 83D/6E

DEPTH: 228.3 AZIMUTH: 090 ANGLE: -65° ELEVATION: 880

NORTHING: 39,741 EASTING: 48,682

DATE STARTED 9/16/81 DATE COMPLETED: 10/01/81

LOGGED BY: B.E. Aagaard

DRILL COMPANY: BORTZ SPECIALTIES CORE SIZE: NQ

HOLE & SITE DESCRIPTION: CASING LEFT IN HOLE - COULD NOT BE PULLED, 7.6 METERS ALL OTHER TOOLS PULLED.

SAMPLE NUMBERS IN HOLE ARE 3856 TO 3909.

NOTE Nb VALUES ARE Nb_2O_5 IN %.

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 2 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
2			0 – 7.6 Casing																
4																			
6																			
8			7.6 – 68.6 Gneiss																
	27		gray, med. xline, poorly banded feldspar, biotite, quartz																
10					55														
12																			
			13.7 – 14.3 muscovite rich unit		55														
14																			
16																			

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 3 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
18			gneiss as above		60											
20 Bx 2					55											
22					80											
24 Bx 3			24.7 - 25.0 chlorite rich bands		65											
26					65											
28					mostly massive											
30 Bx 4			31.7 - 32.0 garnet chlorite amph. gneiss, 1cm garnets													
32			@ 31.9 a band of qtz with magnetic pyrrhotite													

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 4 OF 16

BLUE RIVER CARBONATITES LOGGED BY R.E. Aaquist DATE 9/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
34			gneiss as above		60													
36	Box 2				65													
38																		
40			40.2 – 44.8 local qtz bands some are green because of minor chlorite.		70													
42	Box 3																	
44					65													
46	Box 4		@ 45.4 local chlorite rich bands		70													
48																		

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 5 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Gaquist DATE 9/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
50 Box 7			gneiss as above		poorly banded & foliated.											
52																
54 Box 8																
56																
58			below 58.5 local bands of green chlorite @ 58.8 irregular masses of pyrrhotite in gneiss & filling fractures in a 5cm qtz vein.													
60 Box 9																
62																
64																

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 6 OF 16

BLUE RIVER CARBONATITES LOGGED BY B. E. Aagaard DATE 9/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
66	10 Box		67.4 - 67.7 bands of light green chlorite		55											
68			68.6 - 69.5 Chlorite Biotite Schist black & green, med, xline		locally crenulated foliation											
70			69.5 - 75.7 Gneiss as above		60											
72	11 Box		schist / 69.5 contact / gneiss		60											
74					60											
76	12		75.7 - 79.1 Quartz Sericite Schist with local graphite also local chlorite & muscovite Graphite occurs locally as 1mm laminae on shears.		78 shears common at 70°											
78	70 Box															
			79.1 - 82.1 Gneiss as above													
80																

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 7 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Aagaard DATE 9/28/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			80.2 - 80.3 biotite rich phase		40 / 50											
82			82.1 - 84.1 Chlorite Biotite Schist as to 69.5 Basal contact gradational over 10 cm		83.2-83.5 broken core on foliation											
84			84.1 - 87.2 Foliated Diorite green amphibole pyroxene & white feldspar, med. xline		weakly developed foliation											
86			Basal contact sharp @ 55°		50											
			87.2 - 95.4 Gneiss - Schist feldspar, qtz, biotite, muscovite, light gray, med. xline locally poorly developed banding local qtz bands with coarse muscovite		well foliated											
88																
90					60											
92					60											
			below 93.6 - 4-5 mm garnets		65											
94			@ 94.6 schist occurs as discontinuous lenses in qtz		60											
			95.4 - 97.8 Chlorite Biotite Schist as to 69.5													
96																

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 8 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 9/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
98	100		Basal contact gradational over 20 cm. 97.8 - 104.9 Foliated Diorite a.c to 87.2		60														
100																			
102			@ 101.9 qtz with masses of pyrrhotite.																
104			local red garnets in basal 0.3 m Basal contact sharp @ 65° 104.9 - 105.5 Chlorite Biotite Schist as to 69.5. Basal contact gradational over 20 cm		65														
106			105.5 - 129.1 Gneiss as above																
108	100																		
110																			
112					50														

ANSCHUTZ MINING CORP. HOLE NO. BC-21 PAGE 9 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Dagnist DATE 9/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %		SAMPLE DEPTH	SAMPLE NUMBER
114					60												
116					70												
118			gneiss mostly massive, well foliated, muscovite rich		70												
120					75												
122					75 local crenulations												
124					75												
126			pod like masses of qtz, locally below 125, qtz bands up to 1 cm common below 125.														
128																	

ANSCHUTZ MINING CORP. HOLE NO. B.C. - 21 PAGE 10 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.D. Argaint DATE 9/29/91

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			Basal contact sharp & irregular appears to terminate gneissic foliation												129.1	
130			129.1 – 130.8 Beforsite, white, coarse xline, breccia texture, ~~magnetic~~ pyrrhotite ~~columnite~~ xls are diss. in beforsite & also in later x-cutting amph veins. Basal contact sharp & irregular		general trend of breccia fractures	?	–	3	–	.1	1.5	120	.106	3.32	130.0	3856
						?	–	3	–	tr	1.5	210	.173	2.82	130.8	3857
132			130.8 – 138.9 Feldspar, white, coarse xline, massive, local masses of chlorite dark green. Chlorite ~~give~~ feldspar a spotty dark internal color locally. Chlorite might be after amph. or pyrox.			–	–	–	–	–	–	56	.050	0.65	131.8	3858
134																
136			Basal contact sharp & irregular chlorite-amph in basal 0.3 m.													
															137.9	
138						–	–	–	–	–	–	55	.021	1.07	138.9	3859
			138.9 – 142.9 Beforsite as above local gray massive bands, material which forms matrix to breccia			?	–	3	–	tr	1.5	170	.017	2.12	139.6	3860
140						?	–	3	–	tr	1	210	.053	2.66	140.4	3861
			pyrrhotite occurs mostly as a cement. Amph is green to black			?	–	3	–	.1	1	150	.122	2.97	141.2	3862
142			Biotite-chlorite occurs in local bands. Basal contact sharp			1(?)	1	3	–	tr	1	150	.053	2.75	142.0	3863
			142.9 – 144.6 Feldspar core with biotite-chlorite at top & bottom feldspar as above			?	1	2	–	.1	1.5	140	.087	3.02	142.9	3864
144																

ANSCHUTZ MINING CORP. HOLE NO. BC-21 PAGE 11 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.S. Taggart DATE 9/29/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
146 Box 23			144.6 - 150.2 Diorite Gneiss green & white, coarse xline, massive to poorly banded. Green coarse xline amph & white feldspar, trace carbonate.													
148 Box 24			Basal contact sharp & irregular													
150 Box 25			150.2 - 151.5 Feldspar as to 138.9 Basal contact gradational.		80											
152			151.5 - 152.2 Diorite Gneiss as to 150.2, Basal contact sharp @ 75°													
154 Box 26			152.2 - 162.2 Feldspar as to 138.9 local amph xls 2-4 cm.													
156																
158																
160 Box 27																

ANSCHUTZ MINING CORP. HOLE NO. BC 21 PAGE 12 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Dagquist DATE 9/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
															162.2	
162 Box 26			Basal contact sharp & irregular 162.2 – 163.8 Beforsite virite, coarse x line, breccia texture 5cm of chlorite-amph at upper contact, grades into beforsite. pyrochlore, not columbite		a fracture near parallel core axis amph occurs in fracture & grows away from fracture	2		3		tr	1	100	.026	3.97	163.0	3865
						2		3		tr	1	200	.043	4.68	163.8	3866
164			163.8 – 164.6 Feldspar as above			–	–	–	–	–	–	7	.003	0.60	164.6	3867
			164.6 – 165.8 Beforsite breccia as above			3		4			1	150	.020	2.80	164.9	3868
			164.9 – 165.3 has only minor mafic minerals.			–	–	–	–	–	–	180	.026	0.53	165.3	3869
166 Box 27						3		3			1	210	.037	4.45	165.8	3870
			165.8 – 170.1 Beforsite Porphyry 1 cm dolomite x/s, in a gray f.g. matrix, x/s decrease towards base			3		3		tr	1	110	.020	4.70	166.7	3871
						3		3		tr	1	110	.019	4.18	167.5	3872
168			@ 169.2 1 cm zircon x/ with 1mm pyrochlore x/ in it			3	tr	3	tr	tr	1	240	.046	5.52	168.4	3873
						3	tr	2		tr	1	96	.024	4.20	169.3	3874
170						3	tr	2			1	120	.023	5.28	170.1	3875
	75		170.1 – 176.3 Beforsite, gray fine grained, massive		171.3 – 171.8 shear zone	3		2		ILMENITE	1	350	.160	5.13	171.3	3876
172 Box 28						3		2			2	170	.047	5.06	171.8	3877
						3		2			1	190	.050	5.45	172.8	3878
174						3		2		tr	1	220	.057	5.36	173.8	3879
						3		2	1	.5	1	110	.624	4.95	174.8	3880
						3		2			1	270	.044	5.49	175.5	3881
176						3		2			1	170	.026	4.52	176.3	3882

ANSCHUTZ MINING CORP. HOLE NO. BC-21 PAGE 13 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Qaquist DATE 9/30/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			176.3 - 180.7 Beforsite breccia as above		local chlorite slips @ 70°	?	tr	2	tr		1	260	.046	5.29	177.4	3883
178			from 178.3 down are local amph veins with 5mm chilled contacts 50°-60° common non-magnetic pyrrhotite & calcite a zircon xl at 179.2			?	tr	2	tr		1	140	.030	4.87	178.5	3884
						?	tr	3		tr	1	220	.039	4.89	179.6	3885
180						?	tr	3		tr	1	200	.041	5.30	180.7	3886
			180.7 - 182.0 Amph as veins above, dark green, med xline			?	1	90				110	.027	5.06	182.0	3887
182			182.0 - 185.5 Beforsite breccia as above			?		3			1	200	.021	4.89	182.9	3888
						?		3			1	120	.019	4.33	183.8	3889
184						?		3			1	120	.030	4.74	184.7	3890
						?		3			1	110	.019	3.18	185.5	3891
186			185.5 - 189.9 Beforsite massive as to 176.3, local porphyritic phases			2		3			1	100	.014	3.48	186.4	3892
						3		2			1	63	.010	3.98	187.3	3893
188						3		2.5			1	120	.019	4.31	188.2	3894
						3	1	2.5			V	110	.023	4.56	189.1	3895
			basal contact gradational over 10 cm			3		2.5		tr	1	220	.043	4.34	189.9	3896
190			189.9 - 194.0 Beforsite breccia as above.			3		3			1	160	.030	4.33	191.0	3897
						3		2			1	73	.014	4.78	192.0	3898
192																

ANSCHUTZ MINING CORP. HOLE NO. BC-21 PAGE 14 OF 16

BLUE RIVER CARBONATITES LOGGED BY B.E. Aaquist DATE 10/01/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyrochlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
			chlorite-amph in basal cm.			3		2.5		tr	1	140	.076	5.10	193.0	3899
194			194.0-195.0 Feldspar as above basal contact sharp @ 55°			3		2.5			1	140	.026	4.26	194.0	3900
						–	–	–	–	–	–	5	.004	0.21	195.0	3901
196			195.0-196.6 Beforsite breccia as above		local fractures along core axis	3		2.5			1	92	.024	3.95	195.3	3902
						3		2.5			1	150	.017	4.03	196.6	3903
			196.6-201.8 Beforsite massive as to 176.3			2.5		2.5			1	360	.096	3.80	197.6	3904
198						3		2			1	210	.069	3.08	198.7	3905
			local phenocrysts below 198.1			3		2		tr	1	210	.100	3.96	199.7	3906
200						3		2			1	170	.086	3.69	200.7	3907
			201.8-203.0 Beforsite breccia as above			3		2.5		tr	1	170	.076	4.21	201.8	3908
202						3		3			1	150	.083	4.15	203.0	3909
			203.0-210.3 Gabbro-Diorite Gneiss coarse xline, massive to weakly banded, black to green amph or pyrox & white feldspar		75											
204																
206																
					60											
209																

ANSCHUTZ MINING CORP. HOLE NO. B.C. 21 PAGE 15 OF 16

BLUE RIVER CARBONATITES LOGGED BY R E August DATE 10/04/81

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY	% ACCESSORY MINERALS: Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide	ANALYSES: Ta ppm	Nb ppm	P_2O_5 %	SAMPLE DEPTH	SAMPLE NUMBER
210			Basal contact gradational 210.3 - 228.3 Gneiss gray, med. xline, well banded to massive													
212																
214			213.3-220 local diss. magnetic pyrrhotite & trace graphite		shears parallel to core axis some with movement slem core locally broken because of shears											
216																
218																
220																
222			irregular, discontinuous qtz feldspar bands.													
224																

ANSCHUTZ MINING CORP.

BLUE RIVER CARBONATITES

HOLE NO. BC-21

LOGGED BY R. E. August

DATE 10/04/12

DEPTH	% REC.	GRAPHIC	ROCK TYPE & DESCRIPTIVE LITHOLOGY	GRAPHIC	STRUCTURE & ROCK QUALITY		% ACCESSORY MINERALS							ANALYSES				SAMPLE DEPTH	SAMPLE NUMBER
							Apatite	Biotite	Amph.	Mag.	Pyro-chlore	Sulfide		Ta ppm	Nb ppm	P_2O_5 %			
226.7 Box 37					30														
228.3 T.D																			