ASSESSMENT REPORT

covering
geological, geochemical surveys,
diamond drilling, roadwork,
metallurgical testing
on the

BEARCUB INDUSTRIAL MINERALS PROPERTY

Work on Bearcub 2
in the
Vernon Mining Division
50° 15' 118° 48'
N.T.S. 82L/2W,7W

Owner:	Brenda Mines Ltd.
Operator:	Brenda Mines Ltd.
Consultants:	Shelly Logan Gordanier E.H. Bentzen III B.M. Nikodijevic Rodney McMorran
Report by:	Shelly Logan Gordanier, B.Sc.
Date Submitted:	21 August 1989
Work Performed:	April 30, 1988 to July 31, 1989

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December 21, 1988	File: BEARDR01.FRM
January 31, 1989	File: BC 88-8T5.FRM
February 10, 1989	File: BCHEADS 1.FRM
February 15, 1989	File: BCHEADS 2.FRM
February 16, 1989	File: BCHEADS 3.FRM
February 22, 1989	File: BCHEADS 4.FRM
February 24, 1989	File: BCHEADS 5.FRM
March 28, 1989 (Table No. 16)	File: BBC - 88-1.FRM
April 11, 1989 (Table No. 20)	File: BC 881H.FRM

7. May, 1989 Petrographic Report on Bearcub samples No. 1501, 1502, 1505, 1508 by John Payne (See also Appendix 3 for sample description by Gordanier).

8. Miscellaneous Reports on Metallurgical Testing

July 14, 1989	Memo from B.M. Nikodijevic to J.W. Austin re Bearcub metallurgical testing
June 30, 1989	Bearcub metallurgical testing Progress Report No. 5 by B.M. Nikodijevic
March 2, 1989	Bearcub metallurgical testing Progress Report No. 4 by B.M. Nikodijevic
February 6, 1989	Bearcub metallurgical testing Progress Report No. 3 by B.M. Nikodijevic
July 25, 1988	Bearcub metallurgical testing Progress Report No. 2 by B.M. Nikodijevic
March 29, 1988	Letter report by Ore Sorters (North America) on preliminary metallurgical study of Bearcub samples. Author: E.H. Bentzen III
January 19, 1988	Preliminary metallurgical testing of Bearcub pegmatite Progress Report No. 1 by B.M. Nikodijevic.

SUMMARY

1. Brenda Mines Ltd. holds under option/or by location of total of 160 mineral claim units which constitute the Bearcub Prospect near Lumby, British Columbia.

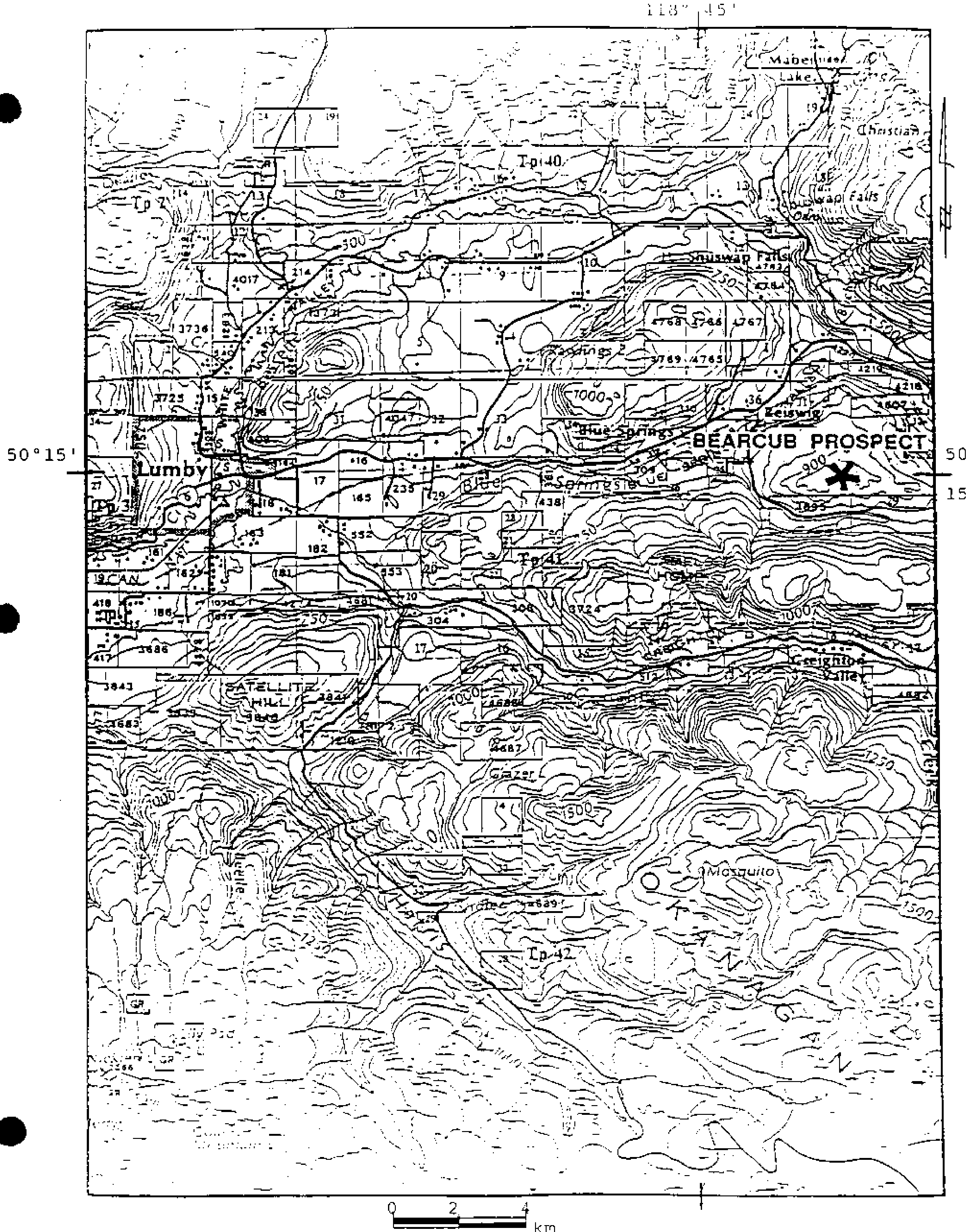
2. Infrastructure is widely developed in the area.

3. Geological mapping, systematic blast pit sampling, diamond drilling and metallurgical study results to date are encouraging.

4. 7.8 million tons of pegmatite ore yielding feldspar concentrate, quartz concentrate, and mica concentrate have been outlined by the 1988 diamond drilling program.

5. Potential for increasing reserves to the east and south of the Proposed Mining Zone, as defined by the 1988 drill program, remains high.

6. Further exploration, metallurgical and marketing studies are justified.


118° 45'
50°15'
BEARCUB PROSPECT
Lumby
Mabel Lake
Christian
Tp 40
Tp 41
Tp 42
Shuswap Falls
Blue Springs
Reiswig
Creighton Valley
SATELLITE HILL
Mosquito
0
2
4
km.
118° 45'
FIGURE 1

1. INTRODUCTION

The Bearcub industrial minerals property is situated adjacent to Highway 6 about 10 km east of the town of Lumby in the Okanagan region of southern British Columbia. Physiographically, the property is situated in the southern parts of the Shuswap Highland (G.S.C. Map 1701A).

The property consists of 23 contiguous claims containing 160 units. Table 1 gives the current status of the claims including dates of recording.

Mr. Robert Bechtel, an Okanagan Valley area prospector with a noteable early exploration success in the region, located the key Bearcub claims in 1986 for their industrial minerals potential. Brenda Mines Ltd. optioned the property from Mr. Bechtel in 1987. Prior to the work reported herein, Brenda financed programs of geological mapping and geochemical sampling.

Exploration results to date are encouraging with a proposed mining zone containing 7.8 million tonnes of feldspar, silica and mica ore indicated by diamond drilling. The potential for increasing this reserve is considered high.

Work discussed in the current report can be summarized as follows with all work performed on Bearcub 2 Mineral Claim:

Geological mapping Scale 1:500
Work performed during road construction and drilling: October 9, 1988 - December 11, 1988
Area mapped 95,000m^2 Ref. Plate 4

Rock sampling and feldspar staining.
Work done in period April 30, 1988 - May 7, 1988

Diamond drilling: 15 holes of HQ size, each 60.98m for a total of 914.63m
Work done in period November 8, 1988 - December 11, 1988

Metallurgical testing
Reports in Appendix 8 are dated January 19, 1988 to July 14, 1989.

2. GENERAL

Herein follows a description of various work carried out on the Brenda Mines Ltd.'s Bearcub Prospect between April 30, 1988 and July 31, 1989.

The Bearcub Prospect located near Lumby, British Columbia is presently being evaluated for the industrial minerals feldspar, quartz, and mica. (Figure 1). Potential for good quality feldspar has been recognized on Bearcub 2.

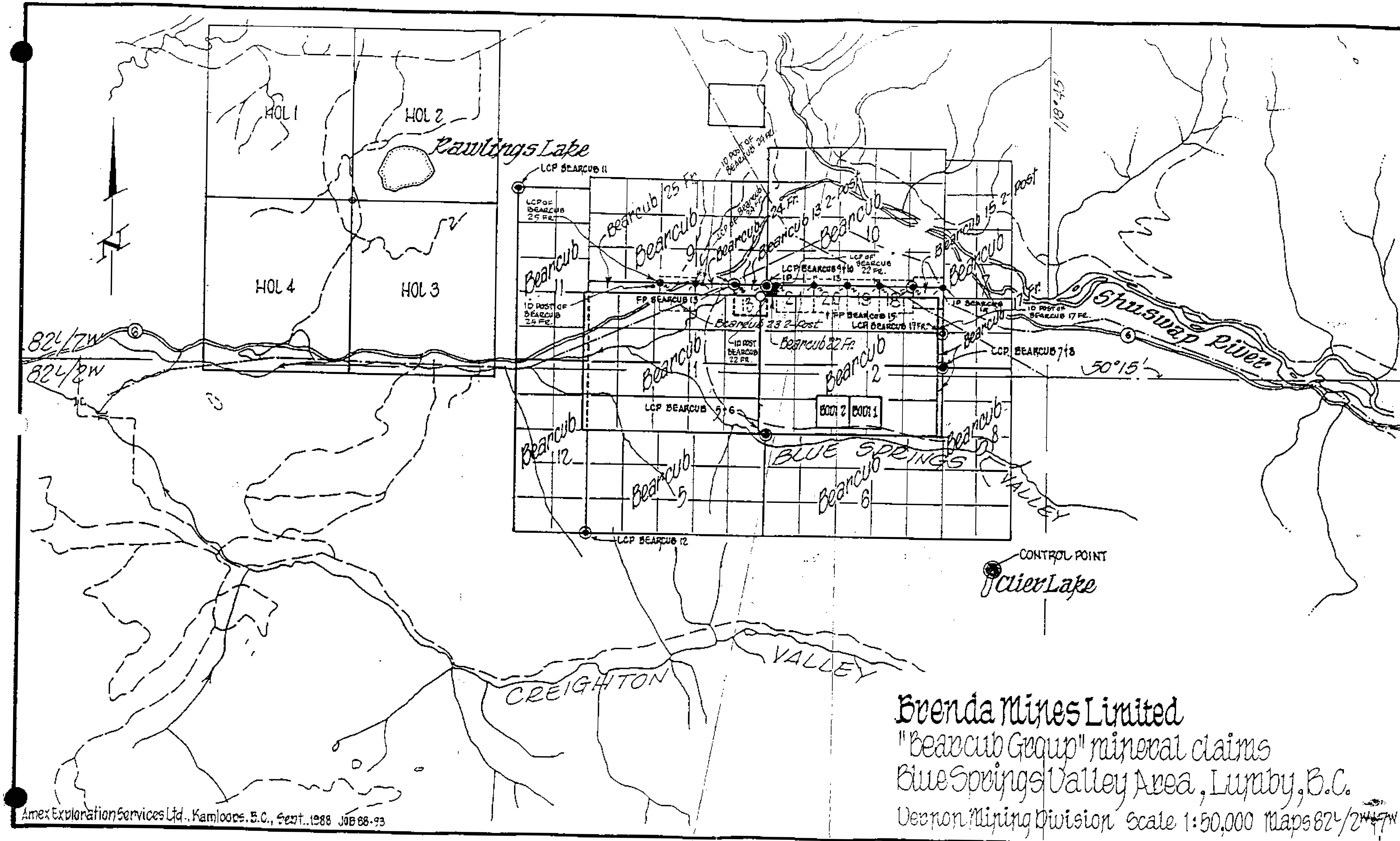

Brenda Mines Limited
"Bearcub Group" mineral claims
Blue Springs Valley Area, Lumby, B.C.
Vernon Mining Division Scale 1:50,000 Maps 82L/2W
Amex Exploration Services Ltd., Kamloops, B.C., Sept. 1988 JOB 88-93
Rawlings Lake
HOL 1
HOL 2
HOL 3
HOL 4
N
82L/2W
Shuswap River
BLUE SPRINGS VALLEY
CREIGHTON VALLEY
Cliev Lake
CONTROL POINT
50°15'
118°45'
LCP BEARCUB 11
LCP BEARCUB 12
LCP BEARCUB 5+6
LCP BEARCUB 7+8
LCP BEARCUB 9+10
FP BEARCUB 13
FP BEARCUB 15
LCP BEARCUB 17 Fr.
Bearcub 1
Bearcub 2
Bearcub 5
Bearcub 6
Bearcub 7
Bearcub 8
Bearcub 9
Bearcub 10
Bearcub 11
Bearcub 12
Bearcub 13 2-Post
Bearcub 15 2-Post
Bearcub 22 Fr.
Bearcub 23 2-Post
Bearcub 24 Fr.
Bearcub 25 Fr.
BOOT 1
BOOT 2

FIGURE 2

Following is a list of claims , all held in good standing and located in the Vernon Mining Division. (Table 1) (Figure 2).

TABLE 1: CURRENT LAND HOLDINGS

NAME	UNIT	RECORD NO.	RECORDING DATE	ASSESSMENT DUE DATE
Bodi 1	1	1912	Oct. 29, 1984	Oct. 29, 1991
Bodi 2	1	1913	Oct. 29, 1984	Oct. 29, 1991
Bearcub 1	20	2181	Nov. 18, 1986	Nov. 18, 1990
Bearcub 2	20	2182	Nov. 18, 1986	Nov. 18, 1991
Bearcub 5	15	2962	Sept. 6, 1988	Sept. 6, 1989
Bearcub 6	15	2963	Sept. 7, 1988	Sept. 7, 1989
Bearcub 7	12	2964	Sept. 10, 1988	Sept. 10, 1989
Bearcub 8	10	2965	Sept. 8, 1988	Sept. 8, 1989
Bearcub 9	15	2966	Sept. 12, 1988	Sept. 12, 1989
Bearcub 10	20	2967	Sept. 12, 1988	Sept. 12, 1989
Bearcub 11	10	2968	Sept. 12, 1988	Sept. 12, 1989
Bearcub 12	10	2969	Sept. 10, 1988	Sept. 10, 1989
Bearcub 13	1	2970	Sept. 12, 1988	Sept. 12, 1989
Bearcub 15	1	2971	Sept. 12, 1988	Sept. 12, 1989
Bearcub 17 (fract.)	1	3135	March 4, 1989	March 4, 1990
Bearcub 18	1	3136	March 4, 1989	March 4, 1990
Bearcub 19	1	3137	March 4, 1989	March 4, 1990
Bearcub 20	1	3138	March 4, 1989	March 4, 1990
Bearcub 21	1	3139	March 4, 1989	March 4, 1990
Bearcub 22 (fract.)	1	3140	March 4, 1989	March 4, 1990
Bearcub 23	1	3141	March 4, 1989	March 4, 1990
Bearcub 24 (fract.)	1	3142	March 4, 1989	March 4, 1990
Bearcub 25 (fract.)	1	3143	March 4, 1989	March 4, 1990
TOTAL UNITS	160			

The Bearcub Prospect is comprised of 160 units in 23 claims, with Bearcub being the principal group. Bodi 1, Bodi 2, Bearcub 1 and Bearcub 2 were staked by R. Bechtel of Penticton and subsequently optioned to Brenda Mines in 1987. Bearcub 5 - 12 (four post), Bearcub 13 and 15 (two post) were staked by Brenda Mines Ltd. in September, 1988. Bearcub fractions 17, 22, 24 and 25 and Bearcub 18, 19, 20, 21 and 23 (two post) were staked by Brenda Mines Ltd. March 4, 1989.

3. LOCATION AND ACCESS

The property is located approximately 10 kilometers east of Lumby, British Columbia. Highway 6 passes through the northern third of the property. Bear Valley Road then Center Road provide direct access to the proposed mining zone on Bearcub 2. Brenda Mines Ltd. constructed a four-wheel drive road from Center Road to the 1988 drill target. (Figure 3).

Property elevations range from 640 m to 1066 m. a.s.l. Outcrop exposure is good. The terrain is typified by rounded pegmatite bluffs at the upper elevations. The property is covered by mixed open forest. Overburden appears shallow at higher elevations and is deeper on the slopes below the pegmatite outcrop. Deadfall is sparse.

The Bearcub Prospect is well located with respect to infrastructures such as roads, railway and power. Highway 6 provides direct access to the property. Lumby is the current railhead for CN Rail, and a high tension power line crosses the property. A possible market is located near Lumby at Lavington where feldspar is utilized in glass manufacture.

4. GEOLOGIC SETTING

The regional geology is described by A.G. Jones in Memoir 296, published in 1959. Refer to GSC Map 1059 A: Geology of Vernon, Kamloops, Osoyoos and Kootenay districts of British Columbia.

The pegmatite exposed on the south side of the property is most probably a member of the Monashee Group. Regionally, within this group are found granitoid gneiss, augen gneiss, mica-sillimanite-garnet schist, quartzite, marble, hornblende gneiss, and slate phyllite. Pegmatite is the most common component of the group. It occurs as wisps, lenses, discontinuous layers, small sills and dikes. The amount present has no direct relationship to the grade of metamorphism within areas of high grade metamorphic strata, according to Jones.

The Bearcub pegmatite may be the Silver Star variety described by Jones. The Silver Star pegmatites occur as generally concordant sheet-like or lenticular masses which were emplaced between, or scattered along the planes of foliation and bedding of the country rock . In some places he noted the pegmatite to exceed in amount the intruded rock. The pegmatite tends to be more resistant to weathering.

The age of the Monashee Group has not been established. In the past a Precambrian age has been assigned because of the high degree of metamorphism, however, recent work suggests that the group may be Paleozoic or younger.

R.U. Bruaset describes the geology of the Bearcub property. (Bruaset, 1987) (Figure 3). Detailed geologic mapping of the proposed mining zone on Bearcub 2 supports Bruaset's findings and is discussed in Section 7.

5. 1988 and 1989 FIELD PROGRAMS

This report describes the results of geological mapping and trenching, geochemical analytical work, and diamond drilling carried out on the Bearcub Prospect in the 1988 and 1989 field seasons. The program consisted of detailed geological mapping at 1:500 scale, follow-up of anomalous rock geochemistry delineated in 1987 and 1988 surveys, rock sampling, diamond drilling, core analysis, petrography, and metallurgical studies.

The work forms part of an ongoing effort to define an economic pegmatite orebody of feldspar, quartz, and mica.

6. FOLLOW-UP ROCK GEOCHEMISTRY

i. Introduction

Between April 30 and May 7, 1988 a two man crew carried out follow-up to previous rock geochemical surveys for 16 man days. The primary objective of the program was to identify and map in the field, zones of greater than 8% K_2O by assay as indicated by the 1988 Bruaset blast-pit sampling work. (Bruaset, 1988). Potassic-rich zones within the pegmatite serve to upgrade the economic potential of the prospect and therefore warranted special study.

ii Methods of Study

The validity of previous sampling programs, and trends defined, were tested by re-examining sample locations. Work was concentrated in areas of high K_2O by assay. The sodium cobaltinitrite method proved faster and more reliable as a mapping tool than megascopic examination alone in this case. Representative hand samples of known assay were first etched with hydrofluoric acid for one minute and rinsed with water. A solution of sodium cobaltinitrite was then applied for two minutes, the sample again rinsed with water and allowed to dry. Comparison of percent feldspar stained yellow with sodium cobaltinitrite to geochem assay allowed us not only to identify potassium feldspar, but to roughly estimate percent K_2O in the field. At 8% K_2O by assay 100% of the feldspars in hand sample stain bright yellow. At less than 5% K_2O by assay less than 50% of the feldspars stain.

Five samples were collected and analysed to test suspect samples. Results are presented in Table 2 and Table 3. A copy of the Certificate of Analysis is found in Appendix 1, while the analytical process is described in Appendix 2, and samples described in Appendix 3. Sample locations are noted on Figure 3.

TABLE 2: COMPARING CHECK SAMPLES WITH 1987 DATA

SAMPLE NO.	SiO_2 %	Na_2O %	K_2O %
SLG 1	80.0	1.75	9.90
R8737	69.8	1.95	10.70
SLG 2	71.2	2.40	9.97
R8734	67.4	3.04	11.1
SLG 3	75.5	2.74	6.73
R8701	70.7	2.19	9.81
SLG 4	71.2	2.15	9.80
R8793	70.6	2.30	9.85

SLG Samples were collected by the author in 1988, analysed at Brenda Mines.
R Samples were collected by R.U. Bruaset in 1987, from Bruaset,1987.

TABLE 3: WHOLE ROCK ANALYSIS

Sample No.	Location	SiO_2 %	Na_2O %	K_2O %	CaO %	Al_2O_3 %	Fe_2O_3 %	MgO %	MnO %	BaO %	LOI %	H_2O %
SLG 5	3+00N/ 2+00W	74.6	3.41	0.44	4.68	16.34	0.44	0.08	0.01	<0.01	0.72	0.04

Twelve hand samples were forwarded to Vancouver Petrographics to be cut by diamond saw and stained with sodium cobaltinitrite to form a reference suite. (See Section 10).

iii. Results

Megascopically, anhedral-subhedral potassic feldspars could not easily be differentiated from anhedral-subhedral plagioclase in the study area except when crystal size and percent plagioclase increases. Accurate estimations of potassium feldspar vs. plagioclase were not possible. However, when K_2O approached 8%, plagioclase was never observed in hand speciman.

Several inconsistent results in both the megascopic comparison and the sodium cobaltinitrite comparison to assay values illustrate pegmatite variability at sample locations. Representative sampling of rounded, relatively smooth, outcrops is extremely difficult given the variability of crystal size and mix of euhedral to anhedral feldspars at any given location. Therefore it is not surprising that unavoidable problems with previous sampling would become evident when anomalous results were checked.

Trends of greater than 8% K_2O defined by the 1987 grab sample program are not reproduced by the 1988 blast sample program. It is evident that a majority of the anomalous 1987 samples were obtained from the euhedral (blocky weathering) portion of the pegmatite, whereas the 1988 blast sampling appears to be more or less representative of the pegmatite at that location. Due to the blocky appearance of the outcrops, preliminary sampling without the aid of blasting may not yield representative samples.

In the first three check samples of possibly more representative material at certain locations lower values for K_2O have been returned, thereby confirming the variability problem when sampling. (Table 2). However, the first two are still in excess of 8% K_2O. The fourth sample of outcrop at location 8793 returned values very like the original sample.

iv. Conclusions

Concentrated field mapping in anomalous areas of greater than 8% K_20 as indicated by previous rock geochemistry failed to identify zones of potassium feldspar in quantities suitable for selective mining. Field relationships strongly suggest that this is an anatexic pegmatite and therefore one would not expect the layering or zoning associated with fractional crystalization from a magma.

Sporadic anomalies of greater than 8% K_20 reflect local variability within the anatexic mass, enhanced by unrepresentative sampling in some areas and do not indicate trends of high potassium feldspar.

7. GEOLOGIC MAPPING

i. Introduction

Eight man days were spent mapping the geology of the proposed mining zone at 1:500 scale, eastward from 8+50 E to 11+50 E and northward from 2+00 N to the cliff base at approximately 5+50N. The work was carried out while road building and diamond drilling were in progress when time permitted. Closed compass traverses tied outcrop exposures to the Bearcub grid established in 1988. Particular emphasis was placed on gneiss occurrence and significance within the pegmatite unit. (Figure 4).

ii. Lithologies

A white, medium to coarse-grained, feldspar-quartz-biotite ± muscovite pegmatite body (possibly a sill, or network of anastomosing veins and dikes) of the Monashee Group outcrops topographically higher than the Shuswap metasediments (layered granite and biotite gneisses) it intrudes unconformably. The pegmatite is composed typically of 70% feldspar (K-feldspar>Na-feldspar+Ca-feldspar), 25% quartz, 5% mica (biotite≥muscovite) ± accessory minerals such as almandine garnet, chalcopyrite, and pyrite. Grain-size, and percentage of biotite and/or muscovite varies sporadically throughout the area. Feldspar crystals are anhedral to euhedral in form and individual crystals may be zoned in composition. Minor garnet occurs in wispy lenses as an accessory mineral in mica-rich zones. Graphic texture is sometimes observed. Slight, to moderate surface oxidation (limonite and hematite) of the outcrop is randomly noted. Barren quartz veins, up to 20 cm wide, occasionally cut the pegmatite and generally strike southeasterly.

Overburden masks the downslope extension of the pegmatite in most places. Biotite geneiss is exposed discontinuously under pegmatite cap rocks at the base of 20 - 30 m cliffs at the extreme northern edge of the proposed mining zone. Here, as in perhaps other instances, the overburden-pegmatite interface is coincident with the pegmatite-gneiss contact. Xenoliths of gneiss are sometimes observed in pegmatite, and always in proximity to the pegmatite-gneiss contact. These may be partly assimilated. Twelve trenches excavated by backhoe while road building, and later infilled, provided additional geologic information in overburden covered areas. Trenches of varying depth in overburden covered depressions between pegmatite outcrops generally exposed recessive gneissic units or interlayered pegmatite and gneiss as presented in Table 4. We can safely predict that when overburden covers an area it is unminable given our present cut off grade of 90% pegmatite by volume. Trench locations are marked by pickets in the field. Trench locations are plotted on Figures 4 - 9.

TABLE 4: TRENCH LOCATION, DEPTH AND LITHOLOGY

Trench Number	Location	Azimuth	Depth	Lithology
T-1	8+71E/3+31N	090°	2.4m	biotite gneiss
T-2	8+61E/3+22N	090°	3.0m	meta-arkose
T-3	8+77E/3+81N	101°	1.5m	biotite gneiss
T-4	9+08E/4+31N	046°	3.0m	pegmatite and biotite gneiss
T-5	9+61E/3+39N	022°	3.2m	pegmatite with minor biotite gneiss
T-6	9+92E/3+20N	021°	1.4m	pegmatite
T-7	9+98E/3+94N	360°	2.8m	pegmatite with minor biotite gneiss
T-8	9+64E/1+90N	008°	2.2m	pegmatite
T-9	9+26E/2+19N	041°	3.3m	biotite gneiss with quartz vein
T-10	9+90E/3+02N	018°	0.5m	pegmatite
T-11	10+76E/3+53N	056°	4.4m	biotite gneiss
T-12	10+28E/3+08N	090°	1.9m	biotite gneiss

The simple sedimentary aspect of the underlying Shuswap gneisses has been largely obscured by metamorphism. The gneisses vary in composition. Biotite gneiss is typically composed of 40% feldspar, 35% quartz, and 25% biotite (± other). Granite gneiss is typically composed of 30% feldspar, 50% quartz, 15% biotite, and 5% muscovite. The present layered character may reflect relict bedding but is to a great extent influenced by deformation and recrystallization. Concentrations of garnets occur at the contacts between some layers and occasionally in bands or localized zones within the pegmatite. These garnets may reflect original heavy mineral concentrations.

Lack of chilled margins at the pegmatite contact with the gneisses, and the irregular nature of the contact itself suggest an anatexic origin for the pegmatite. Irregular concordant and minor discordant veins and dikes of pegmatite often occur within gneissic units. Although many of the thin concordant veins possibly originated by partial melting in situ, the larger bodies are thought to have moved upward from deeper levels.

Elsewhere on the property quartz-diorite and limestone have been noted. (Bruaset, 1987).

iii Conclusions

Based on areal extent defined by mapping and elevation profiles along north-south grid lines a substantial volume of potentially economic pegmatite yielding feldspar, silica and mica products has been established. Nothing was encountered during the course of geologic mapping that would indicate future mining problems.

8. ROAD BUILDING

Ohashi Bros. Logging Co. of Lumby was contracted to provide access from Center Road to the proposed mining area on Bearcub 2 for the 1988 diamond drilling program. Two kilometers of skid trail were constructed by D-6 CAT between October 5 and October 19, 1988. (Figure 3). Thirteen drill pads, approximately 12x20 meters, were constructed or levelled. Timber removed during road construction was decked at the approved landing area in accordance with Minister of Forestry instructions. A culvert was placed on Center Road at Bear Valley Road to accommodate run-off in the ditches. Center Road was levelled, and widened in preparation for log removal.

9. DIAMOND DRILLING

i. Introduction

Lone Ranger Diamond Drilling Ltd. of Lumby was contracted to drill 3,000 feet (913.5 meters) of HQ core to test the three dimensional nature of the Bearcub pegmatite. Fifteen holes, each to a total depth of 200 feet (60.9 meters) were drilled between November 8 and December 11, 1988. All fifteen holes were located with respect to a picket grid established by Bruaset in 1988 as control for a blast pit sampling program. The holes maintain approximately 100 meter grid spacing in the Proposed Mining Zone. (Figure 3). All holes were inclined at -90°. Dip tests were not performed. Diamond drill statistics are summarized below in Table 5.

To minimize environmental impact, settling ponds were constructed to catch return water from the drill at each site, and were subsequently filled in at the completion of each hole. Drilling muds and lubricants were not used in the program.

Drill core was logged on site and the core transported to the Mill building at the Brenda Mine for storage.

TABLE 5: SUMMARY OF DIAMOND DRILL DATA

Drill Hole #	Location Northing	Location Easting	Elevation a.s.l.	Core Size	Dip Angle	Total Depth (meters)	Pegmatite Percent
BC 88-1	4+50N	9+00E	1060m	HQ	-90	60.9	97.00%
BC-88-2	4+00N	9+50E	1055m	HQ	-90	60.9	93.10%
BC-88-3	3+44N	9+00E	1025m	HQ	-90	60.9	65.30%
BC-88-4	3+00N	9+50E	1035m	HQ	-90	60.9	59.60%
BC-88-5	2+12N	9+03E	1035m	HQ	-90	60.9	68.85%
BC-88-6	4+50N	10+00E	1043m	HQ	-90	60.9	75.70%
BC-88-7	4+01N	10+55E	1063m	HQ	-90	60.9	57.30%
BC-88-8	3+50N	10+00E	1035m	HQ	-90	60.9	57.80%
BC-88-9	2+48N	9+96E	1045m	HQ	-90	60.9	59.60%
BC-88-10	3+00N	10+50E	1053m	HQ	-90	60.9	72.50%
BC-88-11	2+55N	11+02E	1055m	HQ	-90	60.9	100.0%
BC-88-12	3+56N	10+98E	1060m	HQ	-90	60.9	85.50%
BC-88-13	4+25N	11+15E	1074m	HQ	-90	60.9	93.90%
BC-88-14	4+00N	10+00E	1038m	HQ	-90	60.9	76.60%
BC-88-15	3+00N	10+00E	1038m	HQ	-90	60.9	70.35%

ii. Lithologies

A summary of geologic units intersected by the 1988 drill program follows. Individual drill logs are to be found in Appendix 4.

<u>Pegmatite</u>

Pegmatite is the dominant rock type encountered in all fifteen diamond drill holes. It comprises an average of 75.55% of the core and ranges from a low of 57.3% of the core in BC 88 - 7 to a high of 100% of the core in BC 88-11. Mineable, +90% pegmatite is concentrated in the northern, and, eastern portions of the Proposed Mining Zone. (Figure 3).

The pegmatite unit is white and sometimes mottled looking in colour. The pegmatite is typically composed of 70% feldspar, 25% quartz, 5% mica ± other. Euhedral to subhedral feldspar crystals vary from medium (0.5 - 1.5 inches) to coarse grain size (1.5 - 4 inches). Orthoclase (K feldspar) is the most common feldspar observed, followed by albite and/or oligoclase (Na, Ca feldspar) based on megascopic determinations. Subhedral mica crystals are generally 0.13 - 0.25 inches in diameter with occasional crystals upwards to 2 inches in some zones. Anhedral grey quartz occurs interstitial to feldspar and micas. Almandine garnets are sometimes observed individually or in wisps and range in size from 0.05 to 0.5 inches in diameter. Less frequently 0.5 - 3 inch blebs of very fine-grained chalcopyrite and pyrite were intersected in core. Crystal form, grain size and mineralogy independently change in a gradational manner down hole. Contacts are sharp to gradational over a few inches as noted in the logs. Chill margins were not observed. Xenoliths of biotite gneiss are incorporated infrequently down hole.

Alteration is mostly confined to the upper weathering zone. In the weathering zone slight to moderate blotchy limonite ± hematite staining occurs along some tectonic fractures and inter-crystal cleavage fractures in feldspar. Iron oxidation decreases gradually down hole. Occasionally feldspars may be slightly kaolinized and epidotized. Biotites may be partly altered to chlorite. Cuprous staining is sometimes associated with the sulphide blebs.

Biotite Gneiss

Biotite gneiss is encountered in all diamond drill holes except BC 88 - 11, and represents the second most frequent rock type intersected.

The dark black unit occurs as interlayers or interbeds, ranging from less than one foot upwards to forty feet, within pegmatite. It is typically composed of 40% feldspar, 35 % quartz, and 25 % biotite ± other. The fine to medium-grained biotite gneiss exhibits poor to well developed gneissosity ranging from 40 to 70 degrees to core with most frequent gneissosity at 70 degrees to core. Ptygmatic folding of thin felsic mineral segregation bands is sometimes observed. Very fine-grained sulphides (pyrite?) may be disseminated in certain interlayers. Some almandine garnets may be present in wisps. Occasional very fine-grained graphite may be present in some interlayers. With petrographic work the biotite gneiss could possibly be divided into discrete metasedimentary units. Because gneiss is considered uneconomic petrographic studies were not indicated.

Contacts with pegmatite are generally sharp. Contacts with granite gneiss may sometimes be gradational over a few centimeters as noted in the logs.
Minor blotchy iron oxidation is more prevalent in the upper weathering zone. Biotite, unidentified mafics, and minor sulphides may be slightly altered to limonite and/or hematite. Oxidation is more noticeable when the unit is cut by tectonic fractures. Elsewhere biotite may be partly altered to chlorite.

Granite gneiss

Granite gneiss is encountered in nine drill holes as interlayers or interbeds ranging in width from less than one foot to three feet. It represents the third most abundant rock type intersected.

The light to medium grey colored, fine-grained, equigranular unit is encountered less frequently than the biotite gneiss it is intimately associated with. Gneissosity is poorly developed. When gneissosity is observed it ranges from 40 to 70 degrees to core. Slight compositional banding may be present. Contacts with the pegmatite are usually sharp. Contacts with biotite gneiss are usually gradational.

This unit probably reflects a discrete, more felsic, relict bed or layer in the overall sedimentary package. It is typically composed of 40 - 50% feldspar, 40 to 50% quartz, 10 to 15% biotite ± other mafic minerals, and occassional muscovite.

Alteration of this unit is negligible.

Meta-arkose

Meta-arkose is encountered in five drill holes as irregular, mottled interlayers (lenses?) in gneiss. This unit may represent granitization of the country rock. It comprises a small percentage of the rock units encountered.

The mottled green-pink, fine to medium-grained, equigranular unit ranges in width from less than one foot to six feet. Contacts are irregular, generally sharp, but occassionally gradational. Relict bedding (or gneissosity) is poorly preserved in places.

The unit is typically composed of 30 to 40% feldspar, 50 to 60% quartz, and 10% other, including biotite.

Biotite is commonly altered to chlorite.

Quartz-feldspar-biotite dike

An 8 inch wide dike or vein, comprised of 60% quartz, 40% feldspar and less than 0.5% biotite intrudes pegmatite in diamond drill hole BC 88 - 3. The medium-grained, equigranular unit is light pink in color, with interspersed biotite knots. Chilled margins are not evident. Contacts are sharp.

Alteration is not noted.

Chlorite-quartz-feldspar fault block

A 1.1 foot wide, fine-grained, mottled dark green unit with white 1/8 inch to one inch fragments of quartz and quartz-feldspar incorporated, is intersected in diamond drill hole BC 88 - 15. The block is bounded by sharp contacts (possibly slip surfaces?). The upper and lower contacts intersect to form a right angle. Very fine - grained pyrite and chalcopyrite blebs (1/4 to 1/8 inches) and micro - veinlets are distributed within the unit, in addition to a lesser amount of graphite randomly disseminated.

The unit is comprised of 60% chlorite, 25% quartz, 15% feldspar, 1% sulphides (<1% pyrite, <1% chalcopyrite), and <<1% graphite).

A 3/4 inch barren quartz vein defines the lower contact.

iii. Structure

The core is moderately broken as a result of fractures, fault breccia zones, and shears. These features cut all rock types in all diamond drill holes.

Fractures are relatively clean but may have thin clay or sericite coating. In the weathering zone the surfaces may be oxidized to some degree. Minor pyrite and chalcopyrite may be observed occasionally.

In gneissic units fractures parallel gneissosity for the most part. In pegmatite fractures range from sub-parallel to core, 10°, 20 - 30°, and 40 - 45°. Broken zones and/or fault breccia may in part be zones where fracture sets intersect. This is evidenced by the sub-parallel to core set associated with the larger broken intervals. Fragments within these zones range from 1 - 5 inches, whereas the zones vary from 1 to 2 feet wide down hole. Most are 2 feet wide. Recovery ranges from 60 to 90%, and occasionally may be 10%.

Shears have been isolated from fractures on the basis of slickensides and fault gouge. Dip slip movement has been indicated. Two prevalent shears have been intersected, one at 30° to core (dip slip), and the second at 45 - 50° to core (predominantly dip slip). A third set has been intersected at 5 - 10° to core. Only the few 70 - 80° to core shears indicate strike slip movement.

Five of 15 holes intersect barren quartz veins. These range from 1/2" to 3" wide. The most prevalent set intersects the core at 70°. One 1" barren quartz-feldspar vein was noted.

iv. Alteration

Holes BC 88-1, 2, 6, 7 and 13 were examined in detail for alteration occurrences. Nowhere is oxidation pervasive. Slight to moderate oxidation occurs in the weathering zone and decreases gradually down hole. This oxidation lends a blotchy appearance to the core when present. Discoloration of the pegmatite may be traced primarily to two sources. Firstly slight surface oxidation occurs along some micro cleavage fractures within individual feldspar crystals. These may represent features produced as the pegmatite body cooled. These fractures do not extend into interstitial quartz. The oxidation itself of these fractures surfaces may have occurred at a much later date, possibly as a result of surface weathering due to meteoric groundwater circulation. Secondly, slight to moderate oxidation may be found on structural fractures cutting the pegmatite body. These may have been produced during a regional tectonic event. The fractures form conduits for circulating meteroric (oxidizing) solutions.

The oxidation, or brown orange stain along fractures has been identified as limonite, hematite and manganese oxide. (See Section 9).

Very minor epidote, and chlorite alteration occur as noted in the diamond drill logs.

Alteration was examined in greater detail in BC 88 - 1, 2, 6, 7, and 13. The alteration logs are included as Appendix 5.

v. Mineralization

Ten of fifteen holes have very minor pyrite and chalcopyrite occurrences. These minerals occur as isolated blebs or lenses, as well as fine-grained disseminations occasionally along fractures, or as smears on shear surfaces. These random blebs, within pegmatite range from 1/8" diameter to 3" x 3/4" in size. Very fine-grained sulphides may be noted in wispy layers within biotite gneiss.

Thin smears on shear surfaces range from 1/2" diameter to 40% of surface area. Minor fine-grained disseminations may be noted along some fractures.

vi. Analyses

In order to test the quality of feldspar intersected in the 1988 drill program the first 30 feet of each hole was longitudinally cut in half with a diamond saw and sampled in 10 foot sections depending on lithology. Samples were not taken across contacts.

One-half of the core in each ten foot section was retained in the core box for future reference. The second half was collected in a plastic sample bag, labelled, and submitted for metallurgical testing and geochemical analysis. BC 88 - 1, 2, 6, 11, 12, and 13 were cut and sampled in their entirety. BC 88 -7 was cut and sampled to a depth of 160 feet, below the proposed mining limit.

The top thirty feet of 10 diamond drill holes were analysed by the Brenda Mines Lab for SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O and Loss on Ignition (L.O.I.) as part of the Metallurgical Testing discussed in Section 10. Results are presented in Table 6. Consistently in three holes (BC 88 -3, BC 88 -8, BC 88 -14), a general pattern of less than averge material is illustrated when seven of eight result categories are reviewed. This zone coincides with a topographic low mantled by overburden located in the non-mining zone. These three holes are the only holes that intersect gneiss in the top 30 feet of core in the ten holes analysed. Pegmatite in the top 30 feet of these three holes ranges from 34 - 66%. It can be concluded that the pegmatite in this study is not laterally zoned near surface in any way readily observed.

Vertical variation of the pegmatite was tested by analysing six 30 foot composite samples of BC 88 -1 to a depth of 190.7' (58.1m). A slight change in composition is noted. Fe_2O_3 increases from an average of 0.64% to 1.26% at the 100.7' (30.7m) - 130.7 foot (39.8m) depth. Al_2O_3 decreases from an average of 14.67% to 14.18% in the same interval. The change is noted on BC 88 -1 drill logs. The assay values may reflect a zone of 5% biotite plus <1% hornblende in medium-grained pegmatite at 37.2-38.1m depth. The change is gradual and does not necessarily indicate a second intrusive event but may indicate mineral segregation due to stress at this location during crystalization of the unit. On the basis on one vertical hole we cannot definitively state that the pegmatite is zoned with depth. Further holes would have to be studied in the same manner. The analytical method is described in Appendix 2. Certificates of Analysis are located in Appendix 6.

TABLE 6: DRILL CORE ANALYSES

Hole #	Depth, Ft.	Material	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	L.O.I.
1	10.7-40.7	Pegmatite	75.00	14.87	0.57	0.10	0.94	3.46	5.06	0.56
1	40.7-70.7	Pegmatite	75.40	14.67	0.60	0.13	1.15	3.27	4.75	0.59
1	70.7-100.7	Pegmatite	75.00	14.65	0.79	0.15	0.91	2.97	5.50	0.65
1	100.7-130.7	Pegmatite	75.40	14.18	1.26	0.24	1.05	2.94	4.97	0.58
1	130.7-160.7	Pegmatite	75.60	14.65	0.71	0.12	1.17	3.38	4.33	0.58
1	160.7-190.7	Pegmatite	75.50	14.32	0.62	0.10	1.03	3.67	4.72	0.57
2	15.0-45.0	Pegmatite	75.54	14.42	1.085	0.247	1.16	4.05	3.51	0.78
3	5.0-35.0	66% Peg.	70.51	13.23	1.614	0.788	7.56	3.30	3.01	2.63
6	12.0-42.0	Pegmatite	74.93	14.69	0.549	0.104	1.00	3.50	5.23	0.54
7	10.0-40.0	Pegmatite	75.45	14.61	0.607	0.103	0.96	3.61	4.31	0.57
8	13.0-43.0	34% Peg.	72.71	14.93	4.211	1.29	1.09	2.63	3.58	1.86
11	2.0-32.0	Pegmatite	76.47	14.20	0.589	0.07	0.93	3.74	4.04	0.48
12	1.0-31.0	Pegmatite	75.25	14.57	0.571	0.108	1.00	3.55	4.96	0.49
13	5.0-35.0	Pegmatite	75.96	14.33	0.593	0.11	0.82	3.19	5.00	0.61
14	14.0-44.0	35.6%Peg	72.45	14.60	3.488	1.209	3.03	2.16	3.06	2.43

Hole assays calculated according to weight % of material in each 10 ft. increment combined to 30 ft. composite.

vii. Drilling Results

The diamond drill program successfully outlined an economic feldspar, quartz, mica, pegmatite orebody. Pegmatite represented 75.55% of the material intersected in the drill program. Pegmatite is not zoned in such a way as to upgrade the deposit, or hinder grade. Initial tests of Bearcub core showed that the maximum tolerable amount of waste rock (biotite and granite gneiss) in the plant feed is 20 - 30%. Using a 90% pegmatite cut-off figure a mining zone has been delineated (Figure 4). In the mining zone 7.8 million tonnes of ore grade pegmatite have been outlined as a result of the limited 1988 drill program. A specific gravity of 2.6 was used to arrive at the tonnage figure. Without doubt these reserves will be increased with further drilling to the east.

10. PETROGRAPHY

i. General

Twelve hand samples were forwarded to Vancouver Petrographics in May, 1988. The samples were cut in half, etched with hydrofluoric acid and treated with sodium cobaltinitrite. These hand samples form a representative suite from the Bearcub deposit. The ratio of potassium feldspar to sodium and calcium feldspars is readily observed in each speciman.

During our examination of diamond drill core in April 1989 for alteration products affecting feldspar concentrate, and quartz concentrate quality, four drill core split samples were forwarded to Vancouver Petrographics for thin section preparation, petrographic description and scanning electron microprobe analyses.

ii. Results

An index to the representative suite of Bearcub pegmatite samples is presented as Table 7.

Results of the alteration thin section study and corresponding scanning electron microprobe work are included as Appendix 7.

The brown and orange staining along fractures was positively identified as limonite, hematite, and manganese oxide using S.E.M. analysis in conjunction with petrographic analysis.

TABLE 7: BEARCUB REPRESENTATIVE SUITE DESCRIPTION

Sample No.	Location *	Estimated K_2O%**	Mineralogical Description Feldspar (F), Quartz (Q), Mica (M) Garnet(G)
8801	19.8m @ 131° from 3+00N/10+00E	> 8%	white, m.g., graphic pegmatite. F90%, G5%, M5%, G0%
8802	2.3m @ 175° from 2+00N/10+00E	<<5%	White,f.g., graphic pegmatite. F80%, Q15%, M5%, G50.1%
8804	5.2m @ 236° from 3+00N/11+00E	5%	Very. slightly oxidized, m.g., white pegmatite. F74%, Q20%, M6%, G0%
8805	4.0m @ 213° from 4+00N/11+00E	<5%	Very. slightly oxidized, m.g., white pegmatite. F78%, Q20%, M2%, G0%
8810	26.5m @ 070° from 4+00N/10+00E	>8%	White, f-m.g., graphic pegmatite. F79%, Q20%, M1%, G0%
8811	25.0m @ 160° from 3+00N/9+00E	>8%	White, c.g., graphic pegmatite. F75%, Q20%, M5%, G<0.1%
8819	3.1m @ 227° from 4+00N/9+00E	<5%	buff, c.g., pegmatite. F75%, Q18%, M7%, G<0.1%
8827	4.8m @ 262° from 4+00N/6+00E	<8%	v.c.g., white pegmatite. F82%, Q15%, M3%, G<0.1%
8828	8.8m @ 287° from 4+50N/5+00E	<<5%	v.c.g., white to buff pegmatite. F65%, Q30%, M5%, G0.1%
8830	8.2m @ 186° from 3+00N/5+00E	<5%	v.c.g., white pegmatite. F72%, Q25%, M3%, G0%
8833	16.2m @ 307° from 3+50N/3+00E	<<5%	m.g., grey pegmatite. F68%, Q20%, M10%, G2%
8734	2+55E/1+00N	5%	v.c.g., white pegmatite. F83%, Q15%, M2%, G0%

* from Bruaset, 1988

** visually estimated using sodium cobaltinitrite method described in Section 6. ii.

11. METALLURGICAL TESTING

i. General

Metallurgical testing of Bearcub pegmatite was carried out by Brenda Mines at the Brenda Mine Metallurgical Laboratory in Peachland between November 1987 and June 1989. Surface outcrop and diamond drill core samples were tested in a five stage program. The work was performed and/or supervised by B.M. Nikodijevic and J.W. Austin. E.H. Bentzen III of Ore Sorters, an industrial minerals specialist, provided insight on feldspar beneficiation. Progress reports 1 - 5, a summary report, and Mr. Bentzen's report are included as Appendix 7.

ii. Methods of Study

A three phase program was carried out. Firstly, prior to drilling bulk outcrop samples were tested. The primary objectives of this phase were to produce saleable feldspar, quartz, and mica concentrates and develop a specific beneficiation plan for the deposit. Secondly, using drill core samples, the processability of our waste rock (gneiss) was tested using different ratios of pegmatite and gneiss in the feed. The top 30' of all 15 holes and entire holes BC 88-1, 2, 6, 12 and 13, and 160' of BC 88-7 were cut and sampled for metallurgical testing.The top 30' of 7 holes, and the entire hole BC 88-1 were studied metallurgically to test the variability of material laterally and vertically.

During the initial testing of bulk outcrop samples, the following treatment was adopted: cationic flotation of mica, removal of 'heavy' iron - bearing minerals by anionic flotation and finally cationic flotation of feldspar leaving quartz in the tail.

iii. Metallurgy Results

Saleable feldspar concentrates, quartz concentrates and mica concentrates can be produced economically from the Bearcub deposit. The location of Bearcub on the western side of the Rocky Mountains is advantageous, putting us closer to some western consumers than our competitors.

Bearcub Pegmatite Ore produces an average yield of 45% feldspar, 20% quartz, 8% mica, 27% waste material.

In the course of beneficiation work the following conclusions were made. Standard HF flotation will be required. Potassium and sodium feldspars will not be separated. Magnetic separation will be necessary to remove oxidized material in the feldspar concentrate. The mica concentrate will most probably undergo degritting to offer a higher quality product. The maximum tolerable amount of gneiss (waste material) in the pegmatite plant feed was found to be 20 - 30%.

12. CONCLUSIONS & RECOMMENDATIONS

1. Program results to date are very encouraging.

2. A substantial volume of potentially economic pegmatite has been indicated by detailed geologic mapping and reconnaissance.

3. The diamond drill program successfully outlined an economic pegmatite orebody yielding feldspar, silica, and mica products. 7.8 million tonnes of ore grade pegmatite have been outlined in the Proposed Mining Zone.

4. Saleable feldspar concentrates, quartz concentrates, and mica concentrates can be produced economically from the Bearcub deposit.

5. The location of Bearcub on the western side of the Rocky Mountains may have advantageous marketing implications.

6. Results of ongoing market studies will be crucial in defining the exploration future of Bearcub.

7. Future exploration should include grid expansion eastward 200meters. from L11+00E to facilitate proposed Phase II diamond drilling at 100 m centers.

8. The vertical thickness of the Bearcub pegmatite should be tested during the proposed Phase II diamond drilling. BC 88-1, and BC 88-11 should be re-entered and drilled 50' into country rock. Of the proposed eastern drill holes, two appropriate holes should also extend 50' into country rock allowing us to define the three-dimensional nature of the pegmatite orebody.

9. Market Studies are presently underway.

10. After Phase II diamond drilling and dependent on favourable market study results a pilot plant test should be considered.

13. REFERENCES

Bruaset, R.U., 1988	Geochemical Assesment Report on the Bearcub feldspar property
Bruaset, R.U., 1987	Geological and Geochemical Assesment Report on the Bearcub feldspar property
Jones, A.G., 1958	Memoir 296: Vernon Map Area, B.C.
GSC Map 1059-A	Geology of Vernon, Kamloops, Osoyoos and Kootenay districts of British Columbia.

14. STATEMENT OF COSTS

COST CENTRES	WORK PERFORMED April 30/88 to Nov. 18/88	WORK PERFORMED Nov. 19/88 to July 31/89
Follow up rock geochemistry (Work performed April 30/88 - May 11/88)		
S. Logan Gordanier 13 days @ $150.00 $1,950.00		
Helper 11 days @ $80.00 880.00		
Domicile 838.69		
Transportation 1,273.11		
Sundry 217.71		
$5,159.51	$5,159.51	
Geological mapping (work performed Sept 29 - Dec. 11/88)		
S. Logan Gordanier 8 days @ $150.00 1,200.00		
Domicile 240.00		
Transportation 300.00		
$1,740.00	1,740.00	
Petrographic Report (Work May, 1989)		$252.50
Ohashi Logging (Physical work: road building, trenching, drill sites) Work performed Oct. 5/88 - Oct. 19/88	14,027.29	
Diamond Drilling (direct) Work performed Nov. 8/88 - Dec. 11/88		
Average direct cost/m $88,926.90/914.63m = $97.23m		
123.48m @ $97.23/m apportioned value for period Nov. 8/88 - Nov. 18/88	12,005.96	
791.15m @ $97.23/m apportioned value for period after Nov. 18/88		76,923.51
Cont'd on Page 21		

Statement of Costs, Cont'd

COST CENTRES	WORK PERFORMED April 30/88 to Nov. 18/88	WORK PERFORMED Nov. 19/88 to July 31/89
Diamond Drilling (indirect) work performed Nov. 8/88 - Dec. 11/88		
Analysis $2,520.00		
Petrographic work 503.52		
Domicile 2,615.96		
S. Logan Gordanier - 55 days @ $150 8,250.00		
Supervisor's travel expenses 278.55		
Transportation 5,605.69		
Drilling misc. inc. sawblades 4,779.74		
Total: $24,553.46		
123.48m @ $26.85/m apportined value for period Nov. 8/88 - Nov. 18/88	3,315.44	
791.15m @ $26.85/m apportioned value for period after Nov. 18/88		21,242.38
Metallurgical testing by Kilborn Engineering (work reported Sept./88, Oct./88)	5,121.80	
Metallurgical testing by Brenda Mines Ltd. (only work performed Jan 01/89 - May 31/89		13,711.50
Total up to and inc. Nov. 18/88	$41,370.00	
Total after Nov. 18/89		$112,129.89

It is requested that $41,370.00 less the physical work re Ohashi Logging ($14,027.29) be addded to Brenda's PAC account. Further, it is requested that part of, or all of the $112,129.89 be applied to the claims according to the accompanying Statements of Work and relevant Notices to Group.

15. CERTIFICATE

I, Shelly Logan Gordanier, of 6524 Lombardy Cres. S.W., Calgary, Alberta, do hereby certify that :

1. I am a consulting mineral exploration geologist.
2. I am a graduate of the University of Manitoba, Winnipeg, Manitoba. B.Sc. Geology 1979.
3. I have been engaged in mineral exploration in Canada for various companies from 1975 to present.
4. The foregoing report on Bearcub is based on work carried out by, and/or supervised by S. Logan Gordanier between April 30, 1988 and July 31, 1989, with the exception of Metallurgical Testing as noted in Section 10.
5. I have not received, nor do I expect to receive any interest, directly or indirectly in the properties or securities of Brenda Mines Ltd. or of any associated Company.

Respectfully submitted,

Shelly Logan Gordanier

Shelly Logan Gordanier
Geologist

STATEMENT OF QUALIFICATION

I CERTIFY THAT:

1. I am a 1967 graduate of the University of British Columbia with a B.Sc. degree in Geology. I am a Fellow of the Geological Association of Canada.

2. I conducted the initial geological and geochemical program on the Bearcub property in 1987 and a subsequent geochemical program in 1988. References are Bruaset 1987, 1988 in this report.

3. I have reviewed the report by Shelly Logan Gordanier. It is my understanding that Shelly Logan Gordanier had been called away due to illness in the family and was therefore not able to complete this report which was already substantially complete in its technical content but lacked Statement of Cost, the prescribed Title page, an Introduction, a Title page and Summary form and List of Appendices. The above were prepared by myself including relevant grouping notices and statements of work.

Dated this 18 day of August, 1989.

Ragnar U. Bruaset

Ragnar U. Bruaset
Ragnar U. Bruaset & Associates Ltd.

APPENDIX 1

BEARCUB SCREEN TEST BY BRENDA LAB

RECD MAY 2

APPENDIX 1

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB -SCREEN TEST

DATE: MAY 19, 1988 DATE REC'D: MAY 10, 1988 FILE:BEARSLG.EXP

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% MnO	% BaO	% LOI	% H2O
SLG 1	80.0	8.02	.15	.06	.12	1.75	9.90	<.01	<.01	0.24	0.01
SLG 2	71.2	15.91	.13	.04	.31	2.40	9.97	<.01	.01	0.29	<0.01
SLG 3	75.5	14.59	1.21	.23	.71	2.74	6.73	.04	.01	0.43	0.03
SLG 4	71.2	16.48	.18	.05	.14	2.15	9.80	<.01	<.01	0.29	<0.01
SLG 5	74.6	16.34	.44	.08	4.68	3.41	.44	.01	<.01	0.72	0.04
STD 70 A		18.34	.08	.04	.14	2.62	10.05	<.01	<.01	-	-
TRUE VAL	67.1	17.90	.07	-	.11	2.50	11.80	-	-		
RE-ASSAY											
SLG 4	72.7	15.26	.18	.05	.12	2.08	9.61	<.01	<.01	-	-

[illegible]

D. Perkins
Chief Chemist

L. :CS

APPENDIX 2

BRENDA PROCEDURE FOR METALLURGICAL SAMPLE PREPARATION

brenda

APPENDIX 2

July 31, 1989

PROCESS
TECHNOLOGY
DIVISION

2281 HUNTER ROAD,
KELOWNA, B.C. V1X 7C5
PHONE (604) 861-5501
FAX (604) 861-5210

Shelly Logan Gordanier
Brenda Exploration
2281 Hunter Road
Kelowna, B.C.
V1X 7C5

Dear Shelly:

Re: BEARCUB SAMPLE PREPARATION

The sample as received is weighed to obtain the amount of sample available for the test work.

The sample is then screened to remove the -3/4 inch material. The +3/4 inch material is then crushed in a jaw crusher with a nominal closed side setting between 1/2" and 5/8". This is then combined with the -3/4" material screened through a 6 mesh screen.

The +6 mesh material is then crushed in a laboratory cone crusher with a closed size setting of 1/4". Once the whole sample is crushed through the 6 mesh sizing the material is then blended by either rolling or coning, quartering and blending of the guarters to make the sample whole again. Rolling is done on small samples, up to fifty pounds, while the coning and quartering is done on samples larger than fifty pounds.

Once the sample has been blended depending on the size, the samples will be quartered, with opposite quarters blended and if necessary quartered again and opposite quarters blended.

Once the sample is down to a weight range of ten to fifteen pounds the sample is run through riffles to produce a head sample of one kilogram. The remainder is reblended so as to cut out samples of two kilogram size for metallurgical testing.

The head sample can be ground in a wet mill or split to produce a sample for the final preparation for the analytical laboratory.

The final preparation is the splitting out of a sample from the one kilogram sample of one-hundred grams which is then pot ground to produce a sample essentially 100% - 325 mesh. This is split in half with one sample going to the analytical laboratory and the other half being kept as a reject.

Yours truly,

James W. Austin
Senior Metallurgical Engineer

Brenda Mines Ltd.
P.O. Box 420
Peachland, B.C., Canada
V0H 1X0

APPENDIX 2

brenda

Telephone (Area 604)
Kelowna 763-3220
TWX 610-982-0228

August 2, 1989

TO: Shelly Logan Gordanier

FROM: Mr. D. Perkins

SUBJECT: BEARCUB EXPLORATION ASSAYS

SAMPLE PREPARATION:

Samples were crushed in a denver and atlas jaw crusher, riffle mixed and then ground in a zirconium pot (to prevent iron contamination) to minus 75 microns.

ANALYSIS

An 0.50 gm sample is decomposed with hydrochloric, nitric and hydrofluoric acid in teflon beakers and taken to dryness. The salts are boiled into solution, cooled and diluted to 100 mls. These solutions, after appriopriate dilutions, and addition of lanthanum chloride are measured on an atomic absorption spectrophotometer which has been calibrated using standards which have been prepared to match the sample matrix. The elements measured are potassium, sodium, aluminum, magnesium, calcium, iron, manganese and barium. Silica assays are obtained by difference.

D. Perkins M.C.I.C.

Chief Chemist

N.B. Sample procedure for 1988 samples only.

Brenda Mines Ltd.
P.O. Box 420
Peachland, B.C. Canada
V0H 1X0

APPENDIX 2

brenda

Telephone (Area 604)
Kelowna 763-3220
TWX 610-982-0228

August 2,1989

To: Shelly Logan Gordanier
From: Mr. D. Perkins
Subject: BEARCUB EXPLORATION ASSAYS (FUSION METHOD)

Weigh 1.00 gms lithium metaborate into a graphite crucible.

Weigh .2000 gms sample and brush on top of lithium metaborate.
Mix well with a glass stirring rod.

Add 1.00 gms lithium metaborate on top.
Fuse at 1000 degrees C for 20 minutes.

Remove fusions from muffle and let cool in crucibles.

To a 1/2 litre Nalgene bottle add approximately 50 mls deionized water and 5 mls hydrochoric acid.

Transfer fusion from crucible to Nalgene bottle using a spatula.

Put Nalgene bottle on shaker to dissolve fusion.Approximately 1 hour.

Transfer solution to a 100 ml volumetric flask bring to volume with deionized water,stopper and shake.

N.B. Make sure that the solution has no precipitate in it. If any refuse and repeat procedure.

A blank has to be made with every set. 2.00 gms lithium metaborate and 0.15 gms silica in 100 ml. volumetric flask.
Standards are made up in the same concentration of flux as the samples are.

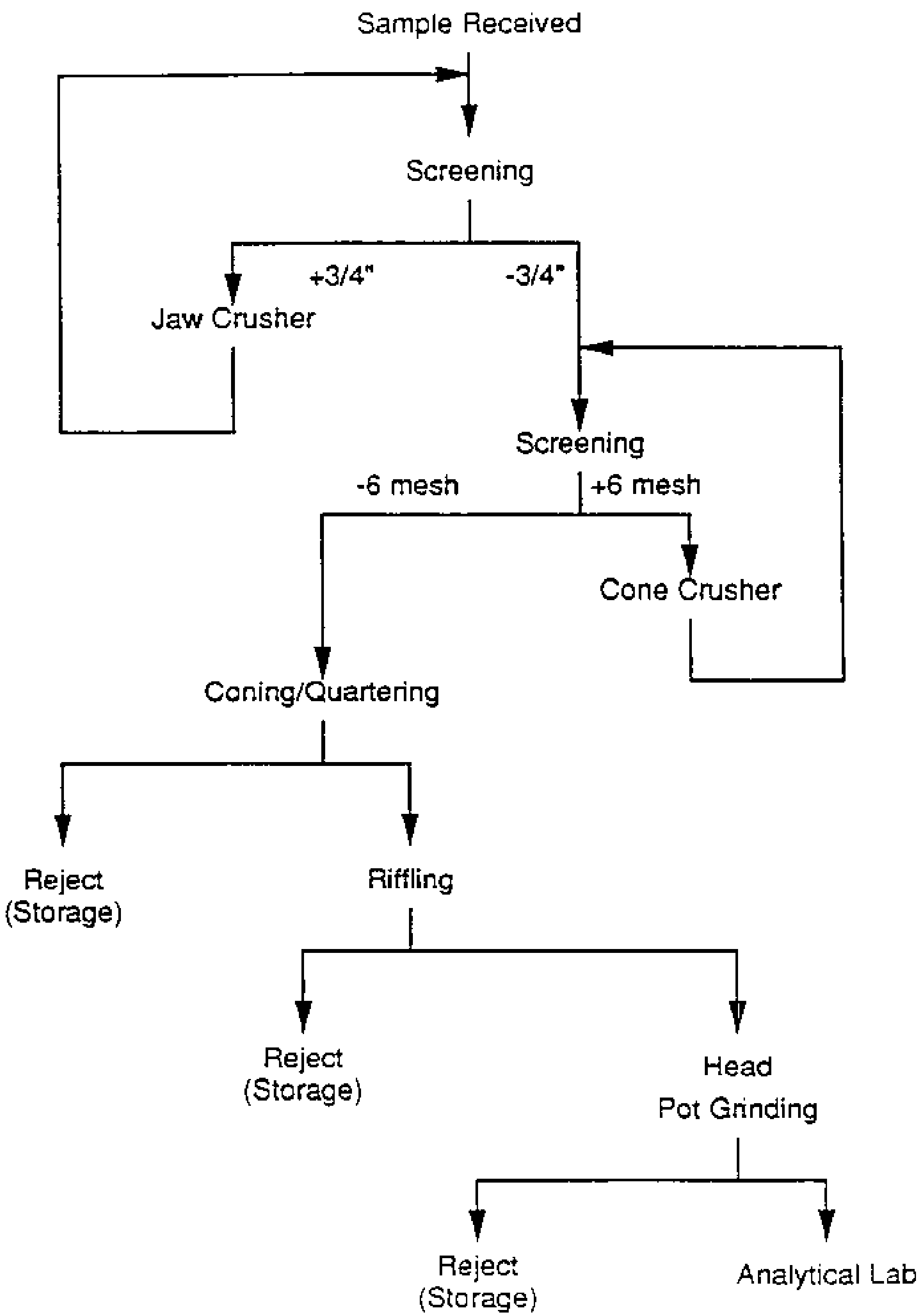
Pipette 10 mls of sample from the 100 ml volumetric flask into a 50 ml volumetric flask.Bring to volume with a 1.25% Lanthanum Chloride and 5% Hydrochloric acid solution (5:1 dilution) stopper and shake.
Blank and standards are also made from this dilution.

Read K, Na Al, Ca, Mg, Fe
Zero on blank

Derek Perkins M.C.I.C.
Chief Chemist

N.B. Sample procedure for 1989 samples only.

SAMPLE PREPARATION FLOWSHEET



APPENDIX 3

ROCK SAMPLE DESCRIPTIONS

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Sample No.	Location	Description
*SLG 1 **R 8737	2+85E/2+90N	Sample of pegmatite with graphic intergrowths. 79% feldspar, 20% quartz, 1% biotite.
SLG 2 R 8734	1+37E/2+20N	Very coarse-grained pegmatite outcrop with zenoliths of granite gneiss. Sample of very coarse-grained pegmatite. 75% feldspar, 25% quartz.
SLG 3 R 8701	400m @240° from 1+00E/1+00N	Sample taken from large blast pit at roadside. Minor graphic intergrowths. Very coarse-grained pegmatite 75% feldspar, 20% quartz, 5% biotite/muscovite.
SLG 4 R 8793	325m @ 251° from 1+00E/1+00N	Outcrop sample is coarse-grained pegmatite with minor graphic intergrowths. 85% feldspar, 14% quartz, 1% biotite/muscovite.
SLG 5	3+00N/2+00W	Interbedded pegmatite and granite gneiss outcrop. Contact at 176°/dip unknown. Sample of coarse-grained pegmatite, with 78% feldspar, 20% quartz, 2% biotite.

* "SLG" current data

** "R 8737" 1987 data, ref. Bruaset, 1987

APPENDIX 3

PETROGRAPHIC SAMPLE DESCRIPTIONS

Sample No.	Hole No.	Sample Interval	Mineralogical Description
#1501	BC88-2	30.8'-31.1' 9.4-9.5m	Coarse-grained, white pegmatite. Sample of slightly altered pegmatite with 2 oxidized micro fractures per 1 x 1" square and one tectonic fracture. F(75%), Q(24%), B(<1%), M(<<1%)
#1502	BC88-7	36.0'-36.2' 10.9-11.0m	Medium to coarse-grained, white pegmatite. Sample of slightly oxidized zone with 7 oxidized micro fractures per 1 x 1" square F(70%), Q(25%), B(3-5%), M(1%)
#1505	BC88-13	95.0'-95.3' 28.9-29.0m	Coarse-grained, white pegmatite with minor graphic texture. Sample of fresh pegmatite is cut by a hematized tectonic fracture. F(78%), Q(20%), B(1%), M(1%)
#1508	BC88-12	19.0'-19.4' 5.8-5.9m	Medium-grained, white pegmatite with minor graphic texture. Sample of slight to moderate oxidation zone. F(65%), Q(31%), B(3%), M(1%)

F - Feldspar
Q - Quartz
B - Biotite
M - Muscovite

Chemex Labs Ltd.

CERTIFICATE OF ANALYSIS A8721298

SAMPLE DESCRIPTION	PREP CODE	K2O %	Na2O %	SiO2 % fusion
BC RUB 8701	248 —	9.81	2.19	70.70
BC RUB 8703	248 —	6.14	3.54	71.10
BC RUB 8708	248 —	3.03	4.75	72.50
BC RUB 8710	248 —	10.00	2.19	71.20
BC RUB 8712	248 —	6.53	3.49	71.10
BC RUB 8714	248 —	3.12	3.54	76.50
BC RUB 8716	248 —	6.55	2.84	73.50
BC RUB 8725	248 —	8.92	2.79	70.70
BC RUB 8730	248 —	8.72	2.87	70.70
BC RUB 8733	248 —	2.77	4.43	76.00
BC RUB 8734	248 —	11.10	3.04	67.40
BC RUB 8736	248 —	9.95	2.17	71.10
BC RUB 8737	248 —	10.70	1.95	69.80
BC RUB 8738	248 —	3.11	4.30	74.80
BC RUB 8740	248 —	5.61	3.65	72.60
BC RUB 8753	248 —	0.35	2.59	76.50
BC RUB 8757	248 —	10.30	2.15	71.70
BC RUB 8759	248 —	9.02	2.06	72.40
BC RUB 8782	248 —	6.37	3.19	72.00
BC RUB 8785	248 —	6.18	3.25	72.70
BC RUB 8791	248 —	8.47	2.82	70.60
BC RUB 8793	248 —	9.85	2.30	70.60
BC RUB 8796	248 —	11.20	1.87	69.90
BC RUB 87101	248 —	10.50	1.89	71.90
BC RUB 87104	248 —	10.40	1.97	71.80
BC RUB 87105	248 —	5.97	3.70	71.80
BC RUB 87110	248 —	4.09	3.82	74.40
BC RUB 87114	248 —	10.30	2.07	70.20
BC RUB 87115	248 —	2.74	4.74	73.70
BC RUB 87117	248 —	9.72	2.32	70.10
BC RUB 87129	248 —	9.91	2.39	69.80
BC RUB 87133	248 —	11.20	2.14	69.60
BC RUB 87143	248 —	3.71	2.59	76.80

APPENDIX 4

DRILL LOGS
(DDH BC 88 - 15)

DIAMOND DRILL HOLE BC 88-1

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+50 N 9+00 E	**INCLINATION:**	-90°
ELEVATION:	1060 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 11, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 17, 1988		Logging in feet (converted to meters)

0.0 - 3.26m OVERBURDEN

3.26 -59.1m PEGMATITE: coarse grained (1/12 - 4"crystals) with ≈ 5% 1/4 - 1/2" grain size, irregular; feldspar 75%, quartz 23%, muscovite up to 2%, garnet <1%. The feldspar is white, opaque with occasional grey streaks, and sub-crystalline at crystal boundaries. The quartz is grey, sub-translucent and interstitial to the feldspar sometimes exhibiting graphic intergrowths. The muscovite occurs as ≈ 1/8" crystals and appear to be distributed in the finer-grained portions of the pegmatite and along fracture planes. Biotite occasionally observed within the pegmatite. They occur as individual crystals and do not form zones associated with any particular faction of the pegmatite.

Fractures - slightly oxidized in places, clean - no coatings, slightly irregular surfaces

3.26 - 10.4m: Core is moderately broken, no core loss, fragments range from 2-6" pieces. Fractures are generally irregular in this zone and give the core a shattered appearance though on a broad scale. Fracture angle to core average ≈30°. In broken zones some 15° to core angles are noted.

14.3 - 17.4m: Core is moderately broken, irregular fragments range from 2" - 10" in length.

18.6 - 20.8m: mineral composition of the pegmatite changes as well asgrain-size. In this zone (has very gradual boundaries) medium-grained crystals range from 1/8' biotite flakes to 1/2" to 1" (occasional 2") subhedral to anhedral feldspar with accompanying anhedral interstitial quartz. Feldspar 60%, quartz 37%, biotite 3%, muscovite <1%. Garnets: may be found in local lenses up to I" wide on drill core. Garnet crystals are1/8" in diameter and less.

30.2m: Shear at 40° to core, dip slip motion on shear face. Minor sericite coating.

31.4 - 32.5m: medium grained pegmatite; 70% feldspar, 25% quartz, 3 - 5% biotite with minor muscovite and minor garnets.

32.5 - 34.4m: coarse grained pegmatite again,with 2% biotite.

34.4 - 35.4m: Zone of medium grain pegmatite; 70% feldspar, 25% quartz, 3 - 5% biotite (1/16" - 1/8" flakes) minor muscovite.

35.2m: Shear at 20° to core, slickensides ≈ 45° to core

35.4 - 37.2m: zone of coarse grained pegmatite: 75 - 80% feldspar, 20 % quartz, 2 - 3 % biotite (1/4 - 1" flakes) randomly oriented.

36.1m: Shear at 20° to core, slickensides = 45° to core, minor sericite developed on shear face.

37.2 - 38.1m: Zone of medium grained pegmatite, 3 - 5% biotite (1/4" - 1" flakes) but groundmass ranges from 1/4" to I" feldspar; 30% quartz, 65% feldspar, < 1% hornblende?? (needle or prismatic crystals up to 1/2" wide observed).

38.1 - 39.0m: coarse grained pegmatite as usual.

39.0 - 40.0m: upper contact = 45° to core. A fracture parallel to the contact exhibits strike slip motion. Groundmass ranges from 1/16" to 1/2" crystal size with occasional blebs up to 1". Feldspar 40%, quartz 40%, biotite up to 20%, hornblende 1%. Fine grain garnets <1%, disseminated throughout zone.

40.0 - 51m: coarse grained pegmatite (1/2" - 2" - 4" crystals). <1% muscovite, 1% biotite; 85% feldspar, 15% quartz.

40.6 - 41.1m: slight green tinge to feldspars.

41.1m: (minor epidote alteration) on fracture 30° to core; pyrite bleb or smear 1/2" x 3/4" on fracture plane. Slickensides 40° to core. Very minor epidote alteration of the feldspars <.5% garnets randomly dispersed.

43.0m: Fault or shear with some clay development 45° to core; 1/2" wide zone of parallel shears (clay up to 1/8" wide).

43.5m: Fracture 20° to core - clean.

48.1m: Fracture10° to core - clean, slightly irregular.

51.0 - 59.1m: coarse grained pegmatite (1 - 6" crystals); no epidotization, feldspar 80%, quartz 19%, muscovite < 1%, biotite < 1%. (5% graphic texture).

51.2 - 52.4m: Broken core. Fragments range from 1" - 5". Fractures are predominantly 10° to 30° to core, and have clay and breccia coatings.

53.6 - 54.9m: Broken core. Fragments range from 2" - 6" and are relatively clean with minor breccia fragments and clay on some (less than above). Fractures: 30° to 10° to core.

56.4m: Fracture10° to core, minor amount of clay on irregular surface.

57.5 - 58.2m: Broken core. Fragments: 2" - 6", clean fractures, slightly irregular. (Seems to be due to 25° to 30° to core fractures with different strikes.)

59.1 - 60.0m: GRANITE GNEISS: Fine - medium grain; feldspar 75%; quartz 25%; biotite 2%; pseudo gneissosity developed at 45° to core.

60.0 - 60.4m: BIOTITE GNEISS: Fine grain- medium grain, feldspar 65%, quartz 25%, biotite 10%, granite gneiss. Upper contact fairly sharp and 20° to core, lower contact 45° to core. Gneissosity 45° to core. Uniform.

60.4 - 60.9m: GRANITE GNEISS: fine grain - medium grain; feldspar 75%, quartz 25%, biotite <1%. Granite gneiss. Gneissosity = 45° to core; poorly developed.

60.9m: END OF HOLE

DIAMOND DRILL HOLE BC 88-2

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	-------
LOCATION:	4+00 N 9+50 E	**INCLINATION:**	-90°
ELEVATION:	1055 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 17, 1988	**Note:**	Location and elevation in meters Logging in feet (Converted to meters)
COMPLETED:	November 18, 1988		

0.0 - 64.6m OVERBURDEN

4.6 - 10.5m PEGMATITE: coarse-grained (1/2 - 4" crystals). Feldspar 75%, quartz 24%, biotite < 1%, minor muscovite. Sub to anhedral feldspar, interstial anhedral quartz, 1/16" - 1" flakes of mica sporadically down hole. Minor garnet occasionally 1/16" - 1/8" diameter. Feldspars are white to grey-opaque, quartz is grey and semi-translucent. Minor graphic intergrowths (3 - 5%).

Fracture at 7.9m: 40° to core, clean, slight oxidation.

Fracture at 10.1m: 10° to core, pyrite smears on fracture.

4.6 - 12.5m: Oxidation along fractures in this zone of weathering

10.5 - 11.1m INTERBEDDED PEGMATITE AND GRANITE GNEISS: Upper contact is 60° to core, fairly sharp, between overlying pegmatite and interbedded medium-grained pegmatite and foliated granite gneiss. Interbeds and foliation are 40° to core. Pegmatite fraction is medium grained (1/2 - 3/4" crystals) and light grey in colour. Feldspar 70%, quartz 30%, no mica. Granite gneiss is fine grained and dark grey in colour. Feldspar 60%, quartz 30%, biotite 10%. Biotite forms distinctive foliation planes. Uniform interbeds range from 1/2 - 1" thick with occasional 3" beds.
Lower contact angle unknown due to broken core.

10.4 to 17.1m: Broken core. Fragments range from 2" - 6"; 10° (most common), 30° and 45° to core fractures often with gouge-like material and clay development.

13.1 - 13.7m: Gouge zone with angular gravel sized breccia fragments incorporated.

11.1 - 18.0m PEGMATITE: Coarse grained, feldspar 70%, quartz 30%, muscovite 1 - 2% with minor biotite.

15.0 - 16.5m: Gouge along a 10° to core fracture, up to 1" - 1 1/2" wide. Consists of clays and fine breccia fragments.

16.5m: Gneissic xenolith intersected: 2" x 3.5", irregular shape

18.0 - 20.1m BIOTITE GNEISS: Feldspar 40%, quartz 35%, biotite 25%, fine to medium grained texture.

Foliation averages 70° to core. Very minor pyrite may be observed along fractures at 45° to core at 18" intervals in this unit.

20.1 - 37.0m PEGMATITE: Coarse grained to very coarse grained feldspar 75%, quartz 23%, biotite 1%, muscovite 1%, minor garnet. Zones of feldspar up to 2' wide (noted below).

21.0 - 21.6m: Gouge zone; fragments range from 1/4" - 3" pieces, clay and fine breccia as well.

22.9 - 23.5m: Lost core, only 75% recovery. (gouge zone washed away)

25.0m: Fracture 15° to core, irregular, minor sericite coating.

25.1 - 25.3m: Zone of very coarse grained biotite crystals (3% biotite by volume).

26.2 - 26.6m: Zone of massive feldspar.

27.7m: Fault gouge 18" wide on 15° to core shear (no slickensides).

30.6m: Shear is 15° to core, with dip-slip slickensides.

31.9m: 1/4" wide epidotized feldspar vein 10° to core. Slight greenish tinge.

32.6 - 33.2m: Zone of massive feldspar.

33.2 - 34.0m: Broken core 1 - 3" fragments, some clay and breccia fragments. 95% recovery.

37.0 - 37.3m FOLIATED GRANITE GNEISS: Foliation 70° to core, medium to fine grained. Medium to dark grey colour, feldspar 50%, quartz 35%, biotite 15%.

37.3 - 51.5m PEGMATITE: Medium grained to coarse grained 1/4" - 3" crystals; feldspar 75%, quartz 22%, biotite 2%, muscovite 1%. Biotite is splotchy down hole.

37.3 - 37.8m: Broken core: 80% recovery. Sub parallel to core fracture with residual clays and fine grained breccia.

43.0m: Fracture at 25° to core, 2 very small pyrite cubes on shear surface, minor sericite coating with epidote.

43.0 - 44.5m: Broken core, 90% recovery. Fractures sub parallel to core. Fine grained breccia and clays coat 1" to 4" fragments.

46.0 - 46.3m: Gouge zone, 25° to core. Fine breccia and clays coat angular fragments up to 3".

48.3m: Mineralized fracture at 10° to core. Dark green, very thin chlorite coating. Thin smears of pyrite found randomly on surface <.5%.

51.5 - 52.4m FOLIATED GRANITE GNEISS: Altered to chlorite and epidotized clays. Bluish green milky colour. Granite gneiss is in fault contact with pegmatite.

50.9 - 52.4m: Epidote along fractures in this zone. Mainly fractures are 10% to core. Irregular fractures at approximately right angles to this cause broken core.

52.4 - 54.8m PEGMATITE: Mottled looking, anhedral, medium to coarse grained, 75% feldspar, 23% quartz, 1 - 2% muscovite, < minor garnet.

Foliated Granite Gneiss Xenolith: 4" at 54.8m, upper contact 40° to core, lower contact 40° to core.

54.8 - 60.9m PEGMATITE: Medium grained, 68% feldspar, 30% quartz, 1% biotite, 1% muscovite.

57.0 - 58.0m: Broken core, mainly 10° to core with occasional 30° to core. Some very minor epidote alteration on relatively clean fractures (minor residual clays and fine breccia).

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-3

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	3+44 N 9+00 E	**INCLINATION:**	-90°
ELEVATION:	1025 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 18, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 19, 1988		Logging in feet (converted to meters)

0.0 - 1.5m: OVERBURDEN

1.5 - 3.81m: PEGMATITE: Medium grained (1/2" - 2") crystals, anhedral to subhedral feldspar, interstitial quartz; 2% large books of biotite (up to 2" across). 1% muscovite (same size); feldspar 70%, quartz 27%. Broken core in this unit is slightly weathered, (breakup prevalent in biotite-rich areas).

3.81 - 4.0m: QUARTZ-FELDSPAR - BIOTITE DIKE: Equigranular, very light pink in colour. Sharp contacts, 30° to core. Medium grained (1/16" crystals) with <.5% knots of fine grained biotite interspersed (up to 1/8" diameter). Contact is irregular but both are roughly parallel. No chilled margins.

4.0 - 7.8m: PEGMATITE: medium to coarse grained (1/2 - 4" crystals). Feldspar 70%, quartz 30%, muscovite <1%. Slight milky green tinge to pegmatite 3' above contact with underlying gneiss (epidote alteration of feldspars).

1.5 to 7.0m has rusty oxidation along 10° to core fractures.

6.6m: Fault 10° to core, dip slip movement suggested by slickensides, rusty fracture but no clay development.

4.0 - 4.4m: Biotite in pegmatite as in pegmatite above. Representative fracture for the pegmatite is 70° to core, 1 per foot.

7.8 - 18.3m: INTERLAYED BIOTITE GNEISS AND GRANITE GNEISS: Contact at 40° to core (fairly sharp but no chill margins), gneissosity at 40 - 50° to core, and range in size from 1/32" - 1/2" bands to 10" units of consistent mineralogy. Ptygmatic folding is observed in granite layers within more biotite-rich sections. Minor boudinage on a very small scale. Competent rock fractures occasionally along foliation. Total: 10% granitic interlayers with biotite granite and gneiss layers- 90%.

18.3 - 19.4m: PEGMATITE: Medium to coarse grained. Feldspar 80%, quartz 20%, no micas present. One quartz crystal or sweat 5" wide, 30° to core at 18.7m.

19.4 - 24.2m: INTERLAYERED BIOTITE GNEISS AND GRANITE GNEISS: Upper contact 45° to core, lower contact 60° to core, banded dark grey/light grey to milky coloured interlayers. Increasingly towards the lower contact the lighter units become tinged with green. (Feldspars becoming microcline?) Minor boudinage and ptygmatic folds are seen on a very fine scale. Feldspar 50 - 70%, quartz 20-35%, biotite/muscovite 10 - 25%, garnets < 1%, fine grained.

20.2 - 20.7m: Thin, (1/32"), lenses of fine grained pyrite discontinuously along foliation planes in this zone (<.5%).
Fractures in this zone are not oxidized.

20.5m: fracture 25° to core, clean slightly irregular.

22.4m: shear 45° to core - 2 1/2" wide. Gouge looks like decomposed gneiss or schist (feldspars to white clays, micas unaltered).

24.2 - 25.9m: PEGMATITE: Medium to coarse grained. Feldspar 80%, quartz 20%, biotite <1%,with minor, isolated garnets.

24.7m: fracture10° to core. Clean.

25.9 - 26.2m: BIOTITE GNEISS: fine grained, at 50° to core, foliated, upper contact 60° to core. Feldspar 55%, quartz 25%, biotite +/- muscovite) 20%.

26.2 - 38.1m: PEGMATITE: coarse to medium grained, 75% feldspar, 24% quartz, <1% muscovite <<< garnets. Occasional small zones of graphic texture.
29.1 - 29.9m: 0.5% garnets 1/16 - 1/8" diameter. Disseminated.
27.4 - 27.7m: Quartz rich zone, darker coloured grey, 5% muscovite up to 1/4" flakes.
32.2 - 32.5m: Quartz sweat or vein, massive, light grey colour.
32.6 - 32.8m: Zone of dark grey quartz and 1" - 2" muscovite crystals. Irregularly broken along mica planes.
34.1m: Shear with minor thin clay coating. Slickensides at 45° to core.
34.7m: Several fractures, 10° to core, broken core fragments: 3 - 6" long.
35.0 and 35.1m: sheared at15° to core, fractures have thin clay coating, movement unknown.
35.7 - 35.8m: Biotite, 1% randomly distributed, as1/4"crystals within same pegmatite otherwise.
36.3 - 36.6m: Broken core, 1-4" frags. 10° to 30° to core.
37.8 - 38.1m: Biotite, <1%, randomly distributed (<1/4" crystals) within same pegmatite.

38.1 - 43.6m: BIOTITE GNEISS : 50° to core upper contact is sharp.
10° to core lower contact is sharp but slightly irregular.
Foliations change down hole in a gradual but haphazard fashion 45° then 30°, then 10° every 5 feet or so of depth.
The unit is relatively uniform in mineralogy. Feldspar 55%, quartz 25%, biotite ≈20% +/- muscovite. Fractures are generally intersecting foliation.
39.6m and 40.2m: fractures slightly sericitized, no slickensides. Very smooth, no alteration in vicinity at 10° to core.

43.6 - 44.4m: PEGMATITE: Feldspar 80%, quartz 20%, medium grained. Odd biotite flake, 5% graphic texture.

44.4 - 44.9m: BIOTITE GNEISS: As above. Foliation at 50° to core.

44.9 - 60.9m: PEGMATITE: medium to coarse grained, 75% feldspar, 22% quartz, 3% mica (50/50 biotite and muscovite). Micas occur in poorly defined blotchy zones down hole and crystals range from 1/16" - 3/4" flakes with random orientation.
47.5m: Occurrence of pink orthoclase, sub to anhedral crystals 1/8" - 1/2" in size (≈ 15 crystals.)

48.6 - 50.0m: 3 - 4% biotite, <l% muscovite (marbled effect) otherwise same pegmatite. Crystals of mica (1/2" - 3/4").

52.6m: fracture 20° to core, very irregular but clean.

52.7 - 53.2m: Broken core. Fragments with clean surfaces range from 1/2 - 3". 10° to core fractures with some at 30 - 45°.

53.0 - 57.6m: 3 - 4% biotite, < 1% muscovite (marbled effect) 1/16" - 1/2" crystals of mica.

55.0m: Fractured. Several parallel,10° to core fractures,1" - 2" apart.

56.2 - 56.5m: Broken core, 1" - 3" fragments, 95% recovery.

56.7m: fracture at -10° to core, clean.

56.8m: fracture at 20° to core, very minor sericite coating, no slickensides.

59.4m: representative of 80 - 85° fractures seen in competent pegmatite all down the hole unless other fractures noted.

60.9m: END OF HOLE

DIAMOND DRILL HOLE BC 88-4

AREA/PROPERTY LOCATION:			Bearcub Claims near Lumby, B.C.
SIZE CORE:	H.Q.	AZIMUTH:	--------
LOCATION:	3+00 N 9+50 E	DIP:	-90°
ELEVATION:	1035 m above sea level	DRILLER:	Lone Ranger Diamond Drilling
COMMENCED:	November 20, 1988	Note:	Location and Elevation in meters
COMPLETED:	November 21, 1988		Logging in feet (converted to meters)

0.0-3.0m OVERBURDEN

3.0-20.1m PEGMATITE: Medium to coarse grained. Sub to anhedral crystals, occasional graphic texture. Feldspar 20%, quartz 28%, biotite 1-2%, muscovite 1%; when biotite occurs it is coarse grained. 1/2 "- mainly 1" -> 1" crystals randomly oriented.

4.3m: Fracture 20° to core.

4.9-8.5m: Iron oxidation along fractures in this zone. No sulphides - surface weathering.

5.2-5.5m: and 6.1-6.4: Broken core. No gouge material to suggest shearing. Both are composed of irregularly shaped fragments, relatively clean.

8.1-8.5m: Very coarse grained zone with one large book of muscovite with poikiolitic biotite. 6" thick book. 5 or 6 medium-grained pyrite crystals enclosed in some biotite poikioliths.

20.1-20.7m BIOTITE GNEISS/SCHIST: Upper contact 55° to core, sharp.
Lower contact 40° to core, very irregular (ptygmatic-looking). Feldspar 50%, quartz 25%, , biotite 25%+/- muscovite. Minor very fine grained py occasionally observed. foliation good to poorly developed ≈ 55° to core.

20.7-21.4m PEGMATITE: medium grained, sub-anhedral crystals. Feldspar 63%, quartz 35%, muscovite 1%, biotite 1%. Lower contact is ptygmatic with underlying biotite gneiss: 20° to core. Very mottled looking.

21.4-28.0m BIOTITE GNEISS: As before with quartz-rich interbeds every 1' - 18" down hole, ranging in thickness from 1/8" - 1/2" wide. Slightly ptygmatic with boudinage in places. Otherwise uniform composition. Dark grey as before. Lower contact ≈ 70° to core.

28.0-29.0m GRANITE GNEISS: Foliation ≈ 50 - 70° to core. Lighter grey colour, interlayered zones of mafic-rich/felsic-rich units in places (range from 1/16" - 1/4" wide). Majority of unit is uniform composition. Very gradual contact with overlying biotite gneiss. Lower contact 50° to core.

28.5m: Fracture 40° to core, thin graphite coating < .5% 1/16" pyrite cubes here and there on shear surface. Very irregular surface.

29.0-30.9m PEGMATITE: Sharp contact 70° to core at lower contact. Mottled looking because of anhedral intergrowths. < 1% micas, 75% feldspar, 25% quartz.

29.1m: Fracture 20° to core.

29.0-29.3m: The < 1% biotites here are chloritized.

30.9-32.1m INTERLAYERED GRANITE GNEISS & BIOTITE GNEISS: (50-50). As before. Lower contact 60° to core. Foliations ≈ 50° to core. Light and dark grey layers, segregation banding.

32.1-32.5m PEGMATITE: Feldspar 85%, quartz 15%. No micas. Coarse grained, minor garnets near lower contact.

32.5-37.9m INTERLAYERED GRANITE GNEISS & BIOTITE GNEISS: foliation ≡ 60° to core. Varies in colour from dark grey to light greenish grey. No distinct segregation banding. Gradual contacts between both units or interlayers. Lower contact 85° to core. (Upper is 60°). Fine to medium grain (1/32").

35.0m: Fracture10° to core, thin sericite coating.

37.9-39.5m PEGMATITE: Feldspar 75%, quartz 25%.
Medium grain, anhedral to subhedral crystals, quartz is interstitial.

38.7-39.3m: Broken core zone due to sub parallel to core fractures with clay coating. Fragments 1-3" in size. No slickensides.

39.5-42.4m INTERLAYERED GRANITE GNEISS & BIOTITE GNEISS: Sharp upper contact may be shear (clay coated) ≈ 80° to core. Lower contact is 70° to core. Foliations ≈ 70° to core.

42.4-48.0m PEGMATITE: Medium to mainly coarse grain, 5% graphic texture; 80% feldspar, 19% quartz, <1% biotite. When biotite does occur it is 1/2" - 1" flakes randomly distributed. Minor muscovite may be observed.

48.0-48.4m BIOTITE GNEISS: As described previously. Foliation 50° to core.

48.0m: Fracture transects foliation @ 50° to core.

48.4-49.0m PEGMATITE: Medium to coarse grain. Feldspar 65%, quartz 34%, biotite <1%.

49.0-49.2m BIOTITE GNEISS: as before with ≈ 2% muscovite as well.

49.2-49.6m PEGMATITE: Medium - coarse grained. Feldspar 70%, quartz 28%, biotite 1%, muscovite?

49.6-55.2m INTERLAYERD BIOTITE GNEISS & META ARKOSE: Upper contact is gradual at 70° to core.

Lower contact is fairly sharp at 60° to core. Fracture at lower contact is clean and slightly irregular. Biotite gneiss as before (very minor % of mineral segregation bands) occasional quartz-feldspar veins parallel to foliation (1/2" - 1" wide). Some muscovite present (5%?) in places.

51.7-53.6m: fine grained meta arkose is mainly light green in colour with mottled patches of orthoclase-coloured arkose. Pseudo banding or foliation suggested at

70° to core when present. Unless the green can be attributed to very fine grain chlorites - no mica present (< 5%), seems to be equigranular. Quartz 60%, feldspar 30%, other 10%.

52.4m: 6" quartz vein. 30° to core, no accessory minerals.

54.3-54.6m: pegmatite interlayer; 10% biotite, (+/- 2% muscovite), 50% feldspar, 40% quartz.

55.2-57.1m PEGMATITE: Medium to coarse grained. Feldspar 75%, quartz 23%, biotite <1%, muscovite 1%, garnet <1%.

57.1-57.9m BIOTITE GNEISS: Upper contact gradual: 70° to core.
Lower contact gradual: 60° to core.

57.9-58.5m: Broken core - due to a 10° to core fracture. Dip slip motion observed on slickensides, minor sericite-clay development on fracture. 4 - 6" fragments.

57.9-61.0m PEGMATITE: Medium to coarse grained. Feldspar 70%, quartz 26%, biotite 3%, muscovite <1%.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-5

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	2+11.6 N 9+02.9 E	**INCLINATION:**	-90°
ELEVATION:	1035 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 21, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 22, 1988		Logging in feet (converted to meters)

0.0 - 1.5m OVERBURDEN

1.5 - 24.7m PEGMATITE: Medium to coarse grain size (1/4"-2 or 3 ") pegmatite with minor fine grained patches. (The fine grain patches have a pseudo lineation of ≈ 40° to core defined by streaks of interstitial quartz.) Subhedral crystal boundaries. Hairline cracks are emphasized by staining (looks like grazed china). Core is broken into average 6" fragments, irregular spacing, angles range from 85° - 30° to 10° (mainly 70° - 85° to core). Minor graphic texture.

1.5-18.6m: Oxidation of the pegmatite decreasing with depth. Surface is moderately hematite-stained (blotchy orange colour - can still see grain boundaries of pegmatite) decreasing in intensity downwards to oxidation only on fractures from about 11.3m downwards. In this oxidized region biotites are 50% altered to chlorite.

0.0-8.5m: Feldspar 60%, quartz 39%, biotite/chlorite l%.

6.1m: 1/8" long x 1/32" bleb of pyrite(fine grained) along a hairline fracture.

9.7m: fracture has discontinuous coating of fine grain pyrite (up to 1/32" thick) 1 - 3% of fracture surface area. Fracture is heavily hematized. Irregular surface, 30° to core.

8.5-17.7m: Feldspar 70%, quartz 23%, biotite 1-2% (fine grained).

9.8-10.8m: Hematized fracture (this length) 10° to core. No slickensides, no clay.

12.2m: 2 - 1"x 1/4" blebs, oxidized halo, with 10% fine grain pyrite in a dark coloured groundmass of unknown composition.

16.3-18.3m: Fractured sub parallel to core; slightly oxidized.

17.7-22.6m: Feldspar 73%, quartz 25%, muscovite 2%, minor biotite. Graphic texture: 5% of total.

22.6-23.2: GRANITE GNEISS Feldspar 40%, quartz 40%, biotite 15-20%.

Upper contact gradual at 70° to core.

Lower contact defined by 1/8" - 1/16" biotites (fine grain).

Sharp at 60° to core.

Some poorly defined banding observed 70° to core.

23.2-24.7m: coarse grained to medium grained feldspar 75%, quartz 24%, biotite <1%; 5% graphic texture.

24.3m 8" fracture zone at 15° to core. Thinly coated with chlorites, slightly irregular surface, no slickensides. Minor blotchy hematite staining on fracture surface.

24.7m: Fracture 30° to core, slight epidote alteration of feldspars on fracture surface.

24.7 - 34.6m BIOTITE GNEISS: Dark grey colour, fairly uniform composition: Feldspar 40%, quartz 35%, biotite/chlorite/muscovite 25%. Foliations range from 50 - 70° to core. Gneissosity defined by streaky colour banding as before. Not really biotite foliation planes.

First foot of this unit is greenish meta arkose as in BC 88-4.
Occasional thin streak of fine grained sulphide within unit parallel to gneissosity. Negligible.

29.0m: Fracture 10° to core with fine grain bleb or smear 1/2" x 1/2" of pyrite on fracture surface accompanied by quartz vein filling 1" x 1/2".

Upper contact: 70° to core? gradual.

Lower contact: sharp 40° to core, 1/32" biotites, <1% sulphide marks the contact.

Fractures approximately 1 per foot parallel to gneissosity.

34.6 - 47.0m PEGMATITE: Coarse grained to medium grained, subhedral with anhedral portions.

34.6-38.7m: Feldspar 65%, quartz 30%, biotite 3-5%, muscovite 1-2%, micas total 3-5%.

Micas are generally coarse grained (1/2" - 1" crystals) with random orientation.

38.7-41.1m: Feldspar 65%, quartz 25%, biotite <1%; 80% graphic texture, grained.

40.0m: Fracture 35° to core, dip slip, sericite coating.

41.8m: Fault 30° to core, dip slip, epidote and sericite coating. 3% of surface area has thin pyrite smear.

41.1-47.0m: Feldspar 65%, quartz 32%, biotite 2%, muscovite 1%: Micas are generally coarse grain flakes. Minor garnets. Very slight epidote colouring to the feldspars. Minor graphic texture.

47.0 - 55.5m BIOTITE GNEISS: Upper contact 65° to core and sharp. (lower contact 35° to core and sharp). Fine grain white streaks 1/32" long scattered along pseudo foliation: varies between 30 - 50° to core of unit. Grain size starts fine grained then gradually becomes medium grained.

49.3-49.4m: Quartz vein, massive. Both contacts clean and 70° to core. Feldspar 40%, quartz 35%, biotite +/- muscovite 25%.

50.2m: Fracture 30° to core, thin chlorite coating, no slickensides, transects gneissosity.

55.5 - 60.9m PEGMATITE: Coarse grained with minor medium grained areas. Feldspar 65%, quartz 33%, biotite 1%, <5% muscovite. Subhedral crystals of feldspar with interstitial quartz.

56.9m: 1/8" - 1/4" garnets, in zone 3" wide approximately 15% of total in 3" zone.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-6

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+50 N 10+00 E	**INCLINATION:**	-90°
ELEVATION:	1043 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 25, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 26, 1988		Logging in feet (converted to meters)

0.0 - 3.6m OVERBURDEN

3.6 - 3.3m PEGMATITE: Coarse to medium grain crystals; subhedral to anhedral, mottled looking, very minor graphic texture sometimes observed. Lower contact at 60° to core.

3.9-4.1m: Feldspar 65%, quartz 32%, biotite 2%, muscovite <1%.

4.1-15.8m: Feldspar 75%, quartz 25%, biotite 1-2%, +/- muscovite (medium grained micas).

15.8-16.3m: Feldspar 55%, quartz 43%, biotite 2%, garnet <1% (fine grained mica) medium grained texture.

5.0-5.5m: Minor hematite staining along fractures. Close examination reveals minor fine grain pyrite along these fractures. Pyrite seems to occur only with biotite.

5.1-6.2m: Broken core: 10 - 15° to core fractures (cross-cut by 70° fractures) predominate, clean, minor hematite staining.

7.1m: Fracture 30° to core, minor epidote alteration immediately adjacent to surface.

8.5m: Fracture 20° to core, with very thin epidote/sericite coating, no slickensides

8.9m: Fracture 30° to core, with thin chlorite coating, no slickensides.

9.3-9.4m: Broken core. 1.5" - 2" fragments.

11.6-12.2: Broken core, due to 10° to core fracture this long, minor chlorite coating with epidote alteration of feldspars immediately adjacent to surface (2" - 5" fragments).

13.3 - 15.1m BIOTITE GNEISS: Upper contact: 60° to core. Lower contact: 70° to core. Foliations at 60° to core. Poorly defined mineral segregation (pseudo foliation), occasional fractures parallel to foliation. Feldspar 40%, quartz 35%, biotite 25% (+/- muscovite.)

15.1 - 15.4m PEGMATITE: Dirty looking, medium grained unit; anhedral, medium grey colour, with fine micas. Feldspar 50%, quartz 45%, biotite 5%.

15.4 - 15.7m META-ARKOSE: Mottled green/orthoclase pink coloured unit. Quartz 50%, feldspar 40% other 10%. Upper and lower contacts 60° to core and fairly sharp.

15.7 - 16.2m BIOTITE GNEISS: As before. Lower contact: gradual at 70° to core.

16.2 - 48.8m PEGMATITE:

16.2-17.1m: Broken due to 10° to core fractures (several parallel ones) with irregular surfaces coated by a thin epidote/clay coating. No slickensides. Fragments are 1" to 6-8" long shards.

16.2-20.1m: Medium grained (1/4" - 1/2" crystals) pegmatite, anhedral crystals. Feldspar 60%, quartz 35%, biotite 3%, 5% +/- muscovite, biotite is fine to medium grained <1/2" flakes).

20.1-22.6m: Coarse grained 1-4" subhedral crystals, half of this unit exhibits graphic texture. Feldspar 80%, quartz 20%, biotite 4%. Biotite is fine grained (< 1/16" flakes).

22.6-34.6m: Medium grained, anhedral crystals, marble-like texture. Feldspar 60%, quartz 33%, biotite 5 - 7%, muscovite <1%. Biotite is medium to coarse grained.

28.2-28.7m: Broken core. Shard-like fragments range in size from 1" - 3" long. Seems to be result of sub parallel to core fractures. Surfaces are clean. 70% recovery.

31.9-33.0m: Slight hematization of the biotites at crystal boundaries.

34.6-34.9m: Fine-grained pegmatite or coarse grained granite gneiss with slight gneissosity at 60° to core. Feldspar 70%, quartz 28%, biotite 3%. Biotite is fine-grained. Lower contact is sharp at 60° to core. Upper contact looks to be gradual (core is broken here).

34.9-36.6m: Feldspar 70%, quartz 25%, biotite 3-5%. Medium grained pegmatite.

35.4-36.3m: Broken core. Shattered looking fragments range from 2" - 4". 10° and minor 30° to core angles observed. Thin epidote - chlorite coating of 10° fractures. No slickensides. Feldspars are slightly epidotized.

36.6-36.9m: Coarse-grained graphic texture. Feldspar 85%, quartz 15%.

36.9-39.8m: Medium grained: feldspar 70%, quartz 25%, biotite 3%, muscovite 1%.

38.0m: Fracture at 38° to core. Clean. (2 parallel fractures 1" apart).

38.1-39.3m: Core loss: ground when core barrel did not latch properly.

39.8-40.5m: Very coarse grained (6" - 8" crystals); Feldspar 40%, quartz 60%.

40.8-42.0m: Broken core, 80% recovery, fragments are shard shaped and range from 2" - 3" fragments. Clean surfaces.

40.5-43.0m: Medium to coarse grained sub-anhedral crystals, 50% graphic texture. Feldspar 75%, quartz 2%, biotite <<1%, muscovite <1%.

43.0-48.8m: Medium grained with occasional coarse grained blebs with less biotite. Feldspar 65%, quartz 30%, biotite 3-5%, muscovite <1%.

43.4m: Fracture at 30° to core, clean.

48.8 - 51.9m BIOTITE GNEISS: Upper contact, clean and very sharp at 80° to core. Pseudo foliations at 70 - 80° to core (poorly defined mineral segregations).

Lower contact at 55° to core, very sharp. Occasional fracture parallel to foliation. Feldspar 40%, quartz 35%, biotite 25%, (+/- muscovite).

51.9 - 53.6m META-ARKOSE: Greenish grey colour, equigranular, no foliation. Feldspar 60%, quartz 25%, biotite 15%.

Representative fractures at 60° to core, (1 per 1 foot).

53.7-53.9m: Broken core. 1" shards - clean.

53.6 - 60.0m BIOTITE GNEISS: With elongated porphyroblasts of feldspar. Medium grained, otherwise same as usual biotite gneiss. Poor foliation at 50° - 60° to core.

54.5m and 54.7m: Two parallel fractures at 30° to core, clean, no slickensides.

Lower contact at 80° to core (polished surface, sericite coating; possibly fault contact?)

60.0 - 60.9m META-ARKOSE: Same as above.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-7

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+01 N 10+55 E	**INCLINATION:**	-90°
ELEVATION:	1063 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	December 5, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	December 8, 1988		Logging in feet (converted to meters)

0.0 - 3.04m OVERBURDEN

3.04 - 18.4m PEGMATITE: Medium to coarse grained, subhedral to anhedral crystals, mottled looking in places. Very slight occasional discolouration of the feldspars (hematite alteration due to surface weathering) from 3.04-15.5m with the rare fractures slightly hematized. From 15.5-17.4m hematite alteration increases to slight moderate blotchy staining most prevalent on sub parallel to core fractures common in this zone.
Feldspar 70%, quartz 25%, biotite 3-5%, muscovite 1%.
Micas are medium grained. Occasional biotite flakes are altered to chlorite.

Average fractures at 80° to core, 1 per 8"; irregular/clean.

3.3-3.7m: Broken core; irregular fractures. Fragments range from 2 - 3 " pieces.

8.1m: shear at 50° to core, motion indicated by slickensides is 60° to dip slip.

9.3-10.0m: fractures sub parallel to core, moderately hematite stained, no slickensides. Zone is moderately broken.

11.7m: fracture at 25° to core, moderately hematized.

12.5m and 12.6m: two parallel shears at 10° to core. Second one has 1/8" clay gouge, no slickensides. Clay is rusty brown colour.

12.9-13.6m: Broken zone, due to intersecting 10° and 30° to core fractures. Fragments range in size from 1" shards to 3 - 4" pieces. Fractures are mostly moderately hematized.

14.3-14.5m: Moderate green epidote alteration of feldspars.

15.2-15.8m: Broken zone due to intersection of 10° and 30° to core fracture. Fragments range in size from 1" shards to 3 - 6" pieces. Fractures are mainly moderately hematized.

18.4 - 18.6m BIOTITE GNEISS: Fine-grained unit, very poorly developed mineral segregations (less developed than a granite gneiss). Gneissosity at ≈ 60° to core.
Upper contact, sharp at 60° to core.
Lower contact, sharp at 50° to core.
Feldspar 40%, quartz 35%, biotite 25%.

18.6 - 21.5m PEGMATITE: Medium to coarse grained, subhedral to anhedral crystals.

Feldspar 71%, quartz 25%, biotite 3%, muscovite <1%.

20.4m: Shear at 35° to core, movement at 30° to dip slip indicated by slickensides. Clean.

20.9m: Fracture, clean at 5° to core.

21.1m: Shear at 30° to core, very well developed slickensides indicated dip slip motion.

21.1-21.2m: Quartz vein. Upper contact is irregular; lower is sharp both at 45° to core.

21.5 - 21.9m BIOTITE GNEISS: As before. Upper contact, sharp at 70° to core.
Lower contact, sharp at 70° to core. Very poorly developed mineral segregations. Gneissosity at 70° to core.

21.6m: Fracture 10° to core, clean.

21.9 - 22.3m PEGMATITE: Medium-grained, subhedral to anhedral crystals. 2% graphic texture. Feldspar 73%, quartz 25%, biotite 2%, muscovite <1%.

22.3 - 22.9m BIOTITE GNEISS: As before. Upper and lower contact, sharp at 70° to core.

Representative fractures parallel to gneissosity at 70° to core, 1 per 6".

22.9 - 33.8m PEGMATITE:
22.9-31.1m: medium grained with minor coarse grained texture. Anhedral to subhedral crystals. Occasional fractures at 70° to core, irregular and clean.
Feldspar 72%, quartz 25%, biotite 2-3%, muscovite -. Micas are coarse grained to fine grained.

31.1-32.4m: coarse grained, with minor medium grained zones.
Feldspar 75%, quartz 24%, biotite <<1%.

32.4-33.8m: medium grained, mottled looking.
Feldspar 72%, quartz 25%, biotite 2%, muscovite <1%.

33.8 - 42.8m BIOTITE GNEISS: As before with poorly developed mineral segregations sometimes occurring. Upper and lower contact sharp at 70° to core.

37.8m: 2" quartz vein, barren at 70° to core.

38.3-38.9m: Broken core, due to intersection of 10° to core and 70° to core fractures; minor fine grained pyrite cubes on some fracture surfaces. 1 - 2" shards.

39.5-40.0m: Broken core; 2 - 4" fragments due to intersection of 70° and 10° to core fractures.

40.4-40.8m: Broken core, decomposing fracture surfaces some of which exhibit strike slip slickensides, fractures at 70° to core and parallel to gneissosity, 1/2" - 2" pieces.

41.4m: 1" quartz-feldspar vein parallel to gneissosity.

42.8 - 43.6m	PEGMATITE: Medium-grained, sub to anhedral crystals. Feldspar 72%, quartz 25%, biotite <1%, muscovite 2%.
43.6 - 43.7m	BIOTITE GNEISS: As before. Upper and lower contacts at 70° to core, sharp.
43.7 - 44.0m	PEGMATITE: Lower contact sharp (possibly shear contact?) at 60° to core. Medium-grained, sub to anhedral. Feldspar 79%, quartz 20%, biotite <1%, muscovite 1%.
44.0 - 45.0m	GRANITE GNEISS: Feldspar 30%, quartz 50%, biotite 15%, muscovite 5%. Very poor but discernable gneissosity at 70°.
45.0 - 45.2m	META-ARKOSE (Granitization). Blotchy green-orthoclase pink coloured unit, granular with massive lenses. Sharp upper contact at 65° to core. Lower contact sharp at 70° to core.
45.2 - 50.1m	BIOTITE GNEISS: As before. Upper contact sharp at 70° to core. Lower contact gradational over 1/2" at 70° to core. NOTE: Extremely fine grained graphite is released when core is cut, and therefore visible on cut surface. 49.7m: shear with 1/2" dark brown clay gouge, 70° to core, no slickensides.
50.1 - 50.7m	PEGMATITE: Coarse-grained to medium grained, anhedral, mottled looking. Upper contact fractured into 1" x 1/2" fragments over 3" zone. 50.4m: Shear with 1/8" light coloured clay and fine breccia fragments 20° to core, no slickensides. Feldspar 79%, quartz 20%, biotite <1%, muscovite 1%.
50.7 - 55.8m	BIOTITE GNEISS: As before. Gneissosity at 70° to core. 52.6-53.0m: Broken zone. Bottom fracture at 30° to core has minor (1 x 1/2" shards) disseminated pyrite cubes. 53.3m: Quartz vein, 2" wide, 70° to core, barren. 53.3-57.0m: Broken zone. Shattered appearance to the core (ie. irregular shaped pieces). 80% recovery. Fragments range from 3" pieces down to fine breccia. 10° and 30° to core fracture angles observed as well as 70° to core and parallel to gneissosity).
55.8 - 56.1m	PEGMATITE: Pegmatite fragments are incorporated in broken zone. Relationship to biotite gneiss unknown. Feldspar 79%, quartz 20%, biotite <1%, muscovite <1%.
56.1 - 59.5m	BIOTITE GNEISS: As before. Upper contact unknown. Lower contact, sharp at 80° to core. Poor gneissosity at 80°. 58.7-59.5m: Broken zone. Decomposed, fine breccia fragments to 1" - 2" pieces.
59.5 - 59.8m	PEGMATITE: Coarse-grained to medium grained. Anhedral, almost massive looking. Feldspar 80%, quartz 20%.
59.8 - 60.4m	BIOTITE GNEISS: As before.

60.4 - 60.9m META-ARKOSE: Mottled green-orthoclase pink coloured unit. Possibly granitization of the biotite gneiss. No gneissosity.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-8

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	3+50 N 10+00 E	**INCLINATION:**	-90°
ELEVATION:	1035 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 27, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 28, 1988		Logging in feet (converted to meters)

0.0 - 4.0m OVERBURDEN

4.0 - 9.8m INTERLAYERED BIOTITE GNEISS AND GRANITE GNEISS (90:10 ratio). This unit is predominantly biotite gneiss Feldspar 40%, quartz 35%, biotite 25% with granite gneiss interlayers 1/8" wide to 1" upwards to 6" wide. (Granite gneiss exhibits medium to poor segregation banding whereas foliation in biotite gneiss is very poorly defined segregation banding.) The thinner granite gneiss interlayers exhibit ptygmatic folding and in extreme cases a 6" section may have a crenulated appearance.

Granite gneiss: Feldspar 50%, quartz 40%, biotite 10%.

Foliation at 60° to core, fractures (3 per foot) occur sub-parallel to these foliations from 4.0-7.9m: Lower contact is sharp at 45° to core.

8.7m: Fracture 20° to core, clean, no slickensides.

8.7m: Fault 50° to core. 1/32" clay coating, dip slip motion indicated.

5.2-5.5m: Lost core (fault?). Core on either side of the chip marker is broken into very small fragments. Fracture surfaces are clean but biotite has been altered to chlorite on some of these small fragments.

6.1-6.2m: Fault. Broken core with 1" thick clay gouge zone. Angle to core of shear unknown because of fragmentation.

9.8 - 14.6m PEGMATITE: Coarse grained, subhederal to anhedral crystals. Lower contact is sharp at 50° to core. Slight alteration of feldspars to epidote from 47.0' - 47.9'. Feldspar 65%, quartz 32%, biotite <1%, muscovite 2%, garnets <<1%.

14.5-14.7m: Pyrite mineralization occurs in blebs adjacent to biotite books in pegmatite, (blebs range in size from 1/2" x 1/8" to 1" x 1/32") and locally comprise 1% of pegmatite. Pyrite occurs discontinuously along selected foliation planes in the underlying unit locally comprising 2 - 3% of the biotite gneiss. Biotites are occasionally chloritized. Micas are medium to coarse grained.

14.6 - 15.9m META-ARKOSE: Fine grained, mottled light and dark green color with occasional blebs of orthoclase-pink colored material. Biotites seem to be moderately to pervasively altered to chlorite. Irregular relict bedding or layering is poorly preserved in places ranging from an extreme of 30° to core to 50° to core. Mineralogy difficult because of fine grained nature. Feldspar 40%, quartz 50%, Other 10%. Lower contact gradual at 40° to core.

15.9 - 16.3m GRANITE GNEISS: Medium to fine grained, equigranular. Lower contact at 60° to core, sharp. Poorly defined gneissosity at 50° to core. Feldspar 50%, quartz 30%, biotite 20%.

16.2m: Fracture 25° to core, clean.

16.3 - 19.6m PEGMATITE: Medium to coarse grained, subhedral to anhedral crystal boundaries. Feldspar 70%, quartz 28%, biotite 2% (+/- muscovite). Micas are medium grained. Lower contact 35° to core, sharp with 1/8" chill margin developed in pegmatite. Very minor graphic texture.

17.2m: Fracture 30° to core. Has a < 1/32" coating of very fine grained pyrite - chalcopyrite? over 75% of fracture surface. Very limited occurrence of disseminated fine grained garnets from 8" above lower contact to lower contact.

19.6 - 22.7m INTERLAYERED META-ARKOSE & BIOTITE GNEISS (70:30 ratio): Gradual contacts of interbeds within unit, fine grain size, mottled looking coloration and banding in majority of unit, poorly defined mineral segregation banding in biotite gneiss component. Mottled light/dark-green/grey color.

Lower contact at 80° to core. Rounded xenoliths of granite gneiss (fine to medium grain), (1.5" x 2") incorporated at contact giving it an irregular appearance.

22.2m: Fracture 25° to core, irregular but clean.

Feldspar 30-50%, quartz 25-50%, biotite 5-25%, Other 0-5%.

22.7 - 25.2m PEGMATITE: Coarse to medium grain, sub-anhedral crystal boundaries. Lower contact at 50° to core.

22.7-23.5m: Feldspar 80%, quartz 20%, muscovite <1%.

23.5-25.2m: Feldspar 58%, quartz 30%, biotite <1%, muscovite2%, minor garnets disseminated sporadically within unit.

23.8m: 3" section of core composed of very large books of muscovite and biotite.

25.2 - 29.5m INTERBEDDED BIOTITE GNEISS & META-ARKOSE: (50:50 ratio): Gradual contacts of interbeds. Poorly defined gneissosity of biotite gneiss component at 50° to core. Occasional fractures at 30 - 40° to core (intersecting foliation) indicate movement 45° to dip slip. Unit is mottled green and orthoclase pink to usual dark grey of biotite gneiss.

Large subrounded xenoliths of granite gneiss from 28.8-28.9m and 29.0-29.3m: appear to be contained within the unit (i.e. unit is continuous on one face of the core while xenolith is revealed on another.) Lower contact sharp at 50° to core.

29.5 - 43.8m PEGMATITE: Fractures are sparse, irregular at 85° to core.

29.5-31.2m: Coarse to medium grain, subhedral with minor anhedral crystal boundaries. Feldspar 75%, quartz 25%, biotite <1%, garnets <.5%.

31.2-33.7m: Medium to coarse grain, anhedral crystals, fine grain micas with occasional coarse grain micas.
Feldspar 66%, quartz 30%, biotite 1-2%, muscovite 1%, garnets <.5%.

33.7-38.1m Very coarse to medium grain, well developed graphic texture (fine to medium grain). Feldspar 80%, quartz 20%, biotite <1%; micas very coarse grained where they occur.

38.1-43.8m: Medium grained with very minor coarse grained crystals, anhedral, fine to medium grained micas give the pegmatite a dirty appearance. Feldspar 66%, quartz 32%, biotite 2%, muscovite 1-2%.

43.8 - 50.6m INTERLAYERED BIOTITE GNEISS AND MINOR META-ARKOSE (90:10 ratio): Usual biotite gneiss (foliation: ≈ 80° to core.) Meta-arkose interbeds are slightly mottled green-orthoclase pink color, <1' wide (1 or 2 interbeds total.) Contacts are gradational over a few inches. Fractures are sub parallel to foliation - 1 per 2'. Upper contact sharp at 80° to core. Sheared lower contact, sharp at 80° to core, slickensides indicate strike slip.

50.4-50.5m: Pegmatite vein (parallel contacts, 70° to core), fine grained, anhedral. Feldspar 50%, quartz 40%, biotite 10%, garnet 1%.

50.6 - 60.9m PEGMATITE: Coarse to medium grained, subhedral to anhedral crystals.

50.6-52.4m: Coarse grained (minor medium grain) with 20% graphic texture, subhedral crystals. Feldspar 70%, quartz 29%, biotite 1%, muscovite <1%.

52.4-54.4m: Medium grained, anhedral crystals (1/4" - 1/2" crystals). Feldspar 65%, quartz 31%, biotite 2%, muscovite 2%. Medium grained micas.

54.4-55.3m: Fine to medium grained, 50% fine graphic texture, subhedral to anhedral crystals. Feldspar 84%, quartz 15%, biotite 1%.

55.3-57.6m: Medium grained. Feldspar 65%, quartz 30%, biotite 3-5%, muscovite 1%. Micas fine grained.

57.6-58.2m: Coarse grained, subhedral, 80% fine graphic texture. Feldspar 79%, quartz 20%, biotite 1%. Large crystals of mica.

58.2-60.9m: Coarse grained, subhedral crystals, micas are coarse grained to medium grained. Feldspar 63%, quartz 25%, biotite 1-2%, muscovite <1%.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-9

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	2+48.4 9+96.4 E	**INCLINATION:**	-90°
ELEVATION:	1045 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 22, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 23, 1988		Logging in feet (converted to meters)

0.0 - 1.9m OVERBURDEN

1.9 - 22.0m PEGMATITE: Medium to coarse grained, (1/4" - 3" crystals). Feldspar 60-70%, quartz 25-35%, biotite 3-5%, muscovite <1% except where noted below. Mottled looking light to medium grey colour, marbelized look where mica is prevalent. Subhedral crystals to anhedral. Biotite ranges from 1/16 to 1" crystal flakes. Mainly biotite is 3% of core or less. Minor garnets. Occasional medium grained graphic texture. Dirty looking pegmatite because of discolouration (hematite staining) and fine to medium grained biotite occurrences.

1.9-8.5m: Minor blotchy hematite staining in this zone seems to be related to biotite occurrences but not accompanying all biotite occurrences. Occasional fractures (irregular surfaces) are strongly hematized (one or two in this zone altogether).

11.1-11.9m: Minor hematite staining giving a spider web look to the core.

6.2-6.3m: Xenolith of biotite gneiss. Upper contact 40° to core. Lower contact 50° to core. 1" hematite staining below xenolith.

4.9-6.1m: Broken core. 50% recovery. Fragments are 2-4" long pieces of whole core. No evidence of slickensides or gouge. Angles range from 60°-80° to core (One 30° to core fracture with minor sericite development was noted.)

4.6-6.1m: 2% muscovite plus 1% biotite, medium grained.

15.0-15.2m: Green, epidote? alteration of the feldspars in this zone adjacent to a fine grained series of 3 - 2"x 3/4" irregularly shaped blebs of quartz, feldspar, muscovite; 1-2%. Less than 0.5% chalcopyrite or pyrite along with minor garnets.

22.0 - 29.0m BIOTITE GNEISS: Upper contact 85° to core. Dip slip motion indicated. Suggests fault contact. Some chloritization of the biotites adjacent to contact only. Lower contact 50° to core. 6" pegmatite vein 3" above lower contact in gneiss. Usual biotite gneiss, with foliation 50-60° to core, sometimes 80° to core. Poorly defined mineral segregation. Occasional 1/4" wide quartz rich bed exhibits boudinage and poor ptygmatic folding. Fine to medium grained. Feldspar 40%, quartz 35%, biotite 25%, plus or minus chlorite and muscovite, <.5% pyrite and others.

23.6m: Shear 60° to core, strike slip motion indicated. 3/4" gouge zone (= very fine clays), chocolate brown colour. Transects foliation locally.

29.0 - 32.0m PEGMATITE: Medium grained, dirty looking variety (i.e. seems to have assimilated biotite gneiss in blotches characterized by fine grained biotite/chlorite, <.5% pyrite in places. Feldspar 60%, quartz 33%, biotite 5%, other fine grained material incl. <.5%.

29.1-29.6m: Quartz vein, massive, no other minerals.

29.0-32.0m: Broken core, 90% recovery, shattered fragments of quartz from vein 3" shards, rest are irregular 1-4" fragments.

32.0 - 44.1m BIOTITE GNEISS: Usual, fine to medium grained. Feldspar 40%, quartz 35%, biotite 25% +/- chlorite and muscovite, minor pyrite. Pseudo foliation 60° to core at top of unit therefore upper contact is probably 60° to core (in broken zone!)

39.1-39.3m: Feldspar 55%, quartz 40%, biotite 5%; fine grained. 20° to core.

39.3-43.6m: Feldspar 40%, quartz 35%, biotite 25% as in beginning of unit.

Foliations gradually change back to 45° to core below felsic interlayer.

43.6-44.1m: Biotite gneiss contains blebs 2-3" x 1-2", irregular shape consisting of green/orthoclase - pink meta ss/arkose discontinuously in zone.

44.1 - 44.4m PEGMATITE: Fine grained to medium grained (1/8" - 1/4" crystals - 3/4" crystals). Feldspar 70%, quartz 28%, biotite 1-2%. Lower 0.3' the biotites are chloritized. Two populations of biotites: 1/16" flakes and 1/2" flakes.

44.4 - 45.1m BIOTITE GNEISS: Upper contact 45° to core, sharp. Lower contact ≈ 20° to core and gradual as before. Foliations or segregation banding between 44.8m and 45.1m are poorly ptygmatic and sub parallel to core. Above and below this section the foliations are regular and ≈ 45° to core. Upper contact and down 0.5' have a slight green tinge to otherwise dark to light grey coloured unit. A slight green tinge to some bands in the sub parallel to core banded section as well.

45.1m: Quartz sweat, irregular, 0.3' wide max.

45.1 - 53.0m PEGMATITE: Fine to medium grained pegmatite (1/8"-1" crystals), no apparent orientations of minerals. Biotites are fine-grained predominantly giving a dirty appearance to the pegmatite. Feldspar 65%, quartz 32%, biotite 2% plus or minus 1% muscovite. Very minor graphic texture occasionally.

50.4-50.6m: Biotite gneiss. As before.

50.6-53.0m: Broken core. 2"-6" fragments except at ≈ 52.0-52.1 where they are 1" x 1/4" shards. Predominant fracture angle 15° to core with minor clay coating occasionally, otherwise clean with fine breccia fragments. Other angles are irregular anhedral crystals. Lower contact is gradual and 30° to core (≈90° to foliation below).

53.0 - 57.3m INTERLAYERED BIOTITE GNEISS/GRANITE GNEISS (90:10 ratio): green tinge (chloritization of biotites) occasionally down hole creating green banding in otherwise ordinary biotite gneiss (20% of section). Segregation banding in granite gneiss component is very poor - decrease in biotite (more felsic) signifies granite gneiss bands. Concordant with biotite gneiss. Usual mineralogy. Feldspar 40-50%, quartz 35-45%, biotite 10-25%.

57.3 - 58.5m PEGMATITE: Feldspar 70%, quartz 30%, <.5% muscovite; mottled, anhedral, medium grained pegmatite.

58.2-58.5m: <.5% garnets disseminated.

58.2m: Fracture 20° to core, clean.

58.5 - 59.0m GRANITE GNEISS: Upper contact 90° to core, sharp (no chill margin). Equigranular. Feldspar 50%, quartz 45%, biotite 10%.

59.0 - 60.9m PEGMATITE: Feldspar 58%, quartz 40%, very fine grained garnet? or rose quartz 2%, mica very fine grained. Medium to fine grain (1/32" - 1" crystals). From 59.1-60.0m: unusual streak or interlayer slightly ptygmatic and irregular sub parallel to core is 1/4" wide. 1/3 pink (garnet?) - 2/3 white quartz-feldspar, very fine grained.

59.0-59.6m: Broken core, 1-4" fragments, caused by sub parallel to core angle fractures.

59.7m: Fracture 30° to core with thin sericite and clay coating.

60.0-60.9m: Regular pegmatite, medium to coarse grained minor <1% garnet.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-10

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	3+00 N 10+50 E	**INCLINATION:**	-90°
ELEVATION:	1053 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	December 2, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	December 3, 1988		Logging in feet (converted to meters)

0.0 - .15m LOST CORE (CASING)

.15 - 9.5m PEGMATITE: Medium to coarse grained, subhedral to anhedral crystals., slight hematization in blotches within weathered zone noted below. Irregular fractures at ≈ 75° to 85° to core (average one every 8"). Feldspar 70%, quartz 26%, biotite1-2%, muscovite 2%. Minor occasional disseminated garnets.

Alteration: Surface alteration consisting of slight blotchy hematite staining discontinuously down hole. Irregular fracture surfaces are not entirely hematized suggesting that these fractures were produced during coring.

3.5-4.0m: Shear sub parallel to core. Slightly hematized, irregular surface, dip slip motion indicated by slickensides. Moderately broken zone.

9.5 - 12.6m BIOTITE GNEISS: Upper contact 70° to core, gradual. Lower contact 80° to core, gradual over 6". Gneissosity at 70° to core.
Feldspar 40%, quartz 25%, biotite 25%.

9.5-10.2m: Broken zone: Fractures are sub parallel to gneissosity, averaging 1 per l" - 3".

11.3-11.9m: Broken zone due to intersecting parallel to foliation fractures and 20° to core fractures. Fragments range from 2" pieces to 4", with some 1/2" to 1" shards.

11.5m: Fracture at 20° to core. Surface is polished with thin chlorite/sericite coating. No slickensides.

12.6 - 12.8m GRANITE GNEISS: Medium grained (1/16" - 1/8" crystals).
Feldspar 50%, quartz 40%, biotite10%.

12.8 - 12.9m PEGMATITE: Medium grain (1/2" crystals), anhedral crystals.
Feldspar 80%, quartz 20%.

12.9 - 13.1m GRANITE GNEISS: Feldspar 50%, quartz 40%, biotite 10%.

13.1 - 14.0m BIOTITE GNEISS: As above. Upper contact at 80° to core. Lower contact at 60° to core, sharp (shear contact with indicated strike slip motion). Gneissosity at ≈ 75° to 80° to core.

14.0 - 17.0m PEGMATITE: Medium grained to coarse grained, anhedral crystals with minor subhedral crystals. Occasional minor disseminated garnets. Feldspar 75%, quartz 25%, biotite ≤ 1%.

17.0 - 21.8m BIOTITE GNEISS: Feldspar 40%, quartz 35%, biotite 25%. Upper contact (small broken zone 1 - 2" wide) appears to be sharp at ≈ 40° to core. Lower contact is probably parallel to foliation, therefore 40° to core. Gneissosity at 40° to core. Fractures parallel to foliation average one per 1 - 2 feet.

17.1m: Fracture at 15° to core. Very thin sericite coating. No slickensides.

17.5m: Fracture at 20° to core. Thin clay coating. No slickensides.

21.6-23.1m: Broken core. Fragments range from 1/2-1" shards to 2-3" pieces, due to several intersecting to parallel 10° to 20° to core fractures.

21.8 - 33.1m PEGMATITE: Coarse grained to medium grained, subhedral to anhedral crystals. Feldspar 80%, quartz 20%, biotite ≤1%, muscovite ≤1%. Micas are fine grained where they occur. Irregular fractures 70° to 80° to core except as noted below. Average 1 per 1-2'.

25.1m: Shear at 25° to core. Slight epidote alteration of feldspars on shear surface. Dip slip movement indicated by slickensides.

30.03m: shear at 30° to core. Slight epidote alteration of feldspars on shear surface. Dip slip movement indicated by slickensides.

30.0m: Pyrite plus or minus chalcopyrite mineralization. An irregularly shaped bleb of fine grained pyrite and/or chalcopyrite (3/4" x 1/4"). Fine grained disseminations occur along hairlike fractures up to 1" below the main occurrence.

32.0m: shear sub parallel to core, dip slip motion indicated by slickensides.

33.1 - 35.0m BIOTITE GNEISS: Feldspar 40%, quartz 35%, biotite 25%. Upper contact, sharp but gradual: 60° to core. Lower contact, gradual over 8": ≈ 70° to core.

34.6-35.3m: Broken zone due to intersection of 30° to core fractures and 60° to core foliation plane fractures. Fragments 1/2" shards to 2" pieces.

35.0 - 5.1m PEGMATITE: Coarse grained. Feldspar 75%, quartz 25%.

35.1 - 5.7m BIOTITE GNEISS: Feldspar 40%, quartz 35%, biotite 25%.

35.7 - 35.8m PEGMATITE: Coarse grained pegmatite vein. Feldspar 75%, quartz 25%, micas <1%.

35.8 - 41.0m BIOTITE GNEISS: Feldspar 40%, quartz 35%, biotite 25%.

41.0 - 60.9m PEGMATITE: Lithology. Coarse grained, subhedral to anhedral crystals with minor medium grained patches. Feldspar 72%, quartz 25%, biotite 1%, micas 2%. Micas are medium to coarse-grained flakes.

44.5-46.7m: Broken zone due to 10° to 20° to core fractures cross-cut by occasional 30° to core fractures. No observed slickensides. Fragments range from medium breccia fragments to 2" shards, upwards to 4-6" pieces.

46.7-54.7m: Coarse grained, sub to anhedral crystals, very minor graphic texture. Feldspar 77%, quartz 20%, biotite 2%, micas 1% with very occasional disseminated garnet.

49.5m and 49.7m: A set of parallel fractures at 20° to core. Clean, no slickensides.

54.1-57.2m: Very coarse grained, 3-8" crystals, subhedral to anhedral crystals. Feldspar 79%, quartz 20%, biotite <1%, micas <1%. Very minor graphic texture.

57.2m: Pyrite mineralization. 2" x 1/4" irregularly shaped bleb of fine grained pyrite and minor chalcopyrite? Slight bluish-green staining of feldspars 3 - 4" around the bleb.

57.2-60.9m: Medium grained, anhedral to subhedral crystals. Feldspar 65%, quartz 30%, biotite 3-5%, micas <1%. Mottled looking.

58.4-59.4m: Lost core (tube didn't lock).

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-11

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	2+55 N 11+02E	**INCLINATION:**	-90°
ELEVATION:	1055 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 30, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	December 2, 1988		Logging in feet (converted to meters)

0.0 - .61m NO OVERBURDEN (LOST CORE)

.61 - 60.9m PEGMATITE: Coarse grained with occasional medium grained texture, subhedral to anhedral crystals, very minor 6 - 8" zones of graphic texture sporadically down hole.

.61-15.9m: Coarse to medium grained pegmatite with blotchy medium to poor hematization as noted above. Fractures are irregular and 70 - 80° to core.
Feldspar 70%, quartz 28%, muscovite 2%, biotite <<1%. Biotite is minor, usually medium to fine grained, while muscovite is coarse to medium grained. Garnets disseminated.

.61-12.6m: Surface alteration consisting of blotchy medium to poor hematization decreasing in intensity with depth. Irregular fractures within this zone are not significantly oxidized.

15.9-16.0m: Irregularly shaped xenolith of biotite gneiss.
Feldspar 40%, quartz 35%, biotite 25%.

15.4m: Fracture 10° to core, slightly irregular and clean.

16.0-18.1m: Medium to coarse grain size, mottled looking core.
Feldspar 65%, quartz 32%, biotite 2%, muscovite 1 - 2 %. Micas are fine to medium grained.

16.7-17.3m: Broken zone due to several parallel shears at 60° to core. Clean, slickensides at 40° to dip slip direction. Fragments range from 1" shards to 3" pieces.

17.6m: Fault at 50° to core, clean, slickensides at 40° to dip slip.

18.1-22.7m: (Lower limit is marked by a dip slip shear at 75° to core.) Coarse grained with minor medium grained zones, sub to anhedral crystals. Micas where present are disseminated coarse crystals.
Feldspar 74%, quartz 24%, biotite 1%, muscovite <1%.

22.7-24.7m: Medium to coarse grained. Mottled looking.
Feldspar 60%, quartz 36%, biotite 2 - 3%, muscovite 1 - 2%.

24.7-26.5m: Coarse to medium grained with fine-medium grained graphic texture (20%). Micas occur as disseminated, random 1/2" flakes.
Feldspar 70%, quartz 28%, biotite 2%, muscovite <<1%.

26.5-26.7m: Medium grained to fine grained. (Average 1/8" - 1/4" crystals.)

Feldspar 42%, quartz 50%, biotite 5%, muscovite 2 - 3%.

26.7-30.3m: Coarse to medium grained, subhedral to anhedral. Micas range from 1" flakes to 1/4".
Feldspar 70%, quartz 27%, biotite 2%, muscovite 1%.

30.3-33.5m: Coarse to medium grained, subhedral to anhedral crystals. 20% graphic texture sporadically down hole and micas are coarse grained to medium grained.
Feldspar 75%, quartz 24%, biotite <1%, muscovite 1%.

33.5-46.8m: Fault 50° to core. Thin biotite coating. Dip slip motion indicated by slickensides.

36.9-37.2m: Broken zone due to one 10° sub parallel to core fracture. Thin clay with fine breccia coating, no slickensides but looks like a shear (with the fine breccia). Fragments range from 1/2" - 2" shards.

37.7m: Fault at 75° to core, clean, dip slip.

44.9m: Fault at 55° to core, very thin sericite coating, dip slip.

46.7-48.2m: Coarse to medium grained subhedral to anhedral crystals. 60% graphic texture.
Feldspar 75%, quartz 24%, biotite 4%, muscovite 4%.

45.3-46.2m: Zone of parallel shears, two sets - 6" apart at 55 to 60° to core, slightly irregular surfaces, clean to very thin sericite coating. 50% indicate dip slip motion with the others have no slickensides.

48.2-50.2m: Medium to coarse grained, anhedral to subhedral crystals.
Feldspar 70%, quartz 26%, biotite 2 - 3%, muscovite 1 - <2%.

50.2-54.7m: Coarse grained, sub to anhedral crystals. Micas are coarse grained (1" - 2" flakes and books-down to 1/4 - 1/2").
Feldspar 70%, quartz 27%, biotite 1 - 2%, muscovite 1%.

54.7-57.5m: Medium grained, anhedral to subhedral crystals.
Feldspar 70%, quartz 27%, biotite 1 - 2%, muscovite 1%.

57.5-58.0m: Coarse grained, subhedral crystals, 2% graphic texture.
Feldspar 75%, quartz 24%, biotite <1%, muscovite <1%.

58.0-60.0m: Medium grained, mottled looking.
Feldspar 70%, quartz 27%, biotite 1-2%, muscovite 1%.

60.0m-60.7m: Coarse grained, subhedral to anhedral crystals, 2% graphic texture.
Feldspar 70%, quartz 29%, biotite <1%, muscovite <1%. Micas are fine to medium grained.

60.7-60.9m: Medium to coarse grained, anhedral crystals, mottled looking.
Feldspar 70%, quartz 27%, biotite 1 - 2%, muscovite 1%.

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-12

AREA/PROPERTY LOCATION:			Bearcub Claims near Lumby, B.C.
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	3+56 N 10+98 E	**INCLINATION:**	-90°
ELEVATION:	1060 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	December 4, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	December 5, 1988		Logging in feet (converted to meters)

0.0 - .30m OVERBURDEN

.30 - 13.6m PEGMATITE: Medium grained with minor zones of coarse grained crystals, anhedral to subhedral crystals. 5% graphic texture.
Feldspar 65%, quartz 31%, biotite 3%, muscovite 1%.

.30-9.1m: Alteration consisting of very slight hematite staining mainly on occasional fractures in this zone.

.30-1.1m: Broken zone due to weathering, irregular fractures, 2-3" pieces

.60m: Fracture at 20° to core. Poorly developed slickenside suggests strike slip movement.

3.6m: Fracture at 20° to core. Poorly developed slickenside suggests approximate strike slip movement.

8.5m: Fracture at 20° to core, irregular fracture, clean.

8.8m: Fracture at 20° to core, dip slip motion indicated, slight hematite staining, clean.

8.9m: Fracture sub parallel to core fracture, dip slip motion indicated, slight hematite staining, otherwise clean.

13.6 - 15.5m BIOTITE GNEISS: Upper contact, gradual over 3" at 50° to core. Lower contact, sharp at 50° to core. Gneissosity at 50° to core, fine to medium grained, poorly developed foliation.
Feldspar 40%, quartz 35%, biotite 25%. Fractures 1 per foot parallel to foliations.

14.0m: Fracture at 40° to core, minor hematite stain (no visible sulphides).

14.7m: Fracture at 15° to core, thin sericite coating.

15.5 - 15.6m PEGMATITE: Coarse grained vein, anhedral crystals.
Feldspar 60%, quartz 40%, biotite 1%.

15.6 - 20.4m BIOTITE GNEISS: As above

20.1m: Fracture at 20° to core. Small hematite blotch on surface, some sericite, no slickensides.

20.4 - 30.1m PEGMATITE: Medium grained to coarse grained, anhedral to subhedral crystals, mottled looking.
Feldspar 71%, quartz 25%, biotite 3%, muscovite 1%. Micas are medium grained.

25.2-26.2m: Coarse grained, subhedral to anhedral crystals, 2% graphic texture.
Feldspar 80%, quartz 20%, biotite <1%.

26.0m: Bleb (2" x 1 1/4") of coarse grained garnets.

26.2-30.1m: Medium grained, anhedral to subhedral crystals, mottled looking.
Feldspar 71%, quartz 25%, biotite 3%, muscovite 1%.

30.1 - 32.2m BIOTITE GNEISS: Fine grained to medium grained. Upper contact, sharp at 60° to core. Lower contact, gradual over 2" at 50° to core. Foliations are very poorly developed. Almost massive looking unit in places. Fractures sub parallel to foliation (1 per foot) clean.
Feldspar 40%, quartz 35%, biotite 25%.

31.1m: Thin pyrite smears on shear surface, 40% of surface randomly coated. Shear at 45° to core, dip slip motion indicated.

32.2 - 60.9m PEGMATITE: Coarse grained to medium grained, anhedral crystals.
Feldspar 80%, quartz 20%, biotite 1%, muscovite <1%. Muscovite occurs only in 1st foot of unit. Biotites are often chloritized.

34.0-34.3m: Fractures sub parallel to core, irregular surfaces, clean.

33.4-37.2m: Medium grained to coarse grained, anhedral crystals with minor subhedral crystals.
Feldspar 70%, quartz 26%, biotite 2%, muscovite 1-2%.

37.2-44.3m: Coarse grained with minor medium grained sections, subhedral to anhedral crystals.
Feldspar 72%, quartz 25%, biotite 1%, muscovite 2%. Micas are medium to fine grained.

38.6-39.6m: Quartz vein (1/2" - 1" wide). Sub parallel to core, irregular contacts.

44.3-52.6m: Medium grained with some minor coarse grained sections. Anhedral to subhedral, very minor graphic texture in places.
Feldspar 65%, quartz 30%, biotite 3%, muscovite 2%.

51.2-51.7m: Broken zone due to several intersecting 15° to core fractures, clean, fragments range from medium breccia to 1" shards, up to 3" pieces.

51.8m: Fracture 15° to core, clean.

52.6-55.4m: Coarse grained to medium grained, subhedral crystals.
Feldspar 84%, quartz 15%, biotite 1%, muscovite <1%.

55.4-55.8m: Very light milky green, coarse (2-3") to fine grained (1/16-1/32") unit, anhedral, reflecting relict bedding? or segregation banding at 50° to core while upper and lower contacts are indistinct.
Feldspar 50%, quartz 48%, muscovite 1-2%, Chlorite <<1%.

55.8-57.0m: Medium grained, anhedral, mottled looking pegmatite.
Feldspar 72%, quartz 25%, biotite 1%, muscovite 1-2%.

57.0-60.9m: Coarse grained to medium grained, anhedral with minor subhedral crystals.
Feldspar 73%, quartz 25%, biotite 1%, muscovite 1%, garnets <1%.

60.9m: END OF HOLE

DIAMOND DRILL HOLE BC 88-13

AREA/PROPERTY LOCATION:		**Bearcub Claims near Lumby, B.C.**	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+25 N 11+15 E	**INCLINATION:**	-90°
ELEVATION:	1074 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	November 29, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	November 30, 1988		Logging in feet (converted to meters)

0.0 - .61m OVERBURDEN

.61 - 1.5m LOST CORE

1.5 - 36.9m PEGMATITE: Medium to coarse grained, subhedral to anhedral crystals. Very minor occasional graphic texture. Most of the interstitial quartz is smoky.

1.5-16.2m: Feldspar 66%, quartz 30%, biotite 3%, muscovite 1%. Garnets very minor.

1.5-4.3m: Broken core. 80% recovery. Fragments range from pebble sized to 2" irregular fragments upwards to 6" pieces. Fracture surfaces are very hematized to moderately hematized.

5.9-8.8m: Broken core between 5.9-7.6m. Fragments are 2" - 4" long. Fracture angles 10° and 80° (Sand and fine breccia on surfaces of some). 90% recovery.

7.6-8.8m: Broken core, 60% recovery. Lots of sand and fine breccia fragments near center of section (fault?). Possible orientation 30° to core with indicated dip slip motion. Moderately hematized fracture surfaces.

13.4-15.2m: Broken core, clean irregular surfaces, angles are 10 - 20° to core. Minor to slight hematization of some fractures, fragments range from 2 - 6" pieces and are shard-like.

1.5-8.8m: Strong to moderate blotchy hematite staining of the core. Fractures in broken zones in this region may be black with hematite and manganese staining. Decreases downwards gradually.

8.8-26.3m: Alteration: slight blotchy hematization of the core. Occasional fracture has minor hematite staining.

17.1m and 17.1m: Set of parallel shears, moderately oxidized on surface of fracture only. 30° to dip slip motion is indicated on both by slickensides.

16.4m: Irregular shaped very fine grained bleb of chalcopyrite? 3" x 3/4". Copper staining 3" above and 3" below bleb.

26.3-33.3m: Alteration: moderate hematite staining of the core predominantly on fracture faces especially in broken zones as noted.

27.9m: Intersection of two moderately hematized fractures: 30° to core and 70° to core.

Between 23.0m and 26.1m: Possible fault. 10% recovery of broken core. Remainder (probably mud gouge according to drillers) washed away.

26.1m: Pyrite and/or chalcopyrite occurs in two 1/8" blebs (very fine grained), associated with a knot of chloritized biotite and muscovite.

27.3m and 27.4m: 2 parallel moderately to strongly hematized fractures at 20° to core.

29.4-29.9m: Broken core. All surfaces are moderately hematized. 95% recovery. <1" shards to 4" irregular fragments. Possibly due to several parallel to core fractures in this zone.

31.0-31.7m: Irregular fragments range in size from 2" - 5" pieces. One fragment contains 3" of calcite vein material at ≈ 70° to core.

17.1-19.9m: Coarse grained, subhedral, with minor graphic texture.
Feldspar 80%, quartz 20%, biotite <1%, muscovite <1%.

19.9-22.9m: Medium grained, anhedral to subhedral crystals. Slight marblized look due to fine to medium grained micas interstitial to feldspar and quartz.
Feldspar 66%, quartz 30%, biotite 2 - 3%, muscovite 1%. Alteration consists of light bluish-green blotchy stains over 20% of the above sub-unit. (Copper staining? Epidote?)

22.9-33.6m: Coarse grained, subhedral to anhedral crystals.
Feldspar 78%, quartz 20%, biotite 1%, muscovite 1%.

33.6-36.9m: Medium grained, anhedral crystals; dirty looking due to fine to medium grained micas.
Feldspar 62%, quartz 30%, biotite 5 - 7%, muscovite <1%. Occasional chloritization of some biotites.

36.9 - 37.4m BIOTITE GNEISS: Fine grained (1/32" - 1/16" crystals), anhedral.
Feldspar 40%, quartz 40%, biotite 20%. Upper contact is 80° to core and sharp. Lower contact is 70° to core and sharp. Foliation is very poorly developed but runs roughly parallel to upper and lower contacts. Fractures run sub parallel to core throughout this unit, surfaces are slightly irregular and have a very thin sericite/epidote coating.

37.4 - 57.4m PEGMATITE: Mainly coarse grained except where noted, subhedral to anhedral crystals.
Feldspar 62%, quartz 30%, biotite 5 - 7%, muscovite <1%.

37.6-57.4m Coarse grained with minor medium grained sections, subhedral to anhedral crystals, <10% graphic texture.
Feldspar 70%, quartz 28%, biotite 2%, muscovite <1%. Very minor, occasional disseminated garnet.

39.0-41.8m: Lost core. Core tube didn't lock.

45.3-45.9m: Broken core, very irregular. Fragments range from 1/2" - 5" pieces. Slightly epidotized.

48.1m: Shear, very irregular surface. Slickensides indicate dip slip motion, shear at 30° to core.

51.3-51.9m: Broken zone, epidote alteration of the feldspars. Fragments range from fine breccia to angular 3" pieces. Angles appear to be ≈ 10° to core, minor 70° to core. Very fine grained pyrite cubes (and 1/8" smears) disseminated on surface of occasional fractures.

49.5m: Fault 30° to core, clean, dip slip motion indicated.

55.1: Pyrite ± chalcopyrite occurs adjacent to a quartz crystal. 2 or 3 very fine grained blebs up to 1/8" long. Slight blue-green tinge 1" above and 1" below occurrence.

57.4 - 57.9m BIOTITE GNEISS: Usual biotite gneiss. Foliation poorly developed but ≈ 70° to core. Upper contact sharp at 70° to core. Lower contact sharp at 65° to core.
Feldspar 40%, quartz 35%, biotite 25%.

57.9 - 58.5m PEGMATITE: Medium to coarse grained, anhedral crystals, mottled looking unit.
Feldspar 60%, quartz 38%, biotite <1%, muscovite 1%, garnets <1%.

58.5 - 60.9m BIOTITE GNEISS: Speckled variety. Upper contact at 60° to core, sharp.
Feldspar 40%, quartz 35%, biotite 20%, fine grained aggregates of undetermined mineral 3 - 5%. These irregular shaped aggregates are randomly disseminated along foliation planes discontinuously down hole.

60.0-60.2m: Broken zone caused by a series of sub parallel 30 - 35° to core fractures. Fragments or shards range from 1" to 3" long. Pyrite smear (3/4" x 1/2") on upper fracture surface.

Other fractures in this zone are sub parallel to foliation (≈ 1 per foot).

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-14

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+00 N 10+00 E	**INCLINATION**	-90°
ELEVATION:	1038 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	December 9, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	December 11, 1988		Logging in feet (converted to meters)

0.0 -3.04m OVERBURDEN

3.04 - 4.3m LOST CORE

4.3 - 5.8m BIOTITE GNEISS: Usual biotite gneiss with poor foliation development (gneissosity) at 60° to core. Fractures 3 - 4 per foot parallel to gneissosity.
Feldspar 40%, quartz 35%, biotite 25%.

4.3-4.6m Broken core due to sub parallel to core fractures. Thin epidote coating, no slickensides. Fragments average 2" shards.

5.8 - 6.7m META-ARKOSE: Mottled, splotchy, green-grey color with orthoclase pink color occasionally. Gradational contacts upper and lower. Less fractured than previous unit.
Feldspar 30%, quartz 60%, other 10%.

6.2m: Fracture 20° to core clean.

6.7 - 8.3m BIOTITE GNEISS: As above. Lower contact relationship unknown (Missing from core).

6.8-8.3m: Lost core.

8.3 -11.4m PEGMATITE: Coarse grained with minor medium grained crystals, subhedral to anhedral crystals. Broken core.
Feldspar 80%, quartz 20%, biotite <1%.

8.3-9.8m: Broken core. Irregular fractures 2 - 6" pieces. Core missing. 80% recovery.

11.4 -14.0m BIOTITE GNEISS: As above.

14.0 -14.4m META-ARKOSE: As above. Gradational contacts.

14.4 -15.3m BIOTITE GNEISS: As above.

15.3 -26.7m PEGMATITE: Coarse grained with minor medium grained crystals, subhedral to anhedral crystals. 20% graphic texture.

Feldspar 75%, quartz 22%, biotite 2%, muscovite 1%.Irregular pieces, no consistent fractures but average angles are ≈ 30° to 20°. Fragments range from 2" pieces to 6" pieces, occasional shards ≈ 1" long.

21.4-26.7m: medium grained anhedral, very minor crystals. Splotchy, slight epidote alteration discontinuously from 22.5-26.7m. Very minor chloritization of the biotites. Feldspar 70%, quartz 26%, biotite 3%, muscovite 4%.

23.8-26.0m: Fracture sub parallel to core, clean, slightly irregular fracture the entire length. Core slightly broken (6 - 8" pieces).

26.7 -28.7m BIOTITE GNEISS: 90% core loss due to mud seam (fault gouge?)

28.7 -60.9m PEGMATITE: Medium grained, minor coarse grained, anhedral to subhedral crystals. Feldspar 70%, quartz 27%, biotite 1%, muscovite <2%. Epidote alteration, blotchy and slight, from 26.7-34.7m.

28.7-35.7m: Moderately broken core, fractures to 30° and sub parallel to core fracture. Fragments range from 1" to 6" pieces, irregular fractures.

35.7-37.2m: Lost core. 95% loss of core (fault?).

38.6-40.0m: Slight kaolinization of feldspars.

41.5-12.2m: 66% recovery.

46.4-42.7m: (estimated lower boundary depth) Broken core 20° to 30° to core and sub parallel to core fractures. Fragments range from 2" shards to 4" pieces.

43.9m: Fracture at 20° to core, clean.

44.0-53.6m: Slight blotchy epidote alteration.

44.2-47.9m: 70% recovery. Moderately broken zone.

47.9-48.6m: Mottled looking medium grained crystals.
Feldspar 65%, quartz 25%, biotite 8%, muscovite 2%.

48.6-60.9m: Coarse to medium grained, sub to anhedral crystals. 10% graphic texture.
Feldspar 78%, quartz 19%, biotite 2%, muscovite <2%. Occasional disseminated garnet.

49.7-51.2m: Broken zone. 30% recovery.

59.7-60.7m:. Fractures sub parallel to core, irregular surface with thin epidote ± chlorite coating. Very minor, fine grained disseminated crystals of pyrite (3 in total on fracture surface).

60.9m END OF HOLE

DIAMOND DRILL HOLE BC 88-15

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	3+00 N (Baseline) 10+00 E	**INCLINATION:**	-90°
ELEVATION:	1038 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
COMMENCED:	December 8, 1988	**Note:**	Location and Elevation in meters
COMPLETED:	December 9, 1988		Logging in feet (converted to meters)

0.0 - 3.04m OVERBURDEN

3.04 - 4.05m BIOTITE GNEISS:
Fine-grained, displays good gneissosity with the occasional mineral segregation. Gneissosity at 75° to core. Feldspar 40%, quartz 30%, biotite 30%.

3.8-4.1m: Broken core due to several 15° to sub parallel core fractures. Fragments range from 3" shards to 6" pieces. Some fracture surfaces are moderately hematized. Fractures are parallel to gneissosity. Averaging 1-2 per foot, 50% of these fracture surfaces are moderately hematized.

13.3 - 14.4m CHLORITE-QUARTZ-FELDSPAR FAULT BLOCK: Upper contact, sharp at 60° to core. Lower contact, sharp at 30° to core. (The two contacts intersect to form a right angle). The unit is fine grained with 1/8" - 1" fragments of quartz and quartz-feldspar incorporated, dark green in colour with white splotches. Very mottled looking. Very fine grained pyrite and chalcopyrite blebs and micro-veinlets are disseminated within the unit. In addition a lesser amount of graphite is randomly distributed in blebs. Blebs range up to 1/4" x 1/8". A 3/4" irregular quartz vein defines the lower contact. It is unmineralized.
Chlorite 60%, quartz 25%, feldspar 15%, pyrite <1%, chalcopyrite <1%, graphite <1%. Sulphides together total l%.

4.4 - 6.2m BIOTITE GNEISS: As above. Lower contact, sharp at 65° to core.

6.2 - 25.0m PEGMATITE: Dirty looking, light grey-brown coloured, anhedral crystals, medium to fine grained.
Feldspar 40%, quartz 50%, muscovite 10%.

6.4-8.5m: Medium to coarse grained anhedral crystals.
Feldspar 70%, quartz 30%, biotite <1%, muscovite <1%. Average representative fractures at 70° to core.

8.5-19.2m: Medium to coarse grained (1/4" - 1/2" crystals), anhedral to subhedral.
Feldspar 72%, quartz 25%, biotite <2%, muscovite 1%.

19.2-20.0m: Coarse grained, subhedral 2 - 3" crystals.
Feldspar 79%, quartz 20%, biotite <<1%, muscovite <1%.

20.0-20.5m: Medium to coarse grained anhedral to subhedral crystals.
Feldspar 72%, quartz 25%, biotite <2%, muscovite 1%.

20.5-20.8m: Coarse grained, subhedral to anhedral crystals.
Feldspar 75%, quartz 25%, biotite <1%.

20.8m: A chalcopyrite bleb (1/4" x 1/2") is noted. A pyrite bleb (1/4" x 1/4") is noted at 20.8m. Very minor, very fine grained sulphides occasionally occur in vicinity.

20.8-21.1m: Fine grained, quartz-feldspar vein. Parallel contacts at 40° to core (grain size 1/16" - 1/32").
Feldspar 60%, quartz 40%, Micas <.5%.

21.1-23.7m: Medium grained to coarse grained, anhedral to subhedral crystals.
Feldspar 72%, quartz 25%, biotite <2%, muscovite 1%.

23.7-24.6m: Coarse grained, subhedral crystals.
Feldspar 70%, quartz 30%, biotite <1%.

23.1m: Pyrite smear (1" x 1/4") on fracture at 50°.

23.9-24.1m: Broken core, 1/2" - 2" pieces, irregular fracture pattern.

25.0 - 25.0m GRANITE GNEISS: Contact relationship with under and overlying pegmatite is unknown because of core breakage at the contacts. Possibly fault bounded with lower contact at 70° to core. Fine grained, equigranular.
Feldspar 70%, quartz 25%, biotite 5%.

25.0 - 27.9m PEGMATITE: Medium grained anhedral to subhedral, 2% graphic texture.
Feldspar 73%, quartz 25%, biotite 1%, muscovite 1%.

27.9 - 28.0m BIOTITE GNEISS: Upper contact at 70° to core, sharp. Lower contact gradual over 1", at 50° to core. Fine grained, gneissosity at 70° to core.
Feldspar 40%, quartz 35%, biotite 25%.

28.0 - 28.4m PEGMATITE: Medium grained, anhedral to subhedral.
Feldspar 74%, quartz 25%, biotite <1%.

28.4 - 28.9m BIOTITE GNEISS: As before.

28.9 - 31.7m INTERLAYERED GRANITE GNEISS & PEGMATITE: Gradual contacts between sub-units, fine grained.
Feldspar 65%, quartz 30%, biotite 2%, muscovite 3%.

29.3-29.4m: Medium grained pegmatite.
Feldspar 75%, quartz 25%, trace biotite.

29.4-29.5m: Granite gneiss, as before.

29.5-29.9m: Medium grained pegmatite as before.

29.9-30.2m: Granite gneiss, slightly darker, medium brown/grey colour.

30.2-30.5m: Medium grained pegmatite as before.

30.5-31.0m: Granite gneiss, as before.

31.0-31.5m: Medium grained with minor coarse grained pegmatite.

31.5-31.7m: Granite gneiss gradually becomes biotite gneiss.

31.7 - 38.5m BIOTITE GNEISS: Well developed gneissosity at 60° to core, fine grained, occasional felsic mineral bands or segregations 1/8" up to 1/2" wide. Average fractures 2 per foot, parallel to gneissosity. Feldspar 40%, quartz 35%, biotite 25%.

35.0m Two intersecting shears. One at 10° to core, the second at 30° to core. Both are coated with 1/8" dark brown clay gouge.

38.5 - 43.5m PEGMATITE: Coarse grained. Sub to anhedral, 2% graphic texture. Feldspar 75%, quartz 24%, biotite <1%, muscovite <<1%.

43.5 - 45.0m BIOTITE GNEISS: As before. Upper contact, sharp at 70° to core. Lower contact, sharp at 70° to core. Gneissosity 70° to core.

45.0 - 45.8m PEGMATITE: Medium grained, mottled looking, anhedral crystals. Feldspar 73%, quartz 25%, biotite 1%, muscovite 1%.

45.8 - 46.0m BIOTITE GNEISS: Upper contact, sharp at 75° to core. Lower contact, sharp at 55° to core. Gneissosity 55° to core.
Feldspar 40%, quartz 35%, biotite 25%.

46.0 - 54.0m PEGMATITE: Medium to coarse grained, subhedral to anhedral, mottled looking. Feldspar 73%, quartz 25%, biotite 2%, muscovite 1%.

49.0-49.4m: Coarse grained (3 - 4" crystals).
Feldspar 75%, quartz 25%.

49.4-50.6m: Medium grained, anhedral to subhedral crystals, mottled looking.
Feldspar 73%, quartz 25%, biotite 2%, muscovite 1%.

50.6-54.0m: Coarse to medium grained. Sub to anhedral crystals. Very minor graphic texture (crystals range from 1/2" to 4").
Feldspar 78%, quartz 20%, biotite <2%, muscovite <<1%.

54.0 - 54.2m GRANITE GNEISS: Fine grained, light grey colour, equigranular with slight gneissosity. Upper and lower contacts gradual over 1", both 70° to core.
Feldspar 40%, quartz 45%, biotite 15%.

54.2m: Fracture clean at 30° to core.

54.2 - 55.3m PEGMATITE: Coarse grained, subhedral to anhedral crystals.
Feldspar 74%, quartz 25%, biotite 1%, muscovite <<1%.

55.3 - 57.3m BIOTITE GNEISS: As before. Upper contact, sharp at 70° to core. Lower contact graditional & irregular gneissosity at 65° to core.

57.2m: Fracture clean at 20° to core.
Feldspar 40%, quartz 35%, biotite 25%.

57.3 - 57.5m META-ARKOSE: (granitization) Mottled green and orthoclase pink colour.
Feldspar, 35%, Quartz 55%, Other, 10%.

57.5 - 57.7m BIOTITE GNEISS: As above. Upper contact gradational and irregular. Lower contact, at 60° to core.

56.1m: centre of 2' long 5° to core, clean fracture.

57.7 - 60.9m PEGMATITE: Coarse to medium grained, sub to anhedral crystals. Feldspar 75%, quartz 24%, biotite 1%, muscovite <1%.

60.7-60.9m: Broken core, 1/2" - 2" fragments.

60.9m END OF HOLE

APPENDIX 5

ALTERATION STUDIES OF DRILL CORE

BRENDA EXPLORATION
A Division of
Brenda Mines Ltd.
2281 Hunter Road
Kelowna, B.C. V1X 7C5
Phone (604) 861-5501
Fax (604) 861-5210

MEMORANDUM

DATE: April 14, 1989

TO: Ross Weeks

FROM: Shelly Logan Gordanier

SUBJECT: **ALTERATION STUDIES - BEARCUB PROJECT CORE**

Holes BC 88-1, 2, 6, 7, and 13 were examined for alteration occurrences as per your instructions. Time did not permit the examination of BC 88-12, however, I feel that no new information would come to light given that the weathering pattern appears the same in all six of the examined holes in the mining zone.

Without a doubt oxidation has occurred to some extent with core storage, subsequent drying of the core and exposure to air.

Eight representative samples have been collected. I propose that four of these be sent to Vancouver Petrographic for polished thin section and petrographic examination at a cost of $85.00 per sample. Scanning electron microprobe will tell us which iron alteration product we are dealing with at a cost of $70.00 per hour. My megascopic studies suggest that the same processes have affected all these samples and therefore one S.E.M. may be all that is necessary. I will enclose unoxidized core in the event that mineralogy and composition of the feldspars plays a part. Should we feel it is warranted, the remaining four samples could be studied in the same way once we receive the petrographers report.

Nowhere is oxidation pervasive. Slight to moderate oxidation decreases gradually downhole, and lends a blotchy appearance to the core when present. In order to compare intensity of oxidation from one hole to another, the core was examined closely in a 1 foot section every 10 feet of depth. Within this representative 1 foot section alteration features were described. In particular iron oxidation (limonite %) along microfractures within individual feldspar crystals per 1 x 1" square, and major fractures per 1 ft section were counted.

In my opinion the oxidation which is causing the concern during processing can be traced primarily to two sources. 1. Slight surface oxidation occurs along some microfractures within feldspar crystals. I interpret these fractures as syngenetic features produced as the pegmatitic body cooled. The micro (cleavage) fractures do not extend into interstial quartz. The oxidation itself of these fracture surfaces may have occurred at a much later date, possibly as a result of surface weathering due to meteoric groundwater circulation. The iron may be leached from the feldspars themselves in place, or be contained in the circulation fluids . 2. Slight to moderate iron oxidation (limonite and hematite) may be found on structural fractures cutting the pegmatite body. I interpret these fractures as epigenetic tectonic features produced during a regional metamorphic event. Because these fractures project to surface they form ideal conduits for circulating meteoric (oxidizing) solutions. Especially at depth a relationship between oxidized microfractures and oxidized tectonic fractures is noted. Frequency of oxidized microfractures decreases away from tectonic fractures and/or shear zones.

Minor amounts of moderate oxidation may be associated with occassional medium - grained biotite clumps but is very restricted.

Rarely iron oxides may replace occassional pyrite crystals on tectonic fracture surfaces.

Oxidation of feldspar crystal boundaries does not seem to be occurring.

Occassionally very small blotches of oxidation randomly occurs and appear to have no relationship to fracturing or sulphide component.

Following is a table of the depth iron oxides are last reported in drill holes, with the figures in brackets representing the base of the weathering zone.

BC-1	76.0'	(47.0')
BC-2	60.6'	(27.0')
BC-6	27.0'	(22.0')
BC-7	67.0'	(57.0')
BC-13	107.0'	(67.0')

My visual examination of the core indicates that the iron alteration products are most probably limonite and hematite, however, I leave a final determination of the oxides to a petrographic study. (That oxides were not removed in an acid bath during metallurgical testing contradicts my conclusions as to mineralogy.) Once the offending mineral has been determined a beneficiation process can be prescribed.

Please refer to individual Alteration Logs for detailed descriptions. Occurrences of additional alteration products are noted where present. (i.e.: epidote, chlorite).

DIAMOND DRILL HOLE BC 88-1
ALTERATION LOG

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+50 N 9+00 E	**DIP:**	-90°
ELEVATION:	1060 m above sea level	**DRILLER:**	Lone Ranger Diamond Driller
LOGGED:	April 7, 1989	**Note:**	Location and elevation in meters Logging in feet

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Footage			Oxidized Fractures	
From	To	Description	Micro (per 1 x 1" sq.)	Tectonic (per 1' depth)
12.0	13.0	Irregular fracturing produced when core is tapped with a hammer. Slight surface oxidation occurs (1) along some micro fractures within K-spar (fractures do not extend into interstial quartz very often); the oxidation itself of these fracture surfaces may have occurred at a much later date, even as a result of surface weathering due to meteoric groundwater circulation; (2) moderate oxidation of medium grained biotite clumps is noted, however the extent of this oxidation is predominantly limited to the vicinity immediately adjacent to the biotite crystals.	7	----
17.0	18.0	Slight overall oxidation along micro fractures, moderate to slight oxidation along fractures which cut all minerals. No clays, no decomposition of the feldspars.	6	2 @ 35°
22.0	23.0	1/8" - 1/4" grain-size, therefore finer grained than previous two notation points. Micro fractures in 1 x 1" square on cut surface are therefore more prevalent, and of longer length. One slightly oxidized tectonic fracture at 30° to core. No oxidation noted near fine grained disseminated biotite.	12	1

27.0	28.0	Slight surface oxidation noted on micro fracture surfaces within feldspar crystals. One fracture at 2° to core has slight to moderate oxidation on irregular surface which is probably limonite with minor blotches of hematite.	6 - 8	1 @ 2°
37.0	38.0	Slight surface oxidation noted on micro fractures. One fracture at 40° to core is slight to moderately oxidized along an irregular surface. Grain size decrease is local to 1/4" crystals. Very minor blotchy (less than 1/8") epidotized zones near the micro fractures in feldspar may occasionally be noted.	12	1 @ 40°
47.0	48.0	One four inch, irregular fragment is slight to moderately hematized while the remaining core is only very slightly hematized along micro fractures. When the micro fractures cut quartz they are not oxidized. Cross cutting fracture is moderately hematized and occurs at 5° to core, with a very thin clay coating.	4 - 12	1 @ 5°
57.0	58.0	Looks unoxidized before it is tapped with a hammer and broken. It is only then that a sutured fracture at 5° to core is shown to have slight surface oxidation. Minor green epidotization along 1 micro fracture.	----	1 @ 5°
67.0	68.0	No oxidation at all in this footage.	0	0
72.0	73.0	Very slight oxidation along intercrystal micro fractures. Very minor oxidation overall to non-existent.	3	----
76.0		Last oxidized fracture at 5° to core. Slight oxidation, irregular surface.		
77.0	78.0	No oxidation at all. Micro fractures have occasional slight epidotization: 2 per 1 x 1" square.		
87.0	88.0	No oxidation.		
97.0	98.0	No oxidation.		
107.0	108.0	No oxidation.		

117.0	118.0	No oxidation.		
127.0	128.0	No oxidation.		
137.0	138.0	No oxidation.		
147.0	148.0	No oxidation. Slight epidote alteration along micro fractures: 1 per 1 x 1" square.		
157.0	158.0	No oxidation.		
167.0	168.0	No oxidation.		
177.0	178.0	No oxidation.		
187.0	188.0	1 to 2 mm blotches of oxidation within crystals of feldspar.		
197.0	198.0	No oxidation.		

DIAMOND DRILL HOLE BC 88-2
ALTERATION LOG

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	-------
LOCATION:	4+00 N 9+50 E	**DIP:**	-90°
ELEVATION:	1055 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
LOGGED:	April 7, 1989	**Note:**	Location and elevation in meters Logging in feet

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Footage			Oxidized Fractures	
From	To	Description	Micro (per 1x1" sq.)	Tectonic (per 1' depth)
16.0	17.0	Slight to moderate hematite/limonite staining of micro fractures within feldspar crystals and along one fracture sub parallel to core. I feel that these micro fractures are cooling phenomena present throughout the pegmatite. Only in the zones as noted are they extremely obvious due to oxidation. Slight oxidation is occasionally noted at muscovite/feldspar contacts as well. Minor percentage of biotite has been partially altered to chlorite.	12	1 @ 5°
26.0	27.0	Very slightly oxidized along micro fractures. Slight to moderate oxidation on one cross-cutting fracture.	2	1 @ 20°
36.0	37.0	Broken core zone. Pebble sized fragments remain. Slight oxidation along some surfaces. Pin point blotches of hematite occasionally are noted.	n/a	n/a
46.0	47.0	Broken core zone.		

45.0	46.0	Very slight oxidation along a fracture at 5° to core accompanied by thin clay coating. No oxidation except along this fracture	----	1@ 5°
56.0	57.0	Very slight oxidation noted along crosscutting fractures sub parallel to core, accompanied by anhydrous coating.	----	3
66.0	67.0	No oxidation at this interval.		
60.6		The last occurrence of oxidation down hole from surface. It occurs as very slight hematite/limonite staining on a sub parallel to core fracture.	----	1
76.0	77.0	One - l mm blotch of limonite in entire interval. It occurs on surface of a fracture along with minor epidotized clay in thin coating. Fracture is sub parallel to core.		<1
86.0	88.0	No oxidation.		
96.0	97.0	No oxidation.		
106.0	107.0	Slight epidote and clay coating of a sub parallel to core fracture. Feldspars themselves in this medium-grained pegmatite are slightly epidotized in blotches near micro fractures.		
116.0	117.0	No oxidation.		
126.0	127.0	No oxidation. Very minor thin clay and epidotite coating on one sub parallel to core fracture.		
136.0	137.0	6 pin point hematite blotches (1 mm in size) randomly arranged. Can't discern any sulphides.		
146.0	147.0	No oxidation. Thin epidotized clay coating on a sub parallel to core fracture surface.		
156.0	157.0	No oxidation.		
166.0	167.0	No oxidation. Thin epidote-chlorite-clay coating on fracture at 5° to core.		

176.0	177.0	No oxidation. Slight, 1% epidote alteration of the feldspars in random blotches.		
186.0	187.0	No oxidation. Slight 5% epidote-kaolin alteration of the feldspars in random blotches.		
196.0	197.0	No oxidation. Slight 3% epidote-kaolin alteration of the feldspars in random blotches.		

DIAMOND DRILL HOLE BC 88-6
ALTERATION LOG

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	AZIMUTH:	--------
LOCATION:	4+50 N 10+00 E	DIP:	-90°
ELEVATION:	1043 m above sea level	DRILLER:	Lone Ranger Diamond Drilling
LOGGED:	April 8, 1989	**Note:**	Location and elevation in meters Logging in feet

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Footage			Oxidized Fractures	
From	To	Description	Micro (per 1x1" sq.)	Tectonic (per 1' depth)
16.0	17.0	Slight iron oxidation along micro fractures. Kaolinization may accompany it and occur immediately adjacent to the micro fracture.	5	0
21.0	22.0	Slight oxidation along micro fractures. Very slight oxidation of one fracture at 10° to core with thin epidote clay coating.	3	1 @ 10°
26.0	27.0	Very slight oxidation along micro fractures. Occasional pale yellow blotch up to 3 mm diameter, adjacent to a micro fracture. Pale green epidote? alteration along healed fracture, not extensive.	1	0
36.0	37.0	No oxidation. Very slight epidotization along a healed fracture at 60° to core.	0	0
46.0	47.0	No oxidation.		
56.0	57.0	No oxidation. Very slight blotchy epidotization of the feldspars.		
66.0	67.0	3 - 3 mm very pale limonite? blotches randomly encountered. Minor kaolinization of some feldspars.		

76.0	77.0	No oxidation.		
86.0	87.0	No oxidation.		
96.0	97.0	No oxidation. Minor, slight kaolinization of the feldspars. Occasional biotite altered partially to chlorite.		
106.0	107.0	No oxidation. Minor kaolinization of some feldspars.		
116.0	117.0	No oxidation. Minor kaolinization adjacent to 2 - 50° to core fractures.		
124.0	125.0	Extremely slight oxidation, as discontinuous blotches on a fracture at 50° to core. No oxidation otherwise.	----	1 @ 50°
136.0	137.0	No oxidation.		
146.0	147.0	No oxidation.		
156.0	157.0	4 less than 1 mm pyrite cubes randomly dispersed. They are entirely oxidized to hematite. No other oxidation.		
153.2		Very slight, pale blotchy oxidation along a healed fracture at 10° to core.	----	1 @ 10°
166.0	167.0	No oxidation. Slight chloritization of some biotite crystals and minor kaolinization of some fine grained feldspar crystals.		
176.0	177.0	No oxidation.		
186.0	187.0	No oxidation. Minor kaolinization of fine grained feldspars.		
196.0	197.0	No oxidation. Minor kaolinization of fine grained feldspars.		

DIAMOND DRILL HOLE BC 88-7
ALTERATION LOG

AREA/PROPERTY LOCATION: Bearcub Claims near Lumby, B.C.

SIZE CORE: H.Q.

AZIMUTH: --------

LOCATION: 4+01 N
10+55 E

DIP: -90°

ELEVATION: 1063 m above sea level

DRILLER: Lone Ranger Diamond Drilling

LOGGED: April 8, 1988

Note: Location and Elevation in meters
Logging in feet

Footage			Oxidized Fractures	
From	To	Description	Micro (per 1x1" sq.)	Tectonic (per 1' depth)
16.0	17.0	Slight oxidation along (1) micro fractures and (2) adjacent to biotite crystals. (Alteration of biotite is not readily observed on core face, only when one is able to cleave the crystals does it become apparent.)	5	0
26.0	27.0	Slight, blotchy oxidation along micro fractures and along one crosscutting fracture sub parallel to core. (This fracture was discontinuously sutured with biotite which is slightly chloritized. Feldspars appear to be kaolinized to a minor extent: 5%.	3	1
36.0	37.0	Slight to moderate hematite/limonite alteration along micro fractures with 10% yellow (kaolinization of feldspar) alteration adjacent to the micro fractures giving it a pale blotchy appearance. One shear at 5° to core is slightly hematized.	6	1 @ 5°

46.0	47.0	Moderate to slight alteration of this interval. The crystal size has decreased to medium grain and looks like it has been fractured and healed during a minor tectonic event. (There are no mylonation or lineations, however 1 to 2 mm elongated cavities remain.) Micro fractures are prevalent. Three fractures at 60° to core have slight to moderate blotchy staining on the surface. Feldspars are pale yellow and slight to moderately kaolinized. Minor, less than 1%, epidote alteration indicated by pale green discoloration is observed as well. One 2 mm pyrite cube was noted on a fracture surface. This has been entirely altered to hematite.	15	3@ 60°
56.0	57.0	Moderate to slight oxidation along micro fractures and healed crosscutting fractures at 25° to core. Feldspars have a pale yellow, blotchy appearance in the immediate area, however zones up to one foot long of unoxidized pegmatite occur intermittently up hole. This kaolinized material may only occur adjacent (up to 8" away) to active fractures.	10	1 @ 25°
51.0	57.1	Alteration described in original logs is accurate, however, the increase in amount of alteration is related directly to the breakage of core along moderately oxidized fractures during cutting. These fractures are at subparallel to core angles, therefore adjacent slight to moderate alteration of the feldspars appears more pervasive.		
66.0	67.0	No oxidation along micro fractures. Very slight blotchy oxidation along one fracture at 30° to core. No other oxidation in the surrounding ten feet of core.	0	1 @ 30°
76.0	77.0	No oxidation.		
86.0	87.0	No oxidation.		

96.0	97.0	No oxidation. 2" x 3/8" chalcopyrite bleb, vesicular, very fine grained. Green cuprous staining up to 3 inches wide around the occurrence. Exposed when core was cut for sampling.		
106.0	107.0	No oxidation.		
116.0	117.0	Very slight, minor hematite alteration of biotite flakes in occasional foliation planes.		
126.0	127.0	Chlorite alteration along fracture at 20° to core, crosscutting gneissosity.		
136.0	137.0	No oxidation. Minor chloritization of some biotite crystals.		
146.0	147.0	No oxidation. Minor kaolinization of fine grained feldspars.		
156.0	157.0	No oxidation. Minor kaolinization of fine grained feldspars, occasional biotite altered to chlorite.		
166.0	167.0	No oxidation. Minor epidote alteration of occasional fine grained feldspars. Fractures at 10° to core have thin kaolinized clay coatings.		
176.0	177.0	No oxidation. Very minor, occasional chloritization of some biotite crystals noted on gneiss planes, as well as minor kaolinization of feldspar crystals.		
186.0	187.0	No oxidation. Very minor kaolinization of occasional fine grained feldspars, and epidote as well in some crystals.		
196.0	197.0	No oxidation. Minor epidote alteration along fractures at 30° to core in pegmatite and gneiss. Very minor chlorite alteration of the biotites occasionally in the gneiss.		

DIAMOND DRILL HOLE BC 88-13
ALTERATION LOG

AREA/PROPERTY LOCATION:		Bearcub Claims near Lumby, B.C.	
SIZE CORE:	H.Q.	**AZIMUTH:**	--------
LOCATION:	4+25 N 11+15 E	**DIP:**	-90°
ELEVATION:	1074 m above sea level	**DRILLER:**	Lone Ranger Diamond Drilling
LOGGED:	April 13, 1989	**Note:**	Location and elevation in meters Logging in feet

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Footage			Oxidized Fractures	
From	To	Description	Micro (per 1x1" sq.)	Tectonic (per 1' depth)
5.0	6.0	80% of feldspars are yellowed, giving an overall slightly oxidized appearance. Slight to moderate oxidation occurs along hairline micro fractures. Major fractures are only slightly oxidized with occasional moderate 2 - 3 mm blotches. In this case slight oxidation appears to be a function of feldspar composition? and micro fracturing.	12	2 @ 40°
17.0	18.0	Slight oxidation overall. Slight to moderate iron alteration of micro fractures. (Major fractures have very thin coating of slight to moderate oxidation.) Core has yellowed feldspars, but micro fractures are definitely darker in color (slight to moderate oxidation). 15% of feldspars are not yellowed but these have ≈6 micro fractures oxidized per 1 x 1" square. Most surfaces are slight to moderately oxidized (blotchy) when core is fractured into 1 - 2" pieces.	10	1 @ 40°

21.0	22.0	Very slight to slight overall oxidation of feldspars, 50% (mainly the medium grained anhedral feldspar portion). The coarse grained crystals are altered only along micro fractures and occasionally along crystal boundaries. Healed fractures at 10 - 35° to core are moderately altered with blotchy oxidation.	12 - 14	1 @ 10°
27.0	28.0	Broken core. Gravel sized fragments remain in box. These fragments are slightly yellowed on broken surfaces making the fragments appear oxidized throughout when this is not the case when looking at larger fragments in the zone. These fragments are indistinguishable from unit described at 21.0'. Shear zone?		
28.5		Micro fractures that are oxidized have decreased to 3 - 10 per 1 x 1" square. Large feldspar crystals are generally unoxidized except along occasional micro fractures. We are out of the more fractured section therefore less oxidation has taken place because of more competent core.	3 - 10	----
32.0	33.0	Slight to very slight oxidation, blotchy near micro fractures. Only affects 40% of the feldspars.Healed fractures when broken are very slightly oxidized in blotches and have black, opaque, spotty blebs or blotches, <1 mm size, disseminated on surface. Unknown mineral. Oxidation does not seem related to these minerals.	4	----
36.0	37.0	Very slight oxidation along occasional micro fractures only. Feldspars are occasionally milky coloured but not light yellow as noted previously.	3 - 4	----
46.0	47.0	Minor chloritization of biotite crystals, very slight oxidation along some micro fractures. Major fracture surfaces have very slight, fine blotchy oxidation, plus a minor dissemination of the black, dendritic blotches noted previously (<1 mm diameter).		

56.0	57.0	Blotchy moderate hematite oxidation along micro fractures at irregular intervals (near concentrations of similarly oriented hairline fractures) over the 1 foot section examined. Material in between is unoxidized.		
66.0	67.0	Slight oxidation of core, with slight to moderate oxidation along occasional micro fractures. Blotchy, but moderate hematization noted along one tectonic fracture; fractures produced with a hammer are slightly oxidized where micro fractures are intersected and moderately oxidized in vicinity of biotite "segregations". Material above and below can be very fresh looking.	4	1 @ 25°
75.5	85.5	Core loss due to mud.		
75.0	97.0	Oxidation noted is minor and directly associated with moderately to pervasively oxidized major fractures as noted in original log. Fractures are at 15° to 25° to core. Alteration is found along micro fractures 2 - 3" away from fracture.		
85.0	86.0	Fairly fresh looking pegmatite. A very slight light green hue to some feldspars may indicate partial slight epidotization. Moderate hematization of a major fracture at 15° to core with associated oxidized micro fracture up to 2" away.	5	1 @ 15°
96.0	97.0	Fairly fresh looking. Oxidized near one major fracture only. This major fracture is only slightly oxidized.	2	1
98.0	109.0	Blotchy moderate to slight oxidation irregularly down hole, concentrations near hematized major fractures and broken zones as noted in original logs.		
106.0	107.0	Slight alteration along micro fractures noted on cut side of core. When core is broken into 1 - 2" pieces, moderate staining is noted along these hairline surfaces. Minor chloritization of biotite crystals.	5	----

116.0	117.0	No oxidation. Fractures now clean.		
126.0	127.0	No oxidation. Fractures have occasional 2 mm epidotization splotch.		
137.0	138.0	No oxidation. Minor sericitization along a healed fracture at 20° to core.		
146.0	147.0	Partial chloritization of the less than 0.5% biotite crystals. No oxidation. Minor slight blotchy epidotization.		
156.0	157.0	No oxidation on cut surface. Very minor slight oxidation along one healed fracture at 10° to core which has been healed with biotite crystals.		
166.0	167.0	No oxidation on cut surface. Minor epidotization along hairline fractures (≈3 per 1 x 1" square) and in blotches in individual crystals.		
176.0	177.0	No oxidation. Partial chloritization of very fine grained disseminated biotite crystals, plus or minus minor epidotization of feldspars in vicinity.		
186.0	187.0	No oxidation. Fairly fresh pegmatite.		
196.0	197.0	Very slight oxidation at crystal boundaries of occasional biotite flakes in this gneissic unit.		

APPENDIX 6

MISCELLANEOUS BRENDA ASSAY LAB REPORTS

ASSAY LAB REPORT

BEARCUB DRILLING SAMPLES - SHELLY

DATE: DECEMBER 21, 1988 DATE REC'D: DECEMBER 9, 1988 FILE:BEARDR01.FRM

(FUSION) SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% MnO	% BaO	% LOI	% H_2O
BC88-12 ~~F1~~ BG 44.5' 67.0'	77.8	11.22	4.18	1.46	1.28	1.85	2.14	.04	.02	1.14	<.01
BC88-10 ~~F2~~ BG 108.6' 134.4'	69.3	15.12	6.39	2.15	1.36	2.15	3.45	.06	.03	2.05	<.01
BC88-2 ~~F3~~ BG 59.0' 65.9'	71.0	14.33	5.08	1.70	2.65	2.39	2.80	.08	.02	2.02	<.01
BC88-5 ~~F4~~ BG 81.1' 113.4'	69.7	14.25	5.29	1.90	4.66	1.80	2.29	.05	.08	2.06	1.23
BC88-3 ~~F5~~ BG 125.1' 143.0'	75.8	11.73	4.20	1.65	12.13	2.41	2.00	.03	.03	2.15	<.01
BC88-4 ~~F6~~ BG 106.5' 124.5'	64.1	11.93	4.75	2.22	13.36	1.79	1.78	.08	.04	6.56	1.14
BC88-6 ~~F7~~ BG 170.3' 176.0'	74.1	7.64	3.19	1.24	12.98	.51	.13	.19	.01	7.13	<.01
BC88-9 ~~F8~~ BG 104.8' 144.8'	71.8	13.86	4.86	1.69	3.62	1.98	2.07	.05	.04	1.84	<.01
BC88-8 ~~F9~~ BG 13.0' 32.3'	70.9	15.01	6.09	1.90	1.18	1.92	2.92	.06	.03	2.53	<.01
BC88-1 ~~F10~~ BG 194.0' 200.0'	77.6	12.74	1.14	.30	1.59	3.65	2.80	.03	.12	.66	<.01
STD SY2	62.1	11.88	6.22	2.69	7.90	4.54	4.34	.31	.05		
TRUE	60.0	12.28	6.28	2.70	7.98	4.79	4.26	.32	.05		

D. Perkins
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BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 5 "69% BIOTITE GNEISS" - BRANKO

DATE: JANUARY 31/89 REC'D: JANUARY 25/89 FILE:BC88-8T5.FRM

SAMPLE BC88-14	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
HEAD (34'-44')	73.2	14.84	3.58	1.39	1.15	2.17	3.68	2.66	.17
CONC 1 (34'-44')	60.0	18.40	11.08	3.70	0.51	1.09	5.23	4.67	.19
CONC 2 (34'-44')	72.1	13.36	6.92	1.89	1.24	1.63	2.84	3.23	.15
CONC 3 (34'-44')	68.1 67.9	16.59 16.48	4.26 4.33	1.73 1.97	1.08 1.07	3.04 3.02	✓ 5.20	1.70	.10
CONC 4 (34'-44')	85.9	8.44	0.94	0.30	0.73	1.86	1.85	.96	.07
SLIMES (34'-44')	69.8	18.14	4.44	1.47	1.26	1.86	3.03	4.81	.32
BC88-3 HEAD 69%Biotite (25'-35')	64.2	9.45	3.47	2.06	18.56	1.17	1.06	5.97	.07
BC88-3 HEAD Pegmatite (15'-25')	73.0	15.60	0.48	0.09	2.30	4.77	3.80		
Std Sy-3 True Value	63.49 59.7	11.20 11.8	6.19 6.42	2.57 2.67	7.95 8.26	4.24 4.15	4.36 4.20		

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ASSAY LAB REPORT

BEARCUB PEGMATITE SAMPLES

DATE: FEBRUARY 10, 1989 REC'D: FEBRUARY 7, 1989 FILE: BCHEADS1.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC 88-1 Head 10.7'-20.7'	75.1 75.2	14.80 14.89	0.58 0.55	0.10 0.08	1.05 0.98	3.77 3.72	4.60 4.57	.49 .52	.02 .02
BC 88-1 Head 20.7'-30.7'	74.8 74.7	15.09 15.09	0.61 0.62	0.12 0.12	0.82 0.89	3.07 3.14	5.45 5.48	.69 .69	.02 <.01
BC 88-1 Head 30.7'-40.7'	75.2 75.1	14.72 14.63	0.51 0.53	0.10 0.10	0.92 0.96	3.47 3.52	5.11 5.20	.47 .48	.03 .02
BC 88-2 Head 15' - 25'	75.7 75.7	14.56 14.56	1.00 0.99	0.19 0.19	1.25 1.27	4.04 4.04	3.26 3.26	.64 .63	.02 .03
BC 88-2 Head 25' - 35'	75.8 75.8	14.27 13.99	0.92 0.96	0.20 0.20	0.99 1.03	4.03 4.12	3.82 3.88	.65 .65	.01 .02
BC 88-2 Head 35' - 45'	75.0 74.8	14.64 14.74	1.42 1.45	0.39 0.40	1.24 1.25	4.00 4.00	3.31 3.34	1.15 1.16	.05 .05
BC 88-2 [3] Head 5' - 15'	74.9 74.9	14.63 14.63	0.91 0.87	0.18 0.17	1.19 1.25	3.87 3.90	4.30 4.33	.63 .62	.02 .01

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BRENDA MINES LTD., **APPENDIX 6**

ASSAY LAB REPORT

BEARCUB SAMPLES - HEADS - PEGMATITE

DATE: February 15, 1989 REC'D: FEBRUARY 9, 1989 FILE:BCHEADS2.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
BC88-6 12'-22'	75.0 74.8	14.58 14.72	.60 .60	.09 .09	.81 .83	3.23 3.21	5.72 5.75	.56 .54	.06 .06
BC88-6 22'-32'	74.6 74.6	14.67 14.67	.41 .42	.08 .08	.91 .92	3.28 3.28	6.00 6.00	.48 .50	.06 .04
BC88-6 32'-42'	75.2 75.4	14.77 14.70	.65 .65	.14 .13	1.24 1.23	4.01 3.94	3.98 3.95	.56 .59	.05 .04

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ASSAY LAB REPORT

BEARCUB SAMPLES - PEGMATITE

DATE: February 16, 1989 REC'D: February 13, 1989 FILE:BCHEADS3.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
BC88-7 HEAD PEGMATITE									
HEAD 10'-20'	75.9 75.7	14.57 14.67	0.63 0.62	0.11 0.11	1.01 1.00	3.65 3.71	4.15 4.15	.52 .53	.05 .04
HEAD 20'-30'	75.2 73.3	14.81 14.70	0.50 0.49	0.09 0.09	0.88 0.88	3.38 3.38	5.14 5.14	.47 .45	.04 .05
HEAD 30'-40'	76.4 76.3	14.39 14.49	0.72 0.69	0.11 0.11	0.98 0.99	3.77 3.80	3.61 3.61	.73 .73	.05 .04
BC88-11 HEAD PEGMATITE									
HEAD 2'-12'	77.0 77.2	14.07 14.07	0.50 0.49	0.07 0.07	1.11 1.11	4.35 4.29	2.91 2.82	.53 .47	.04 .04
HEAD 12'-22'	76.3 76.1	13.96 14.18	0.58 0.58	0.07 0.06	0.69 0.70	3.38 3.38	5.06 5.00	.49 .50	.05 .03
HEAD 22'-32'	76.1 76.1	14.39 14.49	0.71 0.67	0.07 0.07	0.99 0.98	3.51 3.54	4.23 4.20	.44 .44	.02 .03

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ASSAY LAB REPORT

BEARCUB - (21'-31') - Pegmatite Head

DATE: February 22, 1989 REC'D: February 14, 1989 BCHEADS4.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC88-12 1'-11'Head	75.3 75.2	14.36 14.44	0.47 0.46	0.10 0.09	0.68 0.68	2.92 2.98	6.20 6.14	.49 .53	.10 .07
BC88-12 11'-21'Head	75.5 75.1	14.73 15.04	0.79 0.79	0.14 0.14	1.40 1.38	4.37 4.42	3.12 3.10	.52 .54	.10 .09
BC88-12 21'-31'Head	75.1 75.3	14.44 14.36	0.44 0.43	0.08 0.09	0.88 0.89	3.25 3.19	5.80 5.78	.40 .42	.07 .06

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BEARCUB SAMPLES - (PEGMATITE HEAD) - BRANKO

DATE: February 24, 2989 REC'D: February 24, 1989 FILE: BCHEADSS.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC88-13 5'-15'	76.4 77.1	14.18 13.71	0.41 0.44	0.08 0.08	0.80 0.77	3.18 3.12	4.91 4.77	.58 .57	.13 .15
15'-25'	75.0 75.0	14.72 14.72	0.73 0.76	0.13 0.13	0.86 0.84	3.27 3.27	5.27 5.30	.58 .58	.11 .11
25'-35'	76.3 76.3	14.27 14.27	0.60 0.59	0.12 0.12	0.80 0.80	3.12 3.12	4.80 4.80	.68 .71	.12 .11
BC88-14	(Biotite Gneiss and Pegmatite)								
14'-24'	69.4 69.5	14.46 14.37	5.30 5.30	1.69 1.70	6.28 6.28	1.20 1.19	1.66 1.66	3.29 3.30	.15 .16
27'-34' 27.2'-	76.2 75.7	14.28 14.66	0.47 0.45	0.13 0.13	1.08 1.08	3.61 3.71	4.21 4.29	.68 .66	.05 .07
BC88-8	(Pegmatite Head)								
32'-43' 32.2'-	76.7 75.7	14.88 14.66	0.60 0.56	0.11 0.11	0.91 0.94	4.00 4.00	4.85 4.85	.57 .57	.07 .07

D. Perkins
Chief Chief

DP:cs

BRENDA MINES LTD., **APPENDIX 6**

ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO

TABLE No. 16

DATE: MARCH 23, 1989 REC'D: MARCH 24, 1989 FILE: BBC-88-1.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
BC88-1 160' - 170'	76.1	13.91	.55	.11	.96	3.38	4.99	.63	.10
BC88-1 170' - 180'	75.3	14.44	.57	.11	1.11	3.89	4.57	.51	.07
BC88-1 180' - 190'	75.2	14.60	.74	.09	1.03	3.74	4.59	.57	.05
BC88-1 160' - 190'	78.2	13.34	.58	.09	1.00	3.76	4.75	.57	.06
BC88-1 LEACHED HEAD 4 MIN GRIND	76.0	14.06	.42	.06	1.01	3.86	4.62	.66	.09
BC88-1 LEACHED IRON CONC	76.1	13.93	1.28	.08	1.03	3.65	3.96	-	-
STD 70a POTASSIUM FELDSPAR	67.8	17.58	.08	.05	.11	2.49	11.88		
VALUE	67.1	17.9	.07	.04	.11	2.50	11.8		

Reassays.

D. Perkins
Chief Chemist

DP:cs

[illegible] **APPENDIX 6**

ASSAY LAB REPORT

BEARCUB SAMPLES - [illegible]

TABLE No. 20

DATE: APRIL 11, 1989 REC'D: APRIL 10, 1989 FILE:BC891H.FRM

BC89-1 PEG. SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
HEAD 40.7'-70.7'	75.4	14.67	.60	.10	1.15	3.27	4.75	.59	.04
HEAD 70.7'-100.7'	75.0	14.65	.79	.15	.91	2.97	5.50	.65	.04
HEAD 100.7'-130.7'	75.4	14.18	1.26	.24	1.05	2.94	4.97	.58	.03
HEAD 130.7'-160.7'	75.6	14.65	.71	.12	1.17	3.38	4.33	.58	.04

D. Perkins
Chief Chemist

DP:cs

APPENDIX 7

PETROGRAPHIC REPORT BY JOHN PAYNE

APPENDIX 7

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D. Geologist
CRAIG LEITCH, Ph.D. Geologist
JEFF HARRIS, Ph.D. Geologist
KEN E. NORTHCOTE, Ph.D. Geologist

P.O. BOX 39
8080 GLOVER ROAD,
FORT LANGLEY, B.C.
V0X 1J0
PHONE (604) 888-1323
FAX. (604) 888-3642

Report for: Ross Weeks,
Brenda Exploration,
2281 Hunter Road,
KELOWNA, B.C., V1X 7C5

Invoice 8131
May 1989

Property: Bearcub (P.O. 8943)

Samples: 1501, 1502, 1505, 1508

Purpose: To identify brown stain on fractures
(Use S.E.M. if necessary)

Summary:

The brown and orange stain along fractures is caused by limonite, hematite, and Mn-oxide. Both Fe-oxide and Mn-oxide were identified by S.E.M. analysis. The orange color is due mainly to limonite. Other minor phases such as jarosite may be intergrown with limonite, but they could not be identified in thin section, and would be present in too small an abundance to be identified by S.E.M. analysis.

John G. Payne
604-986-2928

Sample 1501

A few wispy fractures less than 0.005 mm wide consist of light orange limonite. One veinlet up to 0.05 mm wide is of extremely fine grained sericite with patches of light to medium orange limonite. The thin section does not contain fracture material. At one end is a veinlet up to 0.2 mm wide dominated by translucent, red-brown to orange-brown **hematite/limonite***, which contains abundant angular inclusions averaging 0.01-0.02 mm in size of **quartz***.

* identified by S.E.M.

Sample 1502

Wispy seams up to 0.02 mm wide are dominated by extremely fine grained sericite. A few subparallel veinlets up to 0.02 mm wide are dominated by quartz grains averaging 0.05-0.12 mm long, and minor patches of kaolinite averaging 0.003-0.008 mm in grain size. A few fractures up to 0.02 mm wide are dominated by light to medium orange limonite, with minor patches of opaque hematite/Mn-oxide.

Sample 1505

Several parallel, discontinuous veinlets and fractures cut a K-feldspar megacryst. Veinlets average 0.02-0.05 mm wide, and the largest is up to to 0.4 mm wide. They are dominated by fine grained quartz with patches up to 0.1 mm long of equant kaolinite flakes averaging 0.003-0.008 mm in size. Cavities in the veinlets up to 0.8 mm in length (in the largest one) may also have been of kaolinite, which was removed from the rock during weathering or section preparation. Fractures which range from wispy seams up to 0.05 mm wide contain orange-brown limonite, with a few zones of extremely fine grained opaque hematite/Mn-oxide, mainly where fractures cut muscovite-rich lenses formed during metamorphism.

Sample 1508

Moderately abundant veinlets average 0.01-0.05 mm in width, with a few from 0.1-0.15 mm wide. They contain quartz, chlorite, limonite, muscovite/sericite, and Mn-oxide. **Mn-oxide*** forms lenses up to 0.1 mm wide, and in part forms subhedral to anhedral, equant grains averaging 0.03-0.08 mm in grain size. Limonite forms wispy, light orange seams associated with some muscovite-rich and chlorite-rich lenses, and forms light yellow stain along much smaller fractures. Chlorite forms pale green, equant, slightly interlocking grains averaging 0.003-0.008 mm in grain size. Muscovite forms flakes averaging 0.05-0.15 mm in size. Quartz forms grains averaging 0.05-0.2 mm in size.

* identified by S.E.M.

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D. Geologist
CRAIG LEITCH, Ph.D. Geologist
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2281 Hunter Road,
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Invoice 8131
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(Use S.E.M. if necessary)

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John G. Payne
604-986-2928

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A few wispy fractures less than 0.005 mm wide consist of light orange limonite. One veinlet up to 0.05 mm wide is of extremely fine grained sericite with patches of light to medium orange limonite. The thin section does not contain fracture material. At one end is a veinlet up to 0.2 mm wide dominated by translucent, red-brown to orange-brown **hematite/limonite***, which contains abundant angular inclusions averaging 0.01-0.02 mm in size of **quartz***.

* identified by S.E.M.

Sample 1502

Wispy seams up to 0.02 mm wide are dominated by extremely fine grained sericite. A few subparallel veinlets up to 0.02 mm wide are dominated by quartz grains averaging 0.05-0.12 mm long, and minor patches of kaolinite averaging 0.003-0.008 mm in grain size. A few fractures up to 0.02 mm wide are dominated by light to medium orange limonite, with minor patches of opaque hematite/Mn-oxide.

Sample 1505

Several parallel, discontinuous veinlets and fractures cut a K-feldspar megacryst. Veinlets average 0.02-0.05 mm wide, and the largest is up to to 0.4 mm wide. They are dominated by fine grained quartz with patches up to 0.1 mm long of equant kaolinite flakes averaging 0.003-0.008 mm in size. Cavities in the veinlets up to 0.8 mm in length (in the largest one) may also have been of kaolinite, which was removed from the rock during weathering or section preparation. Fractures which range from wispy seams up to 0.05 mm wide contain orange-brown limonite, with a few zones of extremely fine grained opaque hematite/Mn-oxide, mainly where fractures cut muscovite-rich lenses formed during metamorphism.

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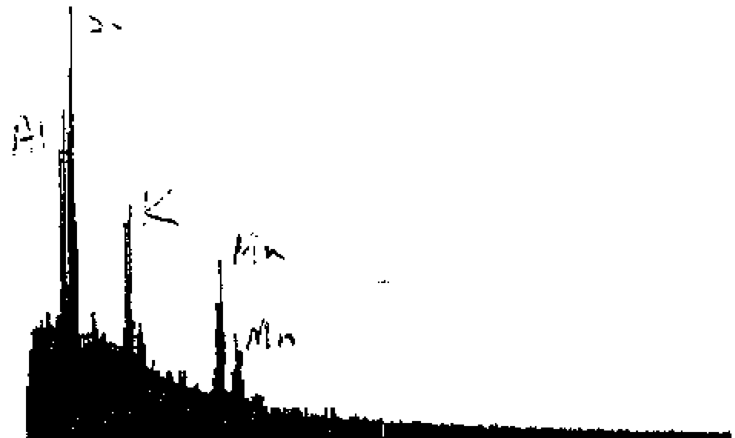
Moderately abundant veinlets average 0.01-0.05 mm in width, with a few from 0.1-0.15 mm wide. They contain quartz, chlorite, limonite, muscovite/sericite, and Mn-oxide. **Mn-oxide*** forms lenses up to 0.1 mm wide, and in part forms subhedral to anhedral, equant grains averaging 0.03-0.08 mm in grain size. Limonite forms wispy, light orange seams associated with some muscovite-rich and chlorite-rich lenses, and forms light yellow stain along much smaller fractures. Chlorite forms pale green, equant, slightly interlocking grains averaging 0.003-0.008 mm in grain size. Muscovite forms flakes averaging 0.05-0.15 mm in size. Quartz forms grains averaging 0.05-0.2 mm in size.

* identified by S.E.M.

1508 B-2 ?SERICITE Z=00
PR= S 54SEC 42518 INT
V=1024 H=40KEV 1:1H AQ=40KEV 1H



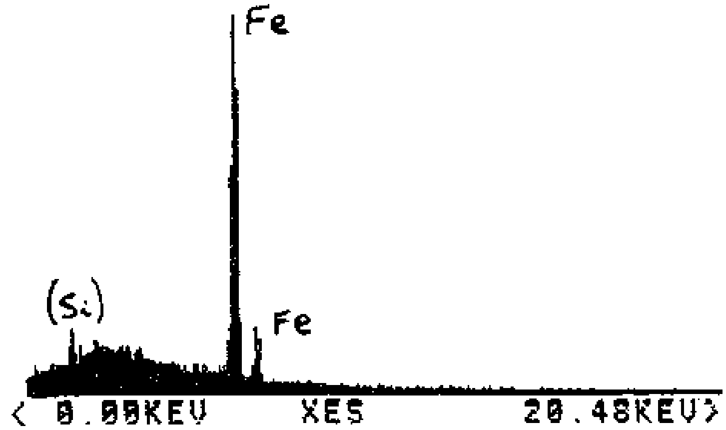
< 0.00KEV XES 20.48KEV>

(low Al-Si-K, higher Mn)

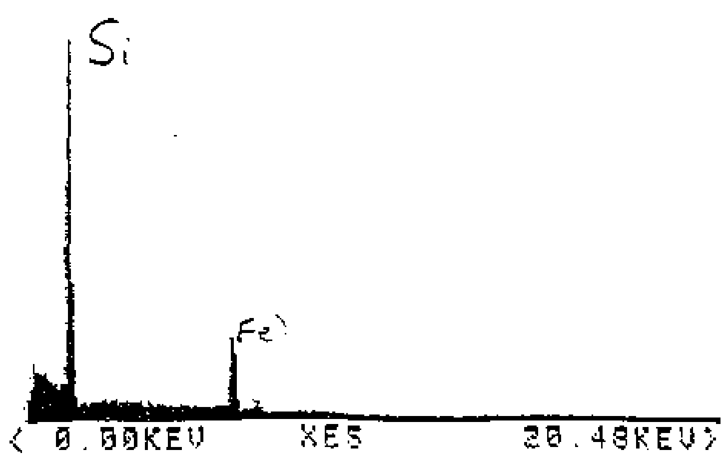
1508 A-2 ?MN-OXIDE Z=00
PR= S 24SEC 32129 INT
V=1024 H=40KEV 1:1H AQ=40KEV 1H

< 0.00KEV XES 20.48KEV>

1501 FE-OXIDE Z=00
PR= S 9SEC 17706 INT
V=1024 H=40KEV 1:1H AQ=40KEV 1H



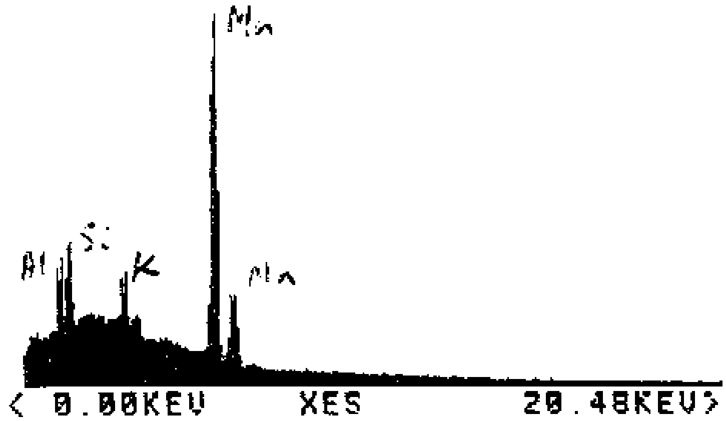
1501 QUARTZ Z=00
PR= S 7SEC 11770 INT
V=1024 H=40KEV 1:1H AQ=40KEV 1H



1508 A-1 ?MN-OX Z=00

PR= S 81SEC 107071 INT

V=4096 H=40KEV 1:1H AQ=40KEV 1H

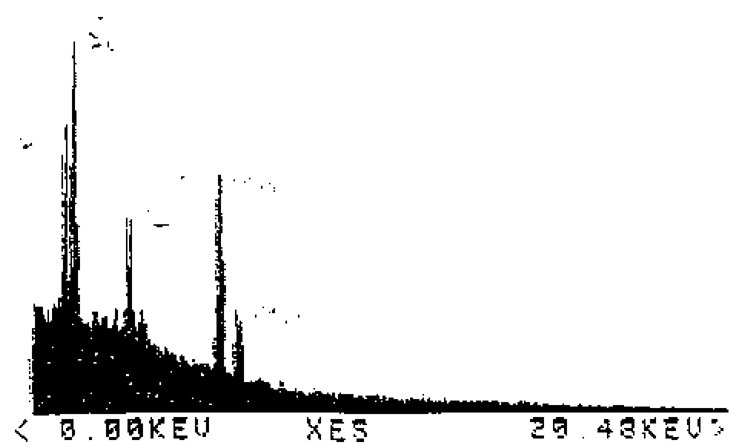


(High Al-Si-K, lower Mn)

1508 B-1 ?SERICITE Z=00

PR= S 44SEC 40099 INT

V=1024 H=40KEV 1:1H AQ=40KEV 1H



APPENDIX 8

MISCELLANEOUS REPORTS ON METALLURGICAL TESTING BY BRENDA MINES AND ORE SORTERS (NORTH AMERICA)

RECD MAY 1

Callahan Const. Co. Ltd.
200 - 1889 Springfield Road
Kelowna, B.C.
V1Y 5V5

INVOICE NUMBER
590501

June 6/89
Bruce
paid Denise has
detail re: 135.75

Hunter Road

Brenda Mines Ltd.
2281 Hunter Road
Kelowna, B.C.
V1X 7C5

2nd call

DATE
Apr 30/89

UNIT NUMBER
445-0

FOR MONTH OF May

CODE	DESCRIPTION	ARREARS	CURRENT	AMOUNT DUE	
01	Minimum Rent		3,973.33	3,973.33	
02	Common Area - Actual		180.75	180.75	
	called June 26 - on hold for 5 min -				
			4,154.08	4,154.08	

TENANT COPY

PLEASE PAY TOTAL AMOUNT → $ 4,154.08 TOTAL

PLEASE NOTE: ALL RENTS PAYABLE IN ADVANCE
RETURN COPY WITH REMITTANCE
TO ABOVE ADDRESS.

APPENDIX B
RPT. JULY 14, 1989

MEMORANDUM

TO: J.W. Austin

FROM: B.M. Nikodijevic

DATE: July 14, 1989

SUBJECT: Bearcub Metallurgical Testing

I INTRODUCTION

This report summarizes the results of metallurgical laboratory testing of Bearcub Pegmatite performed in the period of November 1987-June 1989.

It is an overview of treatment of different samples from the deposit. In depth, information is available in the Progress Reports No. 1-5 and in the report written by our consultant Mr. E.H. Bentzen III from Ore Sorters (North America).

II SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

(A) Metallurgical testing of samples from Bearcub Pegmatite deposit began in November of 1987. The original objective was to produce the saleable Feldspar concentrate by removing Mica and iron-bearing minerals.

Adopting the industry's standard Pegmatite treatment, sample obtained from the surface outcrop was tested and an acceptable rougher Feldspar concentrate was produced.

At the same time, it was realized that the saleable material must be produced out of most of the ore body to economically mine the deposit. Quartz and Mica "concentrates" obtained during preliminary testwork needed further cleaning.

(B) Industrial minerals specialist Mr. Bentzen visited Brenda Mines in February of 1988. He helped Brenda metallurgical personnel in refining the treatment flowsheet and performed a preliminary study on the Bearcub surface sample.

He concluded that the Feldspar product recovered from Bearcub Pegmatite is almost identical to material produced from North Carolina deposits and that the location of Bearcub on the western side of the Rocky Mountains is advantageous.

The recommendations were to drill the deposit, test the drill core samples in the laboratory first and then proceed with the Pilot Plant study preferrably at the Bearcub location.

(C) In the period of May-June 1988, further laboratory testing produced Feldspar and Quartz concentrates that compare favourably with the products of other producers. The material tested was obtained by blasting outcrops at 40 chosen points to a depth of 3-

4 ft. and making four composites representing different deposit locations. For the market search, forty kg. of samples were processed resulting in good quality Feldspar and Quartz concentrates.

(D) Exploratory drilling of the deposit (totalling 3000 ft.) was done in the period of November-December 1988. Pegmatite represented approximately 76% of the material, with the remainder being mostly Biotite Gneiss. Testing showed that the maximum tolerable amount of Biotite Gneiss in the plant feed is at 20-30%.

Eight drill holes covering the northern and eastern portion of the area drilled and containing > 75% Pegmatite were chosen for testing of top 30 ft. of the deposit. Feldspar and Quartz concentrates were of a good quality:

				%				
Product	K2O	Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
Feldspar Conc.	6.66	5.64	1.44	94.14	18.83	0.06	.022	67.4
Quartz Conc.	.134	.141	.057		0.432	.028	.016	99.21

Feldspar weight recovery was lower than in previous testing; some samples were yellow stained which negatively affected the recovery and also the desliming was done at a coarser size. Two Mica products are obtainable: coarse clean Muscovite Mica (2.0-2.5% wt.) and a finer flotation concentrate (7.5-8.0% wt.). Both have to be degritted, containing some Feldspar, Quartz and iron/heavy minerals.

To learn about the variability of material with depth, randomly selected hole BC88-1 was tested throughout the entire length. The average analysis of Feldspar and Quartz concentrates was:

					%				
Product	Wt.	K2O	Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
Feld.	45.0	6.83	5.40	1.58	93.9	18.84	.107	.025	67.2
Quartz	20.0	0.13	0.14	0.06		0.615	0.03	.013	99.02

When processing the material from the top 70 ft. or between 160-190 ft. (hole BC88-1 at least) there will be no problem in making Feldspar concentrate with 0.06% Fe2O3 and Quartz concentrate with 0.02-0.03% Fe2O3. Material in the middle (hole BC88-1 at least) and particularly between 100-130 ft. contains more Biotite ie. iron and resulting Feldspar concentrate would contain 0.14-0.15% Fe2O3 so that in such a case the incorporation of magnetic separation into the flowsheet would be necessary; Quartz concentrate would be still acceptable with 0.04% Fe2O3.

E. The next phase of Bearcub Pegmatite testing would be the Pilot Plant study, when more useful information could be obtained regarding the three saleable products and Mica concentrate in particular.

The flowsheet description, flowsheet schematic, industrial plant material balance, laboratory test procedure and Pilot Plant material balance are appended.

III SUMMARY OF TESTWORK

A. PROGRESS REPORT NO. 1 (JANUARY 1988)

Two Bearcub samples were received in Brenda Metallurgical Lab on November 10, 1987; the objective of testing was to produce a saleable Feldspar concentrate by removing Mica and iron-containing minerals to < 0.07% Fe2O3.

Sample No. 1 was being picked up from the surface outcrop. Sample No. 2 was obtained by blasting to a depth of 3-4 ft. and it was selected for testing.

The head assay of Bearcub No. 2 sample was as follows:

%							
K2O	Na2O	CaO	Feldspar	Al2O3	Fe2O3	SiO2	MgO
5.54	3.09	0.92	63.45	12.1	0.56	64.0	0.08

For initial testing, the industry's standard Pegmatite treatment was adopted: cationic flotation of Mica, removal of "heavy" iron-bearing minerals by anionic flotation and finally cationic flotation of Feldspar leaving Quartz in the tail.

Three preliminary tests were run and the best Feldspar concentrate (rougher concentrate without cleaning) was obtained in the Test No. 3:

Conc. Wt., %	Conc. Grade, %						
	K2O+Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
59.0	12.0	1.34	89.0	15.5	0.09*	0.02	68.5

As pointed out by the experts in the field, saleable material must be produced out of most of ore body to economically mine the deposit. The best Quartz "concentrates" (12-20% by wt.) contained 96.5-98.7% SiO2 and 0.13-0.14% Fe2O3* and further cleaning would be necessary.

* Products pulverized in a unit made of iron; the actual Fe2O3 assay for both Feldspar and Quartz concentrate was 0.01%.

Coarse Mica product was separated before grinding; Mica froth product was collected together with the iron-containing minerals and has not been cleaned.

From the limited testwork conducted, it was concluded that it should not be difficult to make saleable Feldspar product and probably Mica and Quartz concentrates as well.

B. ORE SORTERS (NORTH AMERICA) REPORT (MARCH 1988)

Mr. Edwin H. Bentzen III, an industrial minerals specialist, visited Brenda Mines in February of 1988 with the purpose of performing a preliminary study on Bearcub No. 2 sample and also to help Brenda Metallurgical Lab personnel in upgrading the knowledge of Feldspar benficiation.

Five tests were conducted on Bearcub No. 2 sample and one on No. 1 sample.

The following table shows the average results obtained with Bearcub No. 2 sample (rougher Feldspar concentrate has been cleaned):

				%				
Product	Wt.	K2O+Na2O	CaO	Feld.	Al2O3	Fe2O3	MgO	SiO2
Head		5.91+3.16	1.08	67.0	14.8	0.43	0.16	74.7
Feldspar Conc.	47.8	8.11+4.25	1.49	91.3	18.4	0.01*	0.07	64.1
Quartz Conc.	20.4	0.12+0.09	0.02		0.30	0.01*	0.05	95.7

* Assays done by Mineral Lab; products pulverized in an iron free unit.

Mica recovered in the grinding oversize as well as the froth product contained appreciable quantities of Feldspar and Quartz.

The conclusion was that Feldspar product recovered is almost identical in both yield and chemical quality to material produced from North Carolina deposits. As well, the location of the deposit on the western side of the Rocky Mountains will aid in marketing the Feldspar to the west coast consumers as well as other consumers in the pacific rim countries.

The recommendation was to drill the area suitable for initial mining, test the drill core samples in the laboratory and then proceed with the pilot plant study, with the pilot plant being constructed preferrably at the Bearcub deposit.

C. PROGRESS REPORT NO. 2 (JULY 1988)

1. BEARCUB NO. 2 "PRODUCTION RUN" (MARCH 1988)

At the request of Mr. Weeks, in March of 1988 ten kg. of Bearcub No. 2 sample were processed in the lab, using the best "recipe" arrived at, to produce the Feldspar concentrate for marketing purposes. The following results were obtained:

			%				
Product	K2O+Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
Feldspar Conc.	8.12+4.98	1.00	95.1	18.94	0.015	63.0	N/A
Quartz Conc.	0.02+<0.05	<0.01		0.07	0.01	<.05	99.1

2. BEARCUB COMPOSITES BCC No. 1-4 (MAY-JUNE 1988)

Early in April of 1988 the sampling program was conducted on the top of the hill of the Bearcub property with 40 samples being obtained by blasting Pegmatite outcrops at chosen points to a depth of 3-4 ft. The mean head assay of the samples received in the Metallurgical Lab in early May was:

	%						
	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
BCC. No. 1-4	4.49	4.14	1.23	14.96	0.68	0.16	74.6

The sample lumps were substantially yellow stained which affected the recovery during flotation.

Upon discussion with Mr. Weeks, several samples were excluded and the rest divided by location into four composites for testing.

Fifteen tests were performed on four composites, applying two flowsheets as well as comparing HF and non-Hf float.

Flowsheet that does not include additional screening ahead of grinding stage was adopted; it is the best "recipe" arrived at in all previous testing.

Preliminary testing of non-HF float did not provide good separation of Feldspar and Quartz. Although the use of HF is environmentally sensitive, all Feldspar plants in the world still use conventional HF-Amine reagent system.

The flotation cleaning of Mica Froth product was tried but without success.

Also, the separation of K-Feldspar and Na-Feldspar was attempted using $NaSiO_3$ as a Na-Feldspar depressant with more Amine collector plus kerosene for K-Feldspar recovery as suggested in the literature with no visible improvements.

On the basis of the flotation testwork of all four composites, the best flowsheet was chosen and forty kg. of samples were processed to make the concentrates for marketing purposes. That "production run" gave the following results:

				%				
Product	Wt.	K_2O	Na_2O	CaO	Feld.	Al_2O_3	Fe_2O_3	SiO_2
Feldspar Conc.	51.0	7.0	5.2	1.5	92.8	19.6	0.05	66.8
Quartz Conc.	18.0	0.028	0.033	0.02		0.125	0.018	99.8

D. PROGRESS REPORT NO. 3 (FEBRUARY 1989)

After the exploratory drilling of the Bearcub deposit (15 holes to a depth of 200 ft.) was carried out during November-December 1988, it was found out that the Pegmatite represents about 76% of the material, with the remainder being predominantly Biotite Gneiss.

Material for testing was supplied on January 6. In order to assess the "processability" of Gneiss and the possibility of making marketable products, seven tests were done treating different ratios of Pegmatite and Gneiss in the feed. It was concluded that the maximum tolerable amount of Biotite Gneiss in the plant feed would be at 20-30%.

E. PROGRESS REPORT NO. 4 (MARCH 1989)

It was decided at the October 21, 1988 meeting that the initial bench scale testwork would involve testing of the top 30 ft. of the deposit delineated by drilling in the November-December 1988 period.

Mr. Weeks recommended that eight drill holes covering the northern and eastern portion of the area drilled and containing > 75% Pegmatite should be tested first.

Mrs. Logan-Gordanier supplied Brenda Metallurgical Lab with one half of the required core on January 6.

Preparation of samples and flotation testwork was performed in the period of January 31-February 23.

Average head assay of the top 30 ft. for the holes tested (excluding the hole No. 14 that contains 35.6% Pegmatite only and as much as 3.5% Fe2O3O was:

%							
K2O	Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
4.59	3.59	0.97	62.0	14.53	0.65	0.12	75.52

It can be seen that the deeper material contains somewhat more silica but less alumina, Fe-Mg containing minerals and Na-Feldspar than the samples obtained from surface outcrops.

Several of the Pegmatite samples were substantially yellow stained (chemical analysis showed Fe- and Mn-oxides) which negatively affected the Feldspar recovery in particular. The distribution of iron oxide in the top 30 ft. was the following (Pegmatite samples only):

Depth	% Fe2O3
Upper 10 ft.	0.596
Middle 10 ft.	0.654
Lower 10 ft.	0.733

The following table compares the weight of products obtained during this testing campaign with the results when testing BCC No. 1-4 samples:

	Product Weight, %						
Sample	+28 Mesh Mica	Mica Froth	Iron Froth	Feld. Conc.	Quartz Conc.	Feld. cl.t.	Slimes
BCC No. 1-4	2.0	8.0	6.0	51.0	18.0	2.0	13.0
1988 drilling	2.5	7.5	15.7	37.3	17.5	3.7	15.8

Future testing will be done with desliming on 325 mesh instead of 270 mesh to increase Feldspar recovery.

The products obtained during this testing (the same as the products obtained and reported in Progress Report No. 2) compare favourably with the products from other producers:

				%				
Product	K2O	Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
Feldspar Conc.	6.66	5.64	1.44	94.14	18.83	0.06	.022	67.4
Quartz Conc.	.134	.141	.057		0.432	.028	.016	99.21

Two Mica products are obtainable: quite clean, white Muscovite Mica material amounting to 2.0-2.5% wt. and a flotation concentrate of 7.5-8.0% wt. that contains some Feldspar, Quartz and iron/heavy minerals activated by weathering. Both products have to be degritted to offer a higher quality product.

F. PROGRESS REPORT NO. 5 (JUNE 1989)

The report was a completion of laboratory testing of Bearcub material and it served to clarify several points.

The most important was the flotation testing of the entire randomly selected hole BC88-1. Since the Progress Report No. 4 presents the results of "horizontal" testing of the deposit (ie. the top 30 ft.), here we have "vertical" testing to learn about the variability of material and obtainable products with depth.

The following is the average analysis of both Feldspar and Quartz concentrates:

					%				
Product	Wt.	K2O	Na2O	CaO	Feldspar	Al2O3	Fe2O3	MgO	SiO2
Feld.	45.0	6.83	5.40	1.58	93.9	18.84	.107	.025	67.2
Quartz	20.0	0.13	0.14	0.06		0.615	0.03	.013	99.02

It must be pointed out that when processing the material from the top 70 ft. (hole BC88-1 at least) or between 160-190 ft. (again, hole BC88-1) there will be no problem in making Feldspar concentrate with 0.06% Fe2O3 and Quartz concentrate with 0.02-0.03% Fe2O3. Material in the middle of the hole BC88-1, between 70 and 160 ft. (particularly between 100-130 ft.), contains more

Biotite ie. iron. The resulting products would be Feldspar concentrate with 0.14-0.15% Fe_2O_3 and Quartz concentrate with 0.04% Fe_2O_3 so the incorporation of magnetic separation into the flowsheet would be a must to improve the Feldspar quality.

The iron oxide throughout the hole BC88-1 was:

	Depth, Ft.					
	10-40	40-70	70-100	100-130	130-160	160-190
% Fe_2O_3	0.57	0.60	0.79	1.26	0.81	0.62

Desliming at 325 mesh instead at 270 mesh contributed to an increase of Feldspar weight recovery:

Weight, %						
+28 Mesh Mica	Mica Froth	Iron Froth	Feldspar Conc.	Quartz Conc.	Feldspar Cl. Tail	Slimes
2.0	6.0	8.0	45.0	20.0	3.0	16.0

By comparing different crushing set-ups, it was confirmed that the crushing used when testing top 30 ft. of the deposit was finer than the crushing done in previous testing phases.

As a consequence, the grinding applied in testing of top 30 ft. of the deposit resulted in the finer flotation feed than during previous testing.

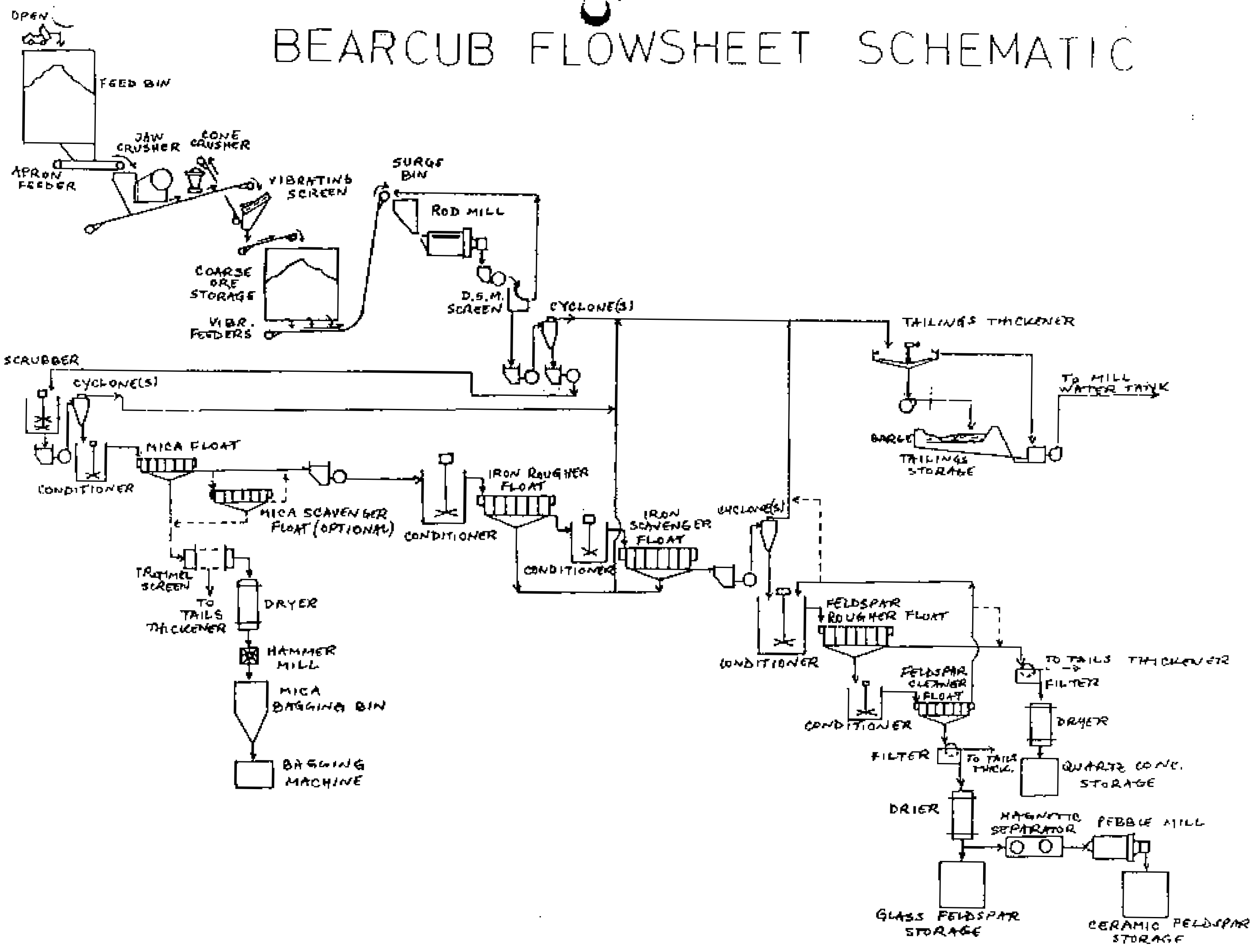
Finer flotation feed did not affect much our products: Feldspar concentrate is somewhat finer and Quartz concentrate is even a bit coarser.

In trying to improve the quality of Mica Froth product, preliminary screening was done on 65 and 100 mesh. Mica was prevalent in the coarser size fractions, but still contained some Feldspar, Quartz, Biotite and dark minerals.

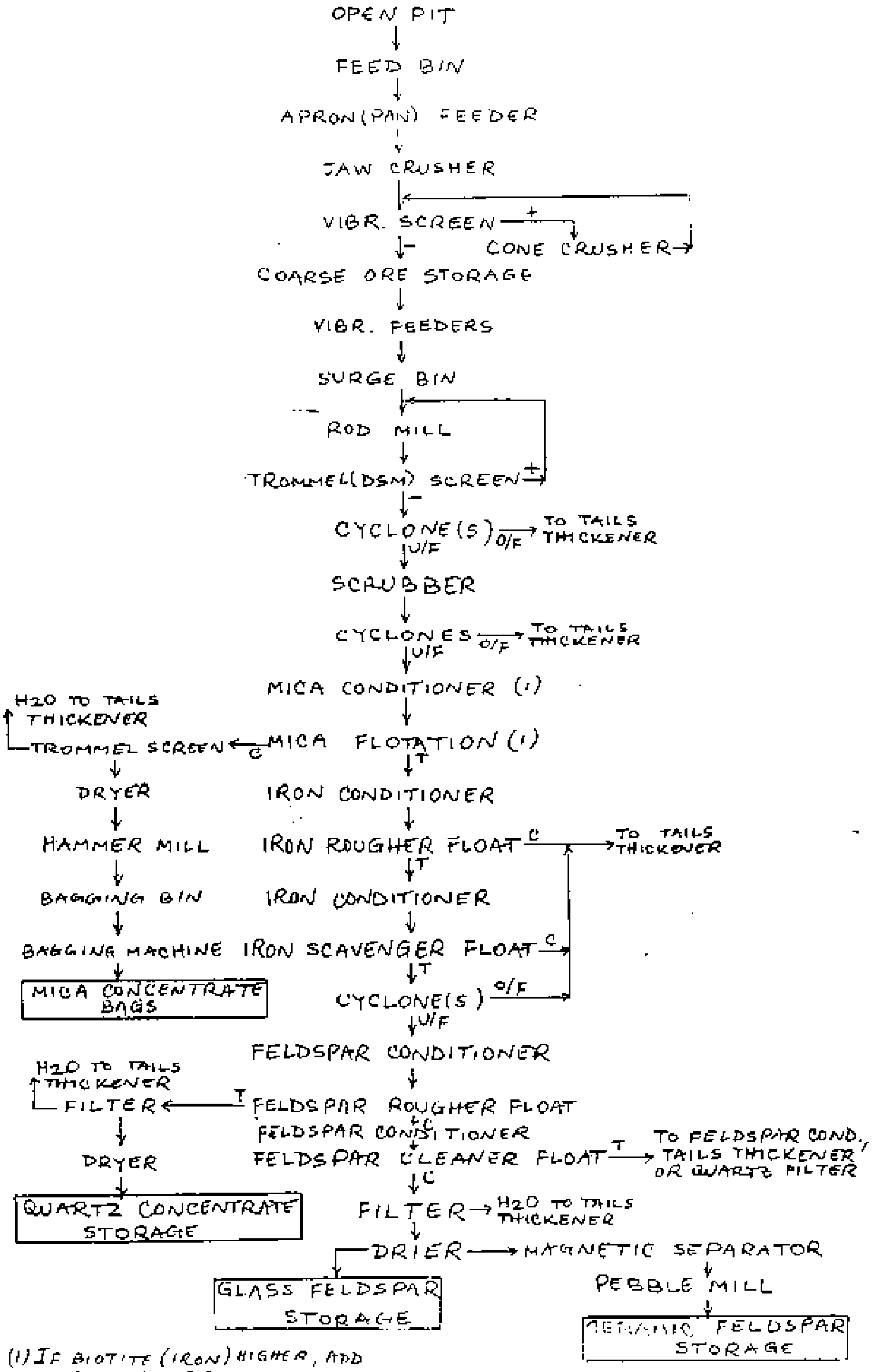
The idea of crushing the material to a fairly coarse size in order to concentrate Feldspar minerals in oversize and at the same time to discard most of the iron in the undersize proved unworkable. Great losses of Feldspar and Quartz would occur also.

Leaching of different products has been tried as well. Although the substantial portion of iron could be removed, it would be too expensive to incorporate leaching stage into the flowsheet and a cheaper magnetic separation could be used if necessary as it is done everywhere else.

BEARCUB FLOWSHEET SCHEMATIC



BEARCUB FLOWSHEET



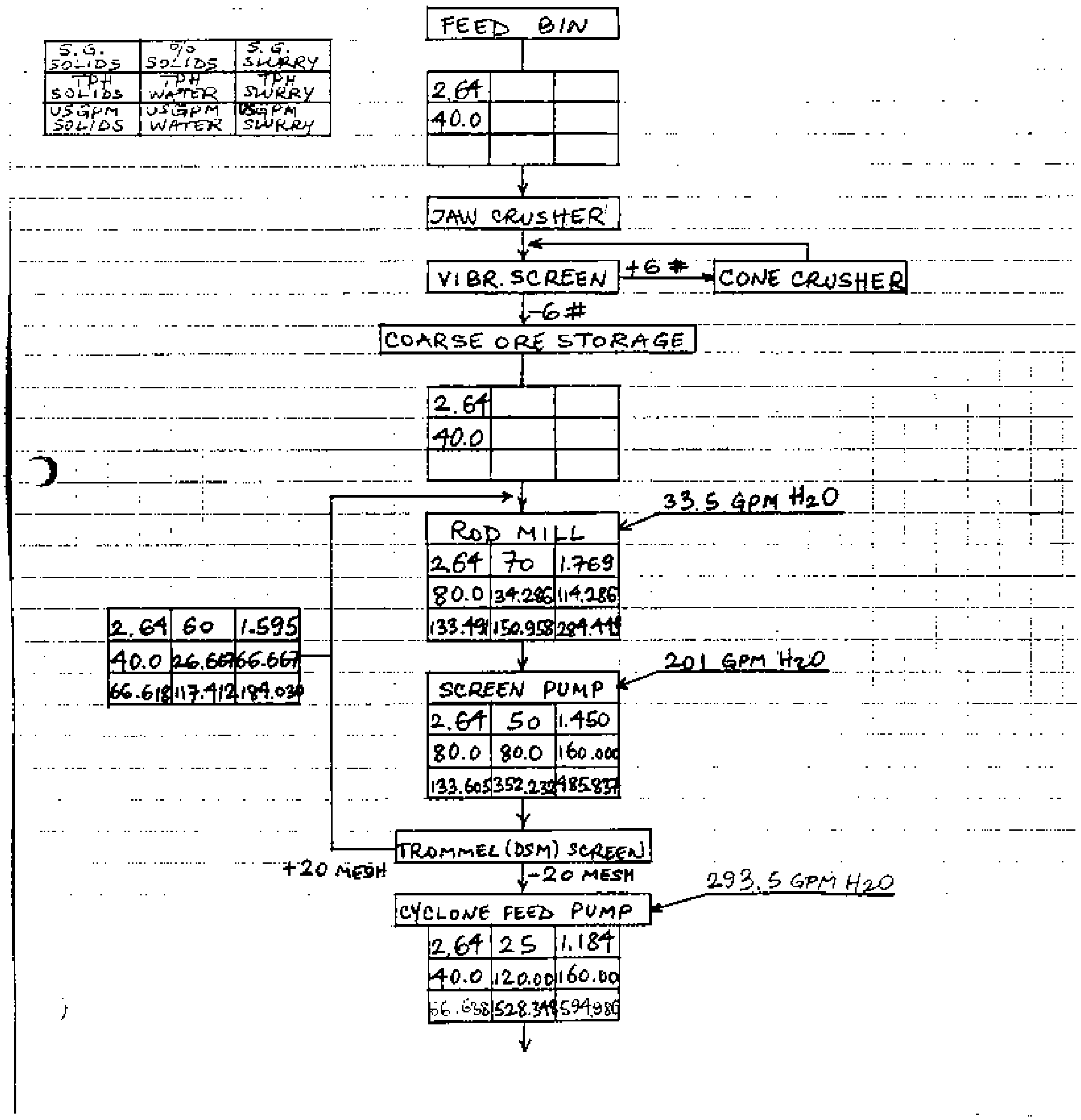
(1) IF BIOTITE (IRON) HIGHER, ADD MICA SCAVENGER FLOAT

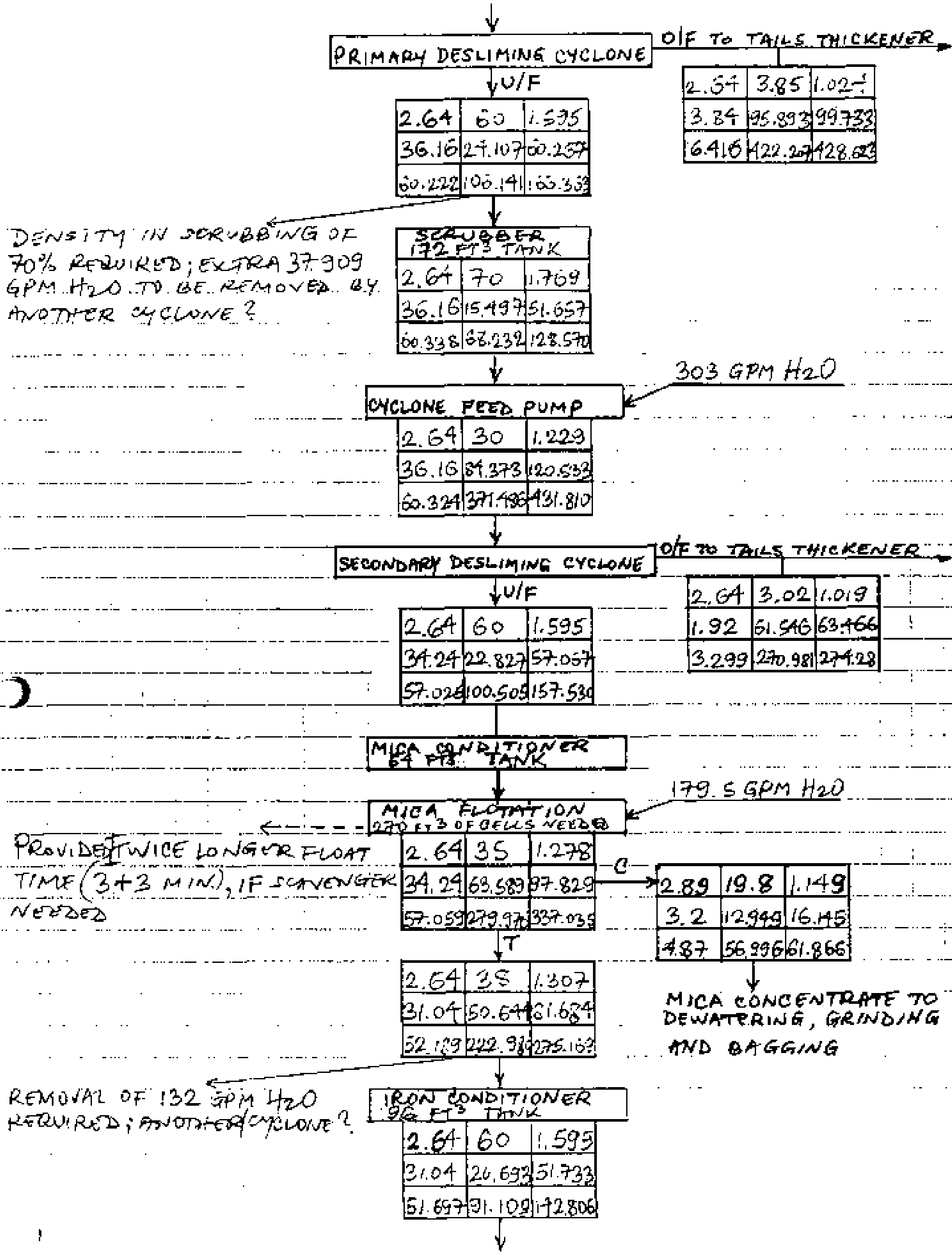
BEARCUB

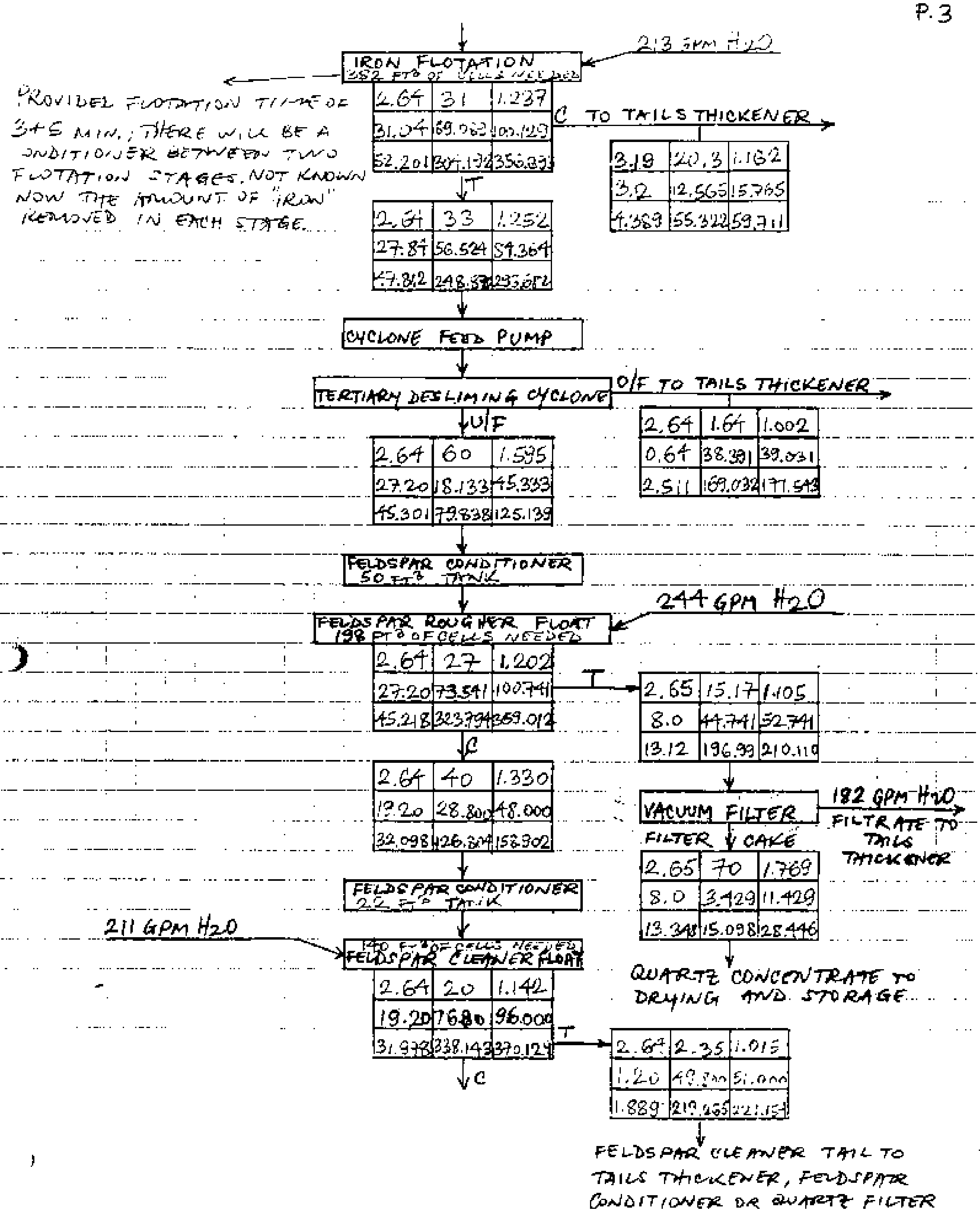
PROPOSED FLOWSHEET

ASSUMED: 40 MTPH; 2 SHIFTS (16 HR); 5 DAY A WEEK; 50 WEEKS A YEAR; 160,000 MTPY; ORE S.G. = 2.64

INDUSTRIAL PLANT MATERIAL BALANCE




PRIMARY DESLIMING CYCLONE
O/F TO TAILS THICKENER
2.64 | 3.85 | 1.024
3.34 | 95.893 | 99.733
6.416 | 422.207 | 428.623
U/F
2.64 | 60 | 1.595
36.16 | 24.107 | 60.257
60.222 | 106.141 | 166.363
DENSITY IN SCRUBBING OF 70% REQUIRED; EXTRA 37.909 GPM H2O TO BE REMOVED BY ANOTHER CYCLONE ?
SCRUBBER 172 FT3 TANK
2.64 | 70 | 1.769
36.16 | 15.497 | 51.657
60.338 | 68.232 | 128.570
303 GPM H2O
CYCLONE FEED PUMP
2.64 | 30 | 1.229
36.16 | 84.373 | 120.533
60.324 | 371.486 | 431.810
SECONDARY DESLIMING CYCLONE
O/F TO TAILS THICKENER
2.64 | 3.02 | 1.019
1.92 | 61.546 | 63.466
3.299 | 270.981 | 274.28
U/F
2.64 | 60 | 1.595
34.24 | 22.827 | 57.067
57.026 | 100.505 | 157.530
MICA CONDITIONER 64 FT3 TANK
179.5 GPM H2O
MICA FLOTATION
270 FT3 OF CELLS NEEDED
PROVIDE TWICE LONGER FLOAT TIME (3+3 MIN), IF SCAVENGER NEEDED
2.64 | 35 | 1.278
34.24 | 63.589 | 97.829
57.059 | 279.976 | 337.035
C
2.89 | 19.8 | 1.149
3.2 | 12.949 | 16.145
4.87 | 56.996 | 61.866
MICA CONCENTRATE TO DEWATERING, GRINDING AND BAGGING
T
2.64 | 35 | 1.307
31.04 | 50.644 | 81.684
52.189 | 222.980 | 275.169
REMOVAL OF 132 GPM H2O REQUIRED; ANOTHER CYCLONE ?
IRON CONDITIONER 96 FT3 TANK
2.64 | 60 | 1.595
31.04 | 20.693 | 51.733
51.697 | 91.109 | 142.806


213 GPM H_2O
IRON FLOTATION
352 FT³ OF CELLS NEEDED
PROVIDED FLOTATION TIME OF 3+5 MIN.; THERE WILL BE A CONDITIONER BETWEEN TWO FLOTATION STAGES. NOT KNOWN NOW THE AMOUNT OF "IRON" REMOVED IN EACH STAGE.
2.64 | 31 | 1.237
31.04 | 69.082 | 100.129
52.201 | 304.192 | 356.393
C TO TAILS THICKENER
3.19 | 20.3 | 1.162
3.2 | 12.565 | 15.765
4.389 | 55.322 | 59.711
T
2.64 | 33 | 1.252
27.84 | 56.524 | 84.364
47.812 | 248.870 | 295.682
CYCLONE FEED PUMP
TERTIARY DESLIMING CYCLONE
O/F TO TAILS THICKENER
2.64 | 1.64 | 1.002
0.64 | 38.391 | 39.031
2.511 | 169.032 | 171.543
U/F
2.64 | 60 | 1.595
27.20 | 18.133 | 45.333
45.301 | 79.838 | 125.139
FELDSPAR CONDITIONER
50 FT³ TANK
244 GPM H_2O
FELDSPAR ROUGHER FLOAT
198 FT³ OF CELLS NEEDED
2.64 | 27 | 1.202
27.20 | 73.541 | 100.741
45.218 | 323.794 | 369.012
T
2.65 | 15.17 | 1.105
8.0 | 44.741 | 52.741
13.12 | 196.99 | 210.110
C
2.64 | 40 | 1.330
19.20 | 28.800 | 48.000
32.098 | 126.804 | 158.902
VACUUM FILTER
182 GPM H_2O
FILTRATE TO TAILS THICKENER
FILTER CAKE
2.65 | 70 | 1.769
8.0 | 3.429 | 11.429
13.348 | 15.098 | 28.446
QUARTZ CONCENTRATE TO DRYING AND STORAGE
FELDSPAR CONDITIONER
22 FT³ TANK
211 GPM H_2O
140 FT³ OF CELLS NEEDED
FELDSPAR CLEANER FLOAT
2.64 | 20 | 1.142
19.20 | 76.80 | 96.000
31.978 | 338.143 | 370.124
T
2.64 | 2.35 | 1.015
1.20 | 49.800 | 51.000
1.889 | 219.265 | 221.154
C
FELDSPAR CLEANER TAIL TO TAILS THICKENER, FELDSPAR CONDITIONER OR QUARTZ FILTER

BEARCUB PEGMATITE
— LAB. TEST PROCEDURE —

GRINDING 1 KG −6 MESH ORE, 1 LIT TAP WATER; CHARGE: 7 × 7/8" RODS, 3 × 5/8" RODS; 4 MIN. GRIND

SCREENING WET ON 28 MESH (OVERSIZE COARSE MICA PRODUCT)

DESLIMING WET ON 325 MESH (SLIME KEPT TOGETHER FOR ASSAY)

SCRUBBING AT ~70% SOLIDS, FOR 10 MINUTES AT 1,700 RPM

DESLIMING WET ON 325 MESH (SLIME KEPT)

MICA CONDITIONING AT ~65% SOLIDS, FOR 3 MINUTES, 10 cc ARMAC-T, 20 cc H_2SO_4, 2 DP KEROSENE, 3 DP MIBC

MICA FLOTATION FOR 3 MINUTES AT 1,300 RPM

MICA CONDITIONING IN CELL, 1 MINUTE, 5 cc ARMAC-T, 10 cc H_2SO_4, 2 DP KEROSENE, 3 DP MIBC } OPTIONAL

MICA FLOTATION FOR 3 MINUTES AT 1,300 RPM } OPTIONAL

IRON CONDITIONING AT ~65% SOLIDS, FOR 5 MINUTES, 20 cc M-70, 10 cc H_2SO_4, 3 DP MIBC

IRON FLOTATION FOR 3 MINUTES AT 1,300 RPM

IRON CONDITIONING IN CELL, 1 MINUTE, 10 cc M-70, 3 DP MIBC

IRON FLOTATION FOR 5 MINUTES AT 1,300 RPM

FELDSPAR DESLIMING WET ON 325 MESH (SLIME KEPT)

FELDSPAR CONDITIONING AT ~65% SOLIDS, FOR 3 MINUTES, 20 cc ARMAC-T, 20 cc HF, 2 DP KEROSENE, 3 DP MIBC

FELDSPAR FLOTATION FOR 4 MINUTES AT 1,300 RPM (TAIL IS QUARTZ CONC.)

FELDSPAR CONDITIONING IN CELL, 1 MINUTE, 5 cc HF

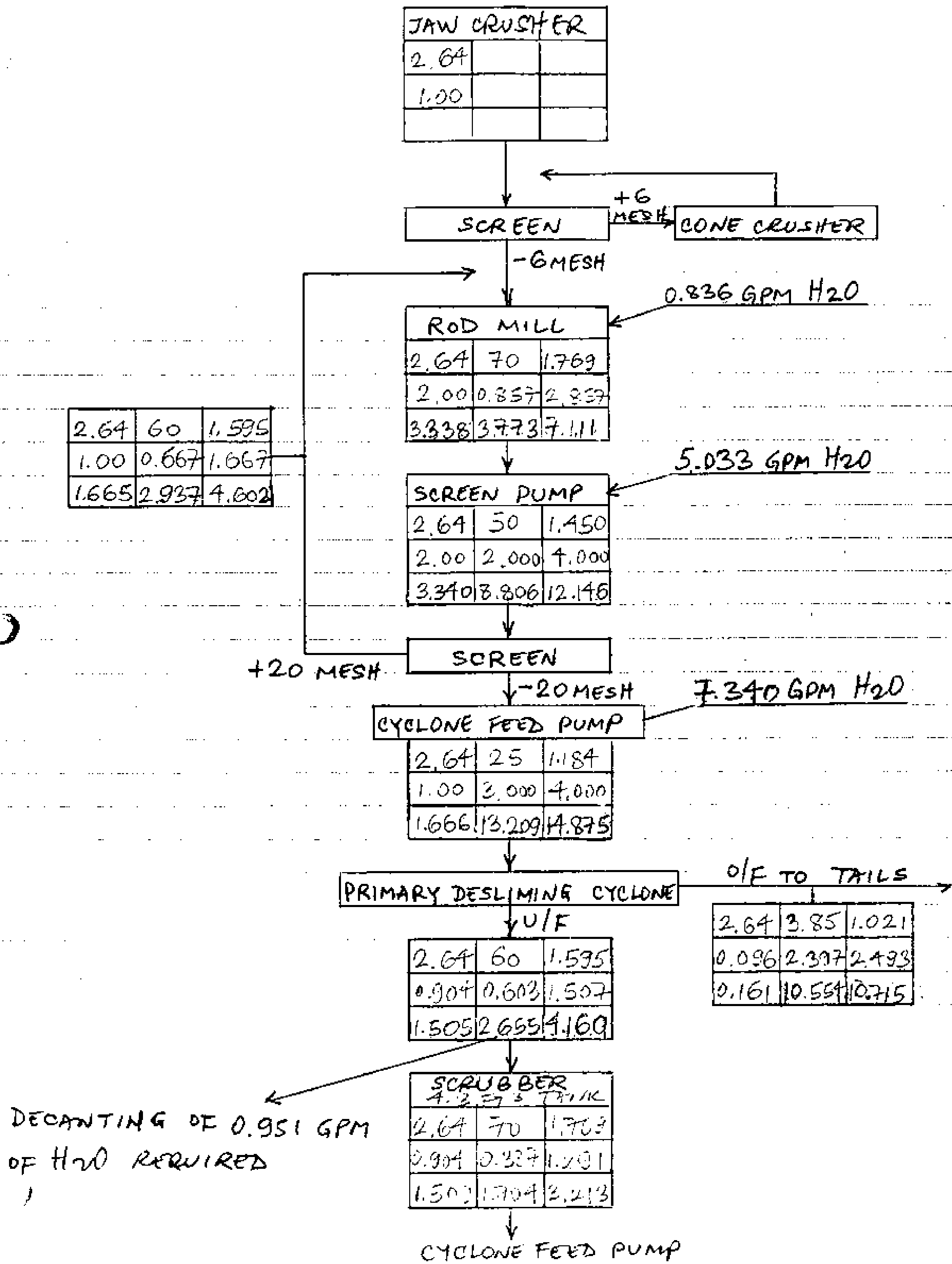
FELDSPAR CLEANING FOR 3 MINUTES AT 1,300 RPM

REAGENTS: 2.5% STRENGTH FOR ARMAC-T, M-70, H_2SO_4, HF

TEST PRODUCTS: +28 MESH MICA, MICA FROTH, IRON FROTH, FELDSPAR CONCENTRATE, QUARTZ CONCENTRATE, FELDSPAR CLEANER TAIL, SLIMES.

ASSAY ON (%): K_2O, Na_2O, CaO, Al_2O_3, Fe_2O_3, SiO_2, MgO

BEARCUB
PILOT PLANT MATERIAL BALANCE



↓

CYCLONE FEED PUMP ← 7.582 GPM H_2O

2.64	30	1.229
0.904	2.109	3.013
1.505	9.235	10.740

↓

SECONDARY DESLIMING CYCLONE → O/F TO TAILS

O/F TO TAILS:

2.64	3.03	1.019
0.048	1.538	1.586
0.083	6.772	6.855

↓ U/F

2.64	60	1.525
0.856	0.571	1.427
1.425	2.514	3.939

↓

MICA CONDITIONER
1.6 FT³ TANK

↓

MICA FLOTATION ← 4.487 GPM H_2O
6.8 FT³ OF CELLS NEEDED

TWICE LONGER FLOAT. TIME PROVIDED (IF BIOTITE I.E. IRON HIGHER); ADD EXTRA REAGENTS AFTER FIRST FLOAT

2.64	35	1.278
0.856	1.590	2.446
1.426	7.001	8.427

C →

2.91	19.8	1.149
0.080	0.324	0.404
0.121	1.427	1.548

↓ MICA CONCENTRATE TO DEWATERING

↓ T

2.64	38	1.307
0.776	1.266	2.042
1.305	5.574	6.879

↓

DECANTING OF 3.298 GPM OF H_2O REQUIRED

IRON CONDITIONER
2.4 FT³ TANK

2.64	60	1.595
0.776	0.517	1.293
1.293	2.276	3.569

↓

IRON FLOTATION ← 5.328 GPM H_2O
9.6 FT³ OF CELLS NEEDED

FLOAT. TIME 3+5 MIN. PROVIDED; ADD EXTRA REAGENTS AFTER FIRST FLOAT

2.64	31	1.237
0.776	1.722	2.503
1.305	7.604	8.909

C → TO TAILS

3.22	20.3	1.163
0.080	0.314	0.394
0.109	1.383	1.492

↓ T

2.64	23	1.232
0.696	1.412	2.109
1.196	6.221	7.417

↓

CYCLONE FEED PUMP

↓

TERTIARY DESLIMING CYCLONE

TERTIARY DESLIMING CYCLONE

O/F TO TAILS

2.64	1.34	1.002
0.016	2.460	0.476
0.063	4.226	4.239

U/F

2.64	60	.535
0.630	0.453	1.133
1.123	1.835	3.123

FELDSPAR CONDITIONER
1.3 FT3 TANK

FELDSPAR ROUGHER FLOAT.
5 FT3 OF CELLS NEEDED

6.102 GPM H_2O

2.64	27	1.202
0.680	1.833	2.513
1.130	8.097	9.227

T

2.69	15.2	1.105
0.200	1.119	1.319
0.327	4.927	5.254

QUARTZ CONCENTRATE TO DEWATERING

C

2.64	40	1.330
0.480	0.720	1.200
0.803	3.170	3.972

FELDSPAR CONDITIONER
0.6 FT3 TANK

FELDSPAR CLEANER FLOAT
3.8 FT3 OF CELLS NEEDED

5.284 GPM H_2O

2.64	20	1.142
0.480	1.920	2.400
0.799	8.454	9.253

T

2.81	2.35	1.015
0.030	1.245	1.275
0.047	5.482	5.529

FELDSPAR CLEANER TAIL: TO TAILS, FELDSPAR CONDITIONER OR QUARTZ CONCENTRATE

C

2.64	40	1.330
0.450	0.675	1.125
0.752	2.972	3.724

FELDSPAR CONCENTRATE TO DEWATERING

APPENDIX B
RPT. JUNE 30, 1989

MEMORANDUM

To : J. W. Austin
From : B.M.Nikodijevic
Date : June 30, 1989
Subject: BEARCUB METALLURGICAL TESTING
Progress Report no. 5

I INTRODUCTION

This report summarizes the results of Bearcub metallurgical testing done since the issuance of Progress report no.4.

II SUMMARY AND CONCLUSIONS

A. This report is a completion of laboratory testing of Bearcub material before proceeding to the Pilot plant testing phase. It clarifies several points : testing of one random selected hole throughout the entire length, improving the feldspar weight recovery by desliming at finer particle size, comparing different crushing and grinding set-ups used so far, comparing the size of our products, running leaching tests of different products.

B. By comparing different crushing set-ups, it was confirmed that the crushing used when testing top 30 ft of the deposit was finer than the crushing done in previous testing phases.

C. As a consequence, the grinding applied in testing of top 30 ft of the deposit resulted in the finer product than during previous testing.

D. It appears that the recent testing produced even a bit coarser quartz concentrate, while feldspar concentrate was somewhat finer.

E. Preliminary screening of mica froth product showed that the mica is prevalent in a coarser size fraction.

F. An idea of crushing the material to a fairly coarse size in order to concentrate feldspar minerals (being of a large crystal size) in oversize, and to discard most of the iron (being softer) in the undersize was investigated. This showed unworkable, because great losses of feldspar and quartz would occur also.

G. Leaching of different products has been tested as well. Although a substantial portion of iron could be removed, it would be too expensive to incorporate leaching stage into the flowsheet and a cheaper magnetic separation is used everywhere.

H. In order to learn about the variability of material with depth and the obtainable products, random selected hole BC88-1 was tested throughout the entire length. The following is the weight distribution of all the products :

weight, %						
coarse + 28 mesh mica	mica froth	iron froth	feldspar conc.	quartz conc.	feldspar cl. tail	slimes
2.0	6.0	8.0	45.0	20.0	3.0	16.0

Desliming at 325 mesh (45 micron) instead of 270 mesh (54 micron) contributed to an increase of feldspar weight recovery by almost 8 %.
Material in the depth increment of 70 ft to 160 ft (especially between 100 and 130 ft) contains more biotite i.e. iron and the incorporation of magnetic separation into flowsheet is a must. Processing of top 60 ft and bottom 30 ft would result in good saleable products even without magnetic separation.

I. The next phase of Bearcub testing would be the Pilot plant stage, when more useful information could be obtained regarding our three products and mica concentrate in particular.

III SUMMARY OF TESTWORK

A. CRUSHING TESTS

As pointed out in the Report no. 4, the weight of feldspar concentrate obtained during testing of top 30 ft of the deposit was 13.7 % lower than in previous testing of surface samples. Part of that difference was attributed to higher slimes losses by about 3 %. That was peculiar because shorter grinding time for testing done in Report no. 4 produced higher slimes losses than a longer grinding time used in previous tsting. It was suspected that a different crushing procedure might have caused it, which warranted further investigation.
Samples from BC88-5 hole, depth 15-25 ft, were used for comparison (Tables no. 1-9, Graph no. 1).
The basic crushing set-up of one pass through a jaw crusher only (Table no. 1) and a set-up of a jaw crusher, 6 mesh screen and a cone crusher (Table no. 2) did not show much difference in the product size except of a higher percent of plus 8 mesh oversize when using jaw crusher only. The distribution of elements per size fractions is shown in Tables no. 4-9.
To simulate the crushing used for 1988 drilling campaign testing (Report no. 4), sample from hole BC88-1, depth 160-190 ft, was crushed and it shows (Graph no. 1) that the crushing product was finer than when testing BCC no. 1-4 samples.

B. GRINDING TESTS

Sample from hole BC88-1, depth 160-190 ft, was used to compare grinding fineness obtained with 4 and 5 minutes grind time (Tables no. 10 and 11). The Graph no. 2 shows that grinding time used during testing of 1988 drilling samples resulted in finer product than the grinding used when testing BCC no. 1-4 samples. The major reason for this was probably finer crushing preceding the grinding stage.

C. SIZE OF FELDSPAR AND QUARTZ CONCENTRATES

Since the crushing and subsequent grinding produced finer flotation feed during testing of samples from 1988 drilling campaign, it was interesting to compare the size of feldspar and quartz concentrates. The products of test no. 18 (BC88-1, 160-190 ft) were random selected and screened (Tables no. 12 and 13). Examining the Graphs no. 3 and 4, it appears that the products from recent testing and the ones made during testing of BCC no. 1-4 samples do not differ much. The quartz concentrate is even a bit coarser now, while the feldspar concentrate is somewhat finer.

D. SCREENING OF MICA FROTH PRODUCT

As reported in Progress report no. 4, a very preliminary flotation cleaning of mica froth product was attempted without much success. In trying to improve the quality of that product, provisional screening was done using the composite mica product from tests no. 12 and 17 (BC88-7). The following results were obtained after wet screening on 65 mesh :

	weight	
size, mesh	gr	%
+ 65	25.9005	29.45
- 65	62.0476	70.55
total	87.9481	100.0

The fraction minus 65 mesh was then wet screened on 100 mesh; the overall result was as follows :

	weight	
size, mesh	gr	%
+ 65	25.9005	29.45
+ 100	12.2891	13.97
- 100	49.7585	56.58
total	87.9481	100.0

After observing the size fractions under microscope, the most mica was seen in the fraction plus 65 mesh and the least in the fraction minus 100 mesh. There was still plenty of feldspar, quartz, biotite and dark minerals in all size fractions.

E. DIFFERENT CRUSHING ARRANGEMENTS AND DISTRIBUTION OF MINERALS

An idea emerged during discussion, after Report no 4 was presented, to try and crush the material to a coarse size (minus 1/2 inch or even minus 3/4 inch) hoping to have feldspar mainly in the oversize fraction and most of the iron in the undersize to benefit the flotation stage (having to "work" on less iron). That was based in part on a fact that the individual crystals of feldspar minerals are quite large.

The analysis of head samples during testing done so far showed that the iron containing minerals tend to concentrate in finer size fractions :

sample	size, mesh	wt., %	Fe2O3, %
Bearcub no. 1	+ 20	67.22	49.82
"	- 200	4.38	9.11
"	- 325	2.77	6.07
Bearcub no. 2	+ 20	63.25	50.17
"	- 200	4.61	10.37
"	- 325	2.87	7.14
BCC no. 1-4	+ 20	65.54	49.26
"	- 200	5.39	10.32
"	- 325	3.47	6.96

It was pointed out in the Progress report no. 1 when analyzing the grinding products that the iron-bearing minerals appear to be softer since iron goes more readily to fines and that this will help in removing of some iron during desliming stages. That was confirmed in all subsequent grinding tests when the size fractions were assayed. When checking the most recent testwork, tests no. 18-26 (testing of entire BC88-1 hole) showed that in 15.8 wt. % of slime fraction as much as 28.8 % of iron is removed. It can be seen also from current testing (final flowsheet and best test for each 30 ft increment of the hole BC88-1) that, out of total iron in the feed, only 5.3 % goes to feldspar concentrate and as little as 0.79 % goes to quartz concentrate, and yet that affects the quality of those two products.
Material for testing was taken from the BC88-10 hole, depth 10.5-20.5 ft. Three different arrangements were tried and the products were assayed for all oxides (Tables no. 14 and 15); the jaw crusher from Assay lab was set up at c.s.s. of 5/8, 1/2 and 1/4 inch.

When analyzing the Table no. 14, even the best scenario of crushing at 5/8 inch and then discarding the minus 1/4 size fraction would result in large losses of both feldspar and quartz :

size,inch	wt., %	distribution, %		
		feldspar	Fe2O3	SiO2(not quartz)
- 1/4	35.2	37.7	46.07	33.8

It appears that the idea is unworkable.

F. LEACHING TESTS

Although no plant in the world is known of treating either pegmatite, aplite, nepheline syenite or feldspathic sand to produce feldpar, quartz and mica, and using leaching of iron or other impurities, the idea seemed worth trying.
Several products were tested : head, iron froth, feldspar concentrate and quartz concentrate. Attention was not paid to the consumption of HCl acid (strength 36.46 %) used for leaching. Although the substantial portion of iron from different products could be removed by leaching, it would be too expensive to incorporate it into the flowsheet; cheaper magnetic separation is used everywhere else.

1. HEAD

Sample of BC88-1, 160-190 ft, that was ground for 4 minutes was leached in the duration of 1/2 hour. Ore in the amount of 209 gr was mixed with 200 ml of water and 200 ml of HCl.

time,min	stirrer speed,rpm	temp.,°C
0	38	35
5	"	40
20	"	61
30	"	70

About 4 gr or 1.91% was leached out. The slurry was washed with 2 lit of hot water (55 °C). The feed and residue were assayed (Table no. 16) showing that 29 % of iron was removed during leaching.

		%							
Product	wt.,gr	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
Feed	209	78.2	13.34	0.58	0.09	1.00	3.76	4.75	0.57
Residue	205	76.0	14.06	0.42	0.06	1.01	3.86	4.62	0.66

2. IRON FROTH

Iron froth from the test no. 18 (BC88-1, 160-190 ft) in the amount of 51.16 gr was pulped with 50 ml of water and 50 ml of HCl, and leached for 1 hour.

time,min	stirrer speed,rpm	temp.,°C
0	27	30
20	"	68
60	"	76

The amount leached out was 1.19 gr or 2.33 %. The slurry was washed with 600 ml of hot water (55 °C). The feed and residue were assayed (Table no. 16); about 44 % of iron was leached out.

Product	wt.,gr	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O
		%						
Feed	51.16	74.9	14.16	2.23	0.12	1.05	3.58	3.93
Residue	49.97	76.1	13.83	1.28	0.08	1.03	3.65	3.96

3. FELDSPAR CONCENTRATE

Two tests were performed. One was with higher iron content in the feldspar concentrate and one with lower iron content.

a. TEST 1

Feldspar concentrate from the test no. 16 (BC88-14,14-44 ft,69 % biotite gneiss) in the amount of 46.4 gr was pulped with 100 ml of water and 90 ml of HCl, and leached for two hours. Stirring was done at 30 rpm but the temperature of slurry was not measured. The amount leached out was 1.75 gr or 3.76 %. Table no. 17 shows the assays of leached residue; about 35 % of iron was removed.

Product	wt.,gr	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O
		%						
Feed	46.40	69.60	17.44	0.405	0.17	2.44	4.84	5.15
Residue	44.65	70.65	17.00	0.275	0.11	1.71	4.96	5.32

The carbonates were leached out also in the amount of 33 % Ca and 38 % Mg.; in the biotite gneiss series a good portion of calcium (and magnesium) is in carbonates and not in the feldspar only.

b. TEST 2

Feldspar concentrate from the test no. 6 (BC88-3,15-35 ft,47 % biotite gneiss) in the amount of 50.42 gr was pulped with 50 ml of water and 50 ml of HCl, and leached for 2 hours.

time,min	stirrer speed,rpm	temp.,°C
20	27	68
43	"	75
60	"	76
95	"	77
120	"	76

The amount leached was 2 gr or 3.97 %.
Table no. 18 shows the assays of leached residue; about 40 % of iron was removed.

Product	wt.,gr	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
			%						
Feed	50.42	67.82	17.45	0.77	0.48	4.45	3.85	5.18	na
Residue	48.42	69.25	17.37	0.48	0.38	3.31	3.94	5.27	0.71

Calcium and magnesium carbonates were leached out also at a rate of 29 % and 24 % respectively.

4. QUARTZ CIONCENTRATE

Quartz concentrate from the test no. 6 (BC88-1,15-25 ft,47 % biotite gneiss) in the amount of 50.02 gr was pulped with 50 ml of water and 50 ml of HCl, and leached for two hours.

time,min	stirrer speed,rpm	temp.,°C
33	27	74
40	"	75
60	"	80
120	"	86

(leaching beaker was semi-covered during the test)

The amount leached was 3.41 gr or 6.81 %. Table no. 18 shows the assays of leached residue; approximately 31 % of iron has been leached out.

		%							
Product	wt.,gr	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
Feed	50.02	73.95	11.99	1.11	0.73	7.04	3.21	1.97	na
Residue	46.62	77.95	11.55	0.82	0.655	3.89	3.21	1.97	1.03

Calcium and magnesium carbonates were leached out at a rate of 49 % and 16 % respectively.

5. ACID WASHING OF THE DRILL CORE

A few of badly stained core pieces were taken from the sample bag no. B337 (BC88-5,11-21 ft,pegmatite) and soaked for several hours in the 1:1 solution of HCl and water. Leached solution in the amount of 400 ml was recovered assaying 0.47 g/l Fe (Table no. 19). The same core was then soaked in the 1:1 solution of H2SO4 and water for several hours also, recovering 400 ml of solution assaying 0.2 g/l Fe. Some of the staining was removed.

G. FLOTATION TESTING OF THE ENTIRE HOLE BC88-1

In order to learn more about the variability of the material with depth and also about the products that can be obtained, random selected hole BC88-1 was tested throughout the entire length. The results are shown in Tables no. 20-23; the tests no. 8 and 11, treating the top 30 ft of the same hole, done previously were included also.
For some 30 ft increments two or three tests were performed to improve the quality of saleable products.
To increase the feldspar concentrate weight recovery, the desliming

was done at 325 mesh (45 microns) instead of 270 mesh (54 microns) as when testing the top 30 ft of the deposit.
Here is a comparison :

	weight, %						
	+ 28 mesh mica	mica froth	iron froth	feldspar conc.	quartz conc.	feldspar cl.tail	slimes
BCC no. 1-4	2.0	8.0	6.0	51.0	18.0	2.0	13.0
top 30 ft of deposit	2.5	7.5	13.7	37.3	17.5	3.7	15.8
BC88-1	2.0	6.0	8.0	45.0	20.0	3.0	16.0

Feldspar concentrate weight recovery has been increased by some 7.0 % compared with the testing of top 30 ft of the deposit; most of the increase can be attributed to a finer desliming. Further increase of feldspar weight recovery and also decrease of slimes losses to about 10-12 % could be achieved by desliming at 400 mesh (38 microns). The plants use cyclones for desliming and it should be no problem to make a cut at such a fine size.
With the exception of tests no. 19 and 26, when a desliming stage even ahead of grinding was attempted, the flowsheet used was very similar to the one applied when testing the top 30 ft of the deposit;

- grinding for 4 minutes,
- screening coarse mica on 28 mesh,
- desliming at 325 mesh,
- scrubbing at high density for 10 minutes,
- desliming at 325 mesh,
- mica conditioning at high density for 3 minutes,
- mica flotation for 3 minutes,
- iron conditioning at high density for 5 minutes,
- iron flotation for 3 minutes,
- iron conditioning for 1 minute,
- iron flotation for 5 minutes,
- feldspar conditioning at high density for 3 minutes,
- feldspar flotation for 4 minutes (tail is the quartz concentrate),
- feldspar concentrate cleaning for 3 minutes from entrained quartz.

The analysis of the head assays (Table no. 21) shows that material in the middle part of the hole, between 70 and 160 ft (especially between 100 and 130 ft) contains more biotite i.e. iron than the top or the bottom of the hole BC88-1. This shows a high correlation with the information established by Mrs. Logan-Gordanier when logging the core.
When processing the material from the top or the bottom of hole BC88-1, there should be no problem in making feldspar concentrate with 0.06 % Fe_2O_3 and quartz concentrate with 0.02-0.03 % Fe_2O_3. When treating the material between the depth of 70 ft and 160 ft it would be difficult to make feldspar concentrate with less than

0.14-0.15 % Fe2O3 and quartz concentrate would contain about 0.04 % Fe2O3. Incorporation of magnetic separation into the flowsheet would be a must.

Selecting the best test in each depth interval (the flowsheet was improved in all those cases), the following is the average analysis of both feldspar and quartz concentrates :

CONC.	ASSAY, %							
	K_2O	Na_2O	CaO	FELD-SPAR	Al_2O_3	Fe_2O_3	SiO_2	MgO
FELDSPAR	6.83	5.40	1.58	93.89	18.84	0.107	67.2	0.025
QUARTZ	0.13	0.14	0.06	—	0.615	0.03	99.02	0.013

BEARCUB, BC 88-5
15FT - 25FT

TABLE NO. 1

HEAD (-6 MESH)* A

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+8	+2,360	363.5	33.05	33.05	66.95
+10	+1,700	147.1	13.37	46.42	53.58
+12	+1,400	67.2	6.11	52.53	47.47
+14	+1,180	46.5	4.23	56.76	43.24
+20	+ 850	80.5	7.32	64.08	35.92
+28	+ 600	68.9	6.26	70.34	29.66
+35	+ 425	60.1	5.46	75.80	24.20
+48	+ 300	46.5	4.23	80.03	19.97
+65	+ 212	38.2	3.47	83.50	16.50
+100	+ 150	38.3	3.48	86.98	13.02
+150	+ 106	28.2	2.56	89.54	10.46
+200	+ 75	43.9	3.99	93.53	6.47
+270	+ 53	10.9	0.99	94.52	5.48
+325	+ 45	10.2	0.93	95.45	4.55
-325	- 45	50.0	4.55	100.00	
TOTAL		1,100.0	100.00		

* ONE PASS ONLY THROUGH NEW JAW CRUSHER WITH A CLOSED SIDE SETTING OF ABOUT 1/8".

TABLE NO. 2

BEARCUB, BC 88-5
15'-25'
HEAD (-6 MESH)*B

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+8	+2,360	190.9	21.62	21.62	78.38
+10	+1,700	175.0	19.82	41.44	58.56
+12	+1,400	75.4	8.54	49.98	50.02
+14	+1,180	47.4	5.37	55.35	44.65
+20	+ 850	79.0	8.95	64.30	35.70
+28	+ 600	62.5	7.08	71.38	28.62
+35	+ 425	50.6	5.73	77.11	22.89
+48	+ 300	37.8	4.28	81.39	18.61
+65	+ 212	30.1	3.41	84.80	15.20
+100	+ 150	29.4	3.33	88.13	11.87
+150	+ 106	20.7	2.35	90.48	9.52
+200	+ 75	30.0	3.40	93.88	6.12
+270	+ 53	11.2	1.27	95.15	4.85
+325	+ 45	6.5	0.74	95.89	4.11
-325	- 45	36.3	4.11	100.00	
TOTAL		882.8	100.00		

* CRUSHED THROUGH NEW JAW CRUSHER WITH A CLOSED SIDE SETTING OF 3/8" (MAXIMUM OPEN), SCREENED THROUGH A 6 MESH SCREEN, OVERSIZE CRUSHED THROUGH NEW CONE CRUSHER AT MEDIUM SETTING (?).

BEARCUB, BC 88-1
160 FT - 190 FT

TABLE NO. 3

HEAD (-6 MESH)*

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+8	+2,360	107.57	18.38	18.38	81.62
+10	+1,700	69.00	11.79	30.17	69.83
+12	+1,400	32.46	5.55	35.72	64.28
+14	+1,180	24.48	4.18	39.90	60.10
+20	+ 850	45.98	7.86	47.76	52.24
+28	+ 600	43.31	7.40	55.16	44.84
+35	+ 425	40.59	6.94	62.10	37.90
+48	+ 300	34.16	5.84	67.94	32.06
+65	+ 212	29.83	5.10	73.04	26.96
+100	+ 150	31.20	5.33	78.37	21.63
+150	+ 106	23.02	3.93	82.30	17.70
+200	+ 75	22.72	3.88	86.18	13.82
+270	+ 53	22.35	3.82	90.00	10.00
+325	+ 45	8.94	1.53	91.53	8.47
-325	- 45	49.60	8.47	100.00	
TOTAL		585.21	100.00		

* ONE PASS ONLY THROUGH NEW JAW CRUSHER WITH A CLOSED SIDE SETTING OF ABOUT 1/8".

BEARCUB, BC88-5* A
15 FT – 25 FT

TABLE NO. 4

SCREEN SIZE		WEIGHT		K_2O			Na_2O			CaO			LOI		
MESH	MICRON	%	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %
+ 8	+2360	33.05	33.05	4.50	30.31	30.31	3.52	34.18	34.18	1.23	34.82	34.82	0.54	32.82	32.82
+10	+1700	13.37	46.42	5.04	13.74	44.05	3.48	13.67	47.85	1.16	13.29	48.11	0.44	10.82	43.64
+12	+1400	6.11	52.53	5.10	6.35	50.40	3.41	6.12	53.97	1.15	6.02	54.13	0.48	5.39	49.03
+14	+1180	4.23	56.76	5.18	4.47	54.87	3.35	4.17	58.14	1.13	4.09	58.22	0.39	3.04	52.07
+20	+ 850	7.32	64.08	5.10	7.61	62.48	3.33	7.16	65.30	1.10	6.90	65.12	0.58	7.81	59.88
+28	+ 600	6.26	70.34	5.34	6.81	69.29	3.35	6.16	71.46	1.12	6.01	71.13	0.40	4.61	64.49
+35	+ 425	5.46	75.80	5.14	5.72	75.01	3.25	5.21	76.67	1.09	5.10	76.23	0.26	2.61	67.10
+48	+ 300	4.23	80.03	5.22	4.50	79.51	3.28	4.08	80.75	1.12	4.06	80.29	0.33	2.57	69.67
+65	+ 212	3.47	83.50	5.18	3.66	83.17	3.33	3.40	84.15	1.15	3.42	83.71	0.69	4.40	74.07
+100	+ 150	3.48	86.98	4.99	3.54	86.71	3.20	3.27	87.42	1.13	3.37	87.08	0.68	4.35	78.42
+150	+ 106	2.56	89.54	4.95	2.58	89.29	3.26	2.45	89.87	1.16	2.54	89.62	0.48	2.26	80.68
+200	+ 75	3.99	93.53	5.02	4.08	93.37	3.31	3.88	93.75	1.17	4.00	93.62	0.73	5.36	86.04
+270	+ 53	0.99	94.52	4.90	0.99	94.36	3.23	0.94	94.69	1.16	0.98	94.60	1.05	1.91	87.95
+325	+ 45	0.93	95.45	4.98	0.95	95.31	3.23	0.88	95.57	1.16	0.92	95.52	1.03	1.76	89.71
-325	- 45	4.55	100.00	5.06	4.69	100.00	3.31	4.43	100.00	1.15	4.48	100.00	1.23	10.29	100.00
TOTAL		100.00		4.91	100.00		3.40	100.00		1.17	100.00		0.54	100.00	

* SAMPLE CRUSHED IN ONE PASS THROUGH NEW JAW CRUSHER WITH A C.S.S. OF ABOUT 1/8".

BEARCUB, BC88-5*A
15 FT-25 FT

TABLE NO. 5

SCREEN SIZE		WEIGHT		SiO_2			Al_2O_3			Fe_2O_3			MgO		
MESH	MICRON	%	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %
+8	+2360	33.05	33.05	76.9	33.44	33.44	13.33	32.18	32.18	0.62	20.04	20.04	0.04	26.38	26.38
+10	+1700	13.37	46.42	76.1	13.38	46.82	13.65	13.30	45.48	0.55	27.23	47.27	0.04	10.67	37.05
+12	+1400	6.11	52.53	76.2	6.13	52.95	13.44	6.00	51.48	0.65	3.88	51.15	0.05	6.10	43.15
+14	+1180	4.23	56.76	75.9	4.22	57.17	13.65	4.22	55.70	0.70	2.90	54.05	0.05	4.22	47.37
+20	+850	7.32	64.08	75.1	7.23	64.40	14.28	7.64	63.34	0.68	4.87	58.92	0.05	7.30	54.67
+28	+600	6.26	70.34	75.5	6.22	70.62	13.92	6.37	69.71	0.75	4.59	63.51	0.05	6.25	60.92
+35	+425	5.46	75.80	75.4	5.42	76.04	14.45	5.76	75.47	0.92	4.91	68.42	0.05	5.45	66.37
+48	+300	4.23	80.03	75.6	4.21	80.25	13.74	4.25	79.72	1.03	4.26	72.68	0.06	5.06	71.43
+65	+212	3.47	83.50	75.2	3.43	83.68	13.97	3.54	83.26	1.12	3.80	76.48	0.06	4.15	75.58
+100	+150	3.48	86.98	75.7	3.46	87.14	13.64	3.47	86.73	1.23	4.19	80.67	0.07	4.86	80.44
+150	+106	2.56	89.54	75.3	2.54	89.68	13.87	2.60	89.33	1.34	3.35	84.02	0.08	4.09	84.53
+200	+75	3.99	93.53	75.0	3.94	93.62	13.97	4.07	93.40	1.40	5.46	89.48	0.09	7.16	91.69
+270	+53	0.99	94.52	75.3	0.98	94.60	13.75	1.00	94.44	1.56	1.51	90.99	0.07	1.38	93.07
+325	+45	0.93	95.45	75.2	0.92	95.52	13.86	0.94	95.34	1.50	1.36	92.35	0.08	1.48	94.55
-325	-45	4.55	100.00	74.9	4.48	100.00	14.01	4.66	100.00	1.72	7.65	100.00	0.06	5.45	100.00
TOTAL		100.00		76.01	100.00		13.69	100.00		1.02			0.05	100.00	

* SAMPLE CRUSHED IN ONE PASS THROUGH NEW JAW CRUSHER WITH A C.S.S. OF ABOUT 1/8".

BRENDA MINES LTD.,
ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO
BC 88-5 15'-25' PEGMATITE - A

TABLE NO. 6

DATE: APRIL 7, 1989 REC'D: APRIL 4, 1989 FILE: BBCPEGA.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
+8 MESH	76.9	*13.43 13.23	.62	.04	1.23	3.52	4.50	.54	.06
+10 MESH	76.1	13.65	.55	.04	1.16	3.48	5.04	.44	.06
+12 MESH	76.2	13.44	.65	.05	1.15	3.41	5.10	.48	.06
+14 MESH	75.9	13.65	.70	.05	1.13	3.35	5.18	.39	.06
+20 MESH	75.1	*14.28	.68	.05	1.10	3.33	5.10	.58	.06
+28 MESH	75.5	*13.97 13.86	.75	.05	1.12	3.35	5.34	.40	.03
+35 MESH	75.4	*14.45	.92	.05	1.09	3.25	5.14	.26	.04
+48 MESH	75.6	13.74	1.03	.06	1.12	3.28	5.22	.33	.04
+65 MESH	75.2	13.97	1.12	.06	1.15	3.33	5.18	.69	.03
+100 MESH	75.7	*13.64 13.64	1.23	.07	1.13	3.20	4.99	.68	.04
+150 MESH	75.3	13.87	1.34	.08	1.16	3.26	4.95	.48	.06
+200 MESH	75.0	13.97	1.40	.09	1.17	3.31	5.02	.73	.04
+270 MESH	75.3	13.75	1.56	.07	1.16	3.23	4.90	1.05	.05
+325 MESH	75.2	13.86	1.50	.08	1.16	3.23	4.98	1.03	.05
-325 MESH	74.9	*14.18 13.84	1.72	.06	1.15	3.31	5.06	1.23	.07
CONTROL STD. BC88 - 1 TEST 18	68.5	18.39	.05	.01	1.50	5.53	6.00		

* Reruns

D. Perkins
Chief Chemist

DP:mf

BEARCUB, BC88-5* B

15 FT – 25 FT

TABLE NO. 7

SCREEN SIZE		WEIGHT		K_2O			Na_2O			CaO			LOI		
MESH	MICRON	%	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %
+ 8	+ 2360	21.62	21.62	7.72	21.37	21.37	2.60	21.81	21.81	0.62	21.58	21.58	0.32	19.05	19.05
+ 10	+ 1700	19.82	41.44	7.81	19.82	41.19	2.63	20.22	42.03	0.63	20.11	41.69	0.30	16.38	35.43
+ 12	+ 1400	8.54	49.98	7.74	8.46	49.65	2.54	8.42	50.45	0.57	7.84	49.53	0.26	6.12	41.55
+ 14	+ 1180	5.37	55.35	7.66	5.27	54.92	2.48	5.17	55.62	0.56	4.84	54.37	0.30	4.44	45.99
+ 20	+ 850	8.95	64.30	7.96	9.12	64.04	2.55	8.87	64.49	0.57	8.21	62.58	0.30	7.39	53.38
+ 28	+ 600	7.08	71.38	8.11	7.35	71.39	2.59	7.11	71.60	0.59	6.63	69.21	0.34	6.63	60.01
+ 35	+ 425	5.73	77.11	8.04	5.90	77.29	2.56	5.69	77.29	0.61	5.63	74.84	0.39	6.15	66.16
+ 48	+ 300	4.28	81.39	8.08	4.43	81.72	2.56	4.25	81.54	0.63	4.34	79.18	0.41	4.83	70.99
+ 65	+ 212	3.41	84.80	7.88	3.44	85.16	2.56	3.39	84.93	0.64	3.51	82.69	0.45	4.23	75.22
+ 100	+ 150	3.33	88.13	7.76	3.31	88.47	2.54	3.28	88.21	0.68	3.65	86.34	0.49	4.49	79.71
+ 150	+ 106	2.35	90.48	7.68	2.31	90.78	2.54	2.31	90.52	0.69	2.61	88.95	0.51	3.30	83.01
+ 200	+ 75	3.40	93.88	7.44	3.24	94.02	2.51	3.31	93.83	0.73	4.00	92.95	0.54	5.06	88.07
+ 270	+ 53	1.27	95.15	7.38	1.20	95.22	2.45	1.21	95.04	0.70	1.43	94.38	0.66	2.31	90.38
+ 325	+ 45	0.74	95.89	7.34	0.69	95.91	2.52	0.72	95.76	0.72	0.86	95.24	0.72	1.47	91.85
- 325	- 45	4.11	100.00	7.78	4.09	100.00	2.66	4.24	100.00	0.72	4.76	100.00	0.72	8.15	100.00
TOTAL		100.00		7.81			2.58	100.00		0.62	100.00		0.36	100.00	

* CRUSHED THROUGH NEW JAW CRUSHER WITH A C.S.S. OF 3/8" (MAXIMUM OPEN), SCREENED ON A 6 MESH SCREEN, OVERSIZE CRUSHED THROUGH NEW CONE CRUSHER AT MEDIUM SETTING OF ABOUT 1/8".

BEARCUB, BC 88-5* B

15 FT - 25 FT

TABLE NO. 8

SCREEN SIZE		WEIGHT		SiO_2			Al_2O_3			Fe_2O_3			MgO		
MESH	MICRON	%	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %	%	DIST. %	CUM. RET. %
+ 8	+2360	21.62	21.62	74.8	21.72	21.72	13.90	21.42	21.42	0.32	14.81	14.81	0.05	18.72	18.72
+ 10	+1700	19.82	41.44	74.6	19.86	41.58	13.99	19.76	41.18	0.30	12.73	27.54	0.05	17.17	35.89
+ 12	+1400	8.54	49.98	74.9	8.59	50.17	13.80	8.40	49.58	0.37	6.76	34.30	0.05	7.40	43.29
+ 14	+1180	5.37	55.35	75.3	5.43	55.60	13.60	5.20	54.78	0.38	4.37	38.67	0.05	4.65	47.94
+ 20	+ 850	8.95	64.30	74.6	8.97	64.57	13.87	8.85	63.63	0.44	8.43	47.10	0.06	9.30	57.24
+ 28	+ 600	7.08	71.38	73.8	7.02	71.59	14.38	7.26	70.89	0.50	7.58	54.68	0.06	7.36	64.60
+ 35	+ 425	5.73	77.11	73.8	5.68	77.27	14.39	5.88	76.77	0.55	6.75	61.43	0.07	6.95	71.55
+ 48	+ 300	4.28	81.39	73.7	4.24	81.51	14.39	4.39	81.16	0.60	5.50	66.93	0.07	5.19	76.74
+ 65	+ 212	3.41	84.80	74.3	3.40	84.91	13.87	3.37	84.53	0.66	4.82	71.75	0.07	4.13	80.87
+ 100	+ 150	3.33	88.13	73.7	3.30	88.21	14.52	3.45	87.98	0.68	4.85	76.60	0.08	4.61	85.48
+ 150	+ 106	2.35	90.48	74.0	2.33	90.54	14.27	2.39	90.37	0.72	3.62	80.22	0.07	2.85	88.33
+ 200	+ 75	3.40	93.88	74.6	3.41	93.95	13.86	3.36	93.73	0.83	6.04	86.26	0.07	4.12	92.45
+ 270	+ 53	1.27	95.15	75.0	1.28	95.23	13.56	1.23	94.96	0.87	2.37	88.63	0.07	1.54	93.99
+ 325	+ 45	0.74	95.89	74.3	0.74	95.97	14.08	0.74	95.70	0.96	1.52	90.15	0.08	1.03	95.02
-325	45	4.11	100.00	73.0	4.03	100.00	14.67	4.30	100.00	1.12	9.85	100.00	0.07	4.98	100.00
TOTAL		100.00		74.45	100.00		14.03	100.00		0.47	100.00		0.06	100.00	

* CRUSHED THROUGH NEW JAW CRUSHER WITH A C.S.S. OF 3/8" (MAXIMUM OPEN), SCREENED ON A 6 MESH SCREEN, OVERSIZE CRUSHED THROUGH NEW CONE CRUSHER AT MEDIUM SETTING OF ABOUT 1/8".

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO

BC 88-5 15'-25' PEGMATITE - B TABLE NO. 9

DATE: APRIL 7, 1989 REC'D: APRIL 4, 1989 FILE: BBCPEGB.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
+8 MESH	74.8	13.90	.32	.05	.62	2.60	7.72	.32	.09
+10 MESH	74.6	13.99	.30	.05	.63	2.63	7.81	.30	.11
+12 MESH	74.9	13.80	.37	.05	.57	2.54	7.74	.26	.08
+14 MESH	75.3	13.60	.38	.05	.56	2.48	7.66	.30	.08
+20 MESH	74.6	13.87	.44	.06	.57	2.55	7.96	.30	.08
+28 MESH	73.8	14.38	.50	.06	.59	2.59	8.11	.34	.08
+35 MESH	73.8	14.39	.55	.07	.61	2.56	8.04	.39	.09
+48 MESH	73.7	14.39	.60	.07	.63	2.56	8.08	.41	.08
+65 MESH	74.3	13.87	.66	.07	.64	2.56	7.88	.45	.07
+100 MESH	73.7	14.52	.68	.08	.68	2.54	7.76	.49	.07
+150 MESH	74.0	14.27	.72	.07	.69	2.54	7.68	.51	.08
+200 MESH	74.6	13.86	.83	.07	.73	2.51	7.44	.54	.07
+270 MESH	75.0	13.56	.87	.07	.70	2.45	7.38	.66	.07
+325 MESH	74.3	14.08	.96	.08	.72	2.52	7.34	.72	.08
-325 MESH	73.0	14.67	1.12	.07	.72	2.66	7.78	.72	.07

D. Perkins
Chief Chemist

DP:mf

BEARCUB BC 88-1
160' - 190'

TABLE NO. 10

4 MIN. GRIND (1 KG)

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+35	+425	7.69	3.67	3.67	96.33
+48	+300	20.98	9.96	13.63	86.37
+65	+212	38.18	18.19	31.82	68.18
+100	+150	38.41	18.30	50.12	49.88
+150	+106	22.58	10.76	60.88	39.12
+200	+75	19.36	9.23	70.11	29.89
+270	+53	10.79	5.15	75.26	24.74
+325	+45	10.77	5.14	80.40	19.60
-325	-45	41.13	19.60	100.00	
TOTAL		209.89	100.00		

5 MIN. GRIND (1 KG)

TABLE NO. 11

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+35	+425	2.91	1.40	1.40	98.60
+48	+300	10.61	5.08	6.48	93.52
+65	+212	27.46	13.16	19.64	80.36
+100	+150	47.01	22.52	42.16	57.84
+150	+106	30.12	14.43	56.59	43.41
+200	+75	24.30	11.64	68.23	31.77
+270	+53	12.87	6.16	74.39	25.61
+325	+45	8.78	4.21	78.60	21.40
-325	-45	44.67	21.40	100.00	
TOTAL		208.73	100.00		

BEARCUB BC 88-1
160 FT - 190 FT, TEST NO. 18

FELDSPAR CONCENTRATE

TABLE No. 12

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+35	+425	6.84	3.13	3.13	96.87
+48	+300	24.54	11.23	14.36	85.64
+65	+212	51.91	23.76	38.12	61.88
+100	+150	56.02	25.64	63.76	36.24
+150	+106	31.56	14.44	78.20	21.80
+200	+75	23.50	10.75	88.95	11.05
+270	+53	10.51	4.81	93.76	6.24
+325	+45	6.44	2.95	96.71	3.29
-325	-45	7.20	3.29	100.00	
TOTAL		218.52	100.00		

QUARTZ CONCENTRATE

TABLE NO. 13

SCREEN SIZE		WEIGHT		% CUMULATIVE	
MESH	MICRON	GR	%	RET.	PASS.
+35	+425	1.37	1.13	1.13	98.87
+48	+300	8.96	7.37	8.50	91.50
+65	+212	25.77	21.19	29.69	70.31
+100	+150	35.85	29.48	59.17	40.83
+150	+106	20.62	16.96	76.13	23.87
+200	+75	15.49	12.74	88.87	11.13
+270	+53	6.79	5.58	94.45	5.55
+325	+45	3.67	3.02	97.47	2.53
-325	-45	3.08	2.53	100.00	
TOTAL		121.60	100.00		

TABLE NO. 14

BEARCUB, BC 88-10, 10.5'-20.5'

DISTRIBUTION OF OXIDES IN DIFFERENT CRUSHING PRODUCTS

CRUSHED TO	PRODUCT		ASSAY, %							DISTRIBUTION, %						
	SIZE, INCH	WT., %	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
-1/4 INCH	+1/4	33.23	4.91	3.61	0.92	13.67	0.36	0.07	76.5	33.87	33.05	30.98	32.73	26.00	25.84	33.38
	-1/4	66.77	4.77	3.64	1.02	13.98	0.51	0.10	76.0	66.13	66.95	69.02	67.27	74.00	74.16	66.62
	HEAD	100	4.82	3.63	0.99	13.88	0.46	0.09	76.17	100	100	100	100	100	100	100
-1/2 INCH	+1/2	21.72	4.79	3.45	1.00	13.98	0.39	0.07	76.3	21.41	22.07	22.42	22.10	19.39	19.54	21.65
	-1/2	78.28	4.88	3.38	0.96	13.67	0.45	0.08	76.6	78.59	77.93	77.58	77.90	80.61	80.46	78.35
	HEAD	100	4.86	3.40	0.97	13.74	0.44	0.08	76.53	100	100	100	100	100	100	100
-5/8 INCH	+5/8	17.17	5.97	3.71	0.99	15.34	0.42	0.07	73.5	15.95	20.14	23.72	17.07	14.92	19.47	17.11
	-5/8	82.83	6.52	3.05	0.66	15.45	0.50	0.06	73.8	84.05	79.86	76.28	82.93	85.08	80.53	82.89
	HEAD	100	6.43	3.16	0.72	15.43	0.48	0.06	73.75	100	100	100	100	100	100	100
-5/8 INCH	+5/8	17.17	5.97	3.71	0.99	15.34	0.42	0.07	73.5	15.76	19.06	24.08	18.26	7.16	18.15	16.52
	+1/2	9.81	5.17	3.14	0.81	13.23	0.50	0.07	77.1	7.80	9.21	11.26	9.00	11.67	10.37	9.90
	+1/4	37.82	6.59	2.98	0.63	13.98	0.39	0.06	80.4	38.33	33.72	33.75	36.66	35.10	34.27	39.80
	-1/4	35.20	7.04	3.61	0.62	14.78	0.55	0.07	73.3	38.11	38.01	30.91	36.08	46.07	37.21	33.78
	HEAD	100	6.50	3.34	0.71	14.42	0.42	0.07	76.39	100	100	100	100	100	100	100

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BC88-10 (10'-20') HEAD 1 & 2

TABLE H
15

DATE: JUNE 2, 1989 REC'D: JUNE 1, 1989 FILE:BEARH1&2.FR

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O
HEAD 1 +5/8"	73.5	15.34	.42	.07	.99	3.71	5.97
-5/8"	73.8	15.45	.50	.06	.66	3.05	6.52
+1/2"	77.1	13.23	.50	.07	.81	3.14	5.17
+1/4"	80.4	13.98	.39	.06	.63	2.98	6.59
-1/4"	73.3	14.78	.55	.07	.62	3.61	7.04
HEAD 2 +1/2"	76.3	13.98	.39	.07	1.00	3.45	4.79
-1/2"	76.6	13.67	.45	.08	.96	3.38	4.88
+1/4"	76.5	13.67	.36	.07	.92	3.61	4.91
HEAD 2 -1/4"	76.0	13.98	.51	.10	1.02	3.64	4.77
+1/4"	76.5	13.67	.36	.07	.92	3.61	4.91
CHECK #25	76.3	13.79	.38	.07	.94	3.45	5.10

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

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BEARCUB SAMPLES - BRANKO

TABLE NO. 16

DATE: MARCH 28, 1989 REC'D: MARCH 24, 1989 FILE:BBC-88-1.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
BC88-1 160' - 170'	76.1	13.91	.55	.11	.96	3.38	4.99	.63	.10
BC88-1 170' - 180'	75.3	14.44	.57	.11	1.11	3.89	4.57	.51	.07
BC88-1 180' - 190'	75.2	14.60	.74	.09	1.03	3.74	4.59	.57	.05
BC88-1 160' - 190'	78.2	13.34	.58	.09	1.00	3.76	4.75	.57	.06
BC88-1 LEACHED HEAD 4 MIN GRIND	76.0	14.06	.42	.06	1.01	3.86	4.62	.66	.09
BC88-1 LEACHED IRON CONC	76.1	13.93	1.28	.08	1.03	3.65	3.96	-	-
STD 70a POTASSIUM FELDSPAR	67.9	17.58	.08	.05	.11	2.49	11.88		
VALUE	67.1	17.9	.07	.04	.11	2.50	11.8		

REASSAYS.

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 16 - BRANKO

TABLE 17

DATE: FEBRUARY 27, 1989 REC'D: MARCH 8, 1989 FILE:BCTST1

BC88-14 SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
Test 16 (Hcl leached) Feldspar Conc	70.6 70.7	17.06 16.93	0.26 0.29	0.11 0.11	1.71 1.70	4.97 4.94	5.30 5.33		
STD 70a	68.5 68.4	16.98 17.06	0.08 0.11	0.05 0.04	0.11 0.11	2.48 2.48	11.78 11.85		
True Value	62.6	17.9	0.07	0.04	0.11	7.5	11.8		

D. Perkins
Chief Chemist

DP:cs

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BEARCUB SAMPLES - BRANKO

TABLE N[illegible]
18

DATE: MARCH 27, 1989 DATE REC'D: MARCH 21, 1989 FILE:BC883T6.F

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O		
Test 6 Leached Feldspar Conc	69.2 69.3	17.41 17.32	.49 .47	.38 .38	3.29 3.33	5.29 5.25	3.94 3.94	.73 .69	.09 .08		
Test 6 Leached Quartz Conc	77.9 78.0	11.60 11.50	.82 .82	.66 .65	3.90 3.87	3.22 3.19	1.93 1.93	1.03 1.03	.15 .12		
STD 1413	84.3 84.4	9.55 9.55	.24 .24	.07 .07	.70 .70	1.61 1.58	3.76 3.73				
Value	83.6	9.90	.24	.06	.74	1.74	3.74				

D. Perkins
Chief Chemist

DP:cs

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BEARCUB SAMPLES - ACID LEACH - BRANKO

TABLE NO. 19

DATE: MARCH 29, 1989 REC'D: MARCH 28, 1989 FILE:BBC88-5.FRM

BC88-5	1:1 HCl Fe gm/L	1:1 H2SO4 LEACH Fe gm/L
	.47	.20

D. Perkins
Chief Chemist

DP:cs

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BEARCUB SAMPLES - BRANKO

TABLE N.
20

DATE: APRIL 11, 1989 REC'D: APRIL 10, 1989 FILE:BC891H.FRM

BC89-1 REC. SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
HEAD 40.7'-70.7'	75.4	14.67	.60	.12	1.15	3.27	4.75	.39	.04
HEAD 70.7'-100.7'	75.0	14.65	.79	.15	.91	2.97	5.50	.65	.04
HEAD 100.7'-130.7'	75.4	14.18	1.26	.24	1.05	2.94	4.97	.58	.03
HEAD 130.7'-160.7'	75.6	14.65	.71	.12	1.17	3.39	4.33	.59	.04

D. Perkins
Chief Chemist

DP:cs

BEARCUB

BC88-1 HEAD ASSAYS

TABLE NO. 21

DEPTH, FT	%								
	K_2O	Na_2O	CaO	Fe_2O_3	MgO	Al_2O_3	SiO_2	LOI	H_2O
10.7-40.7	5.06	3.46	0.94	0.57	0.10	14.87	75.0	0.56	0.02
40.7-70.7	4.75	3.27	1.15	0.60	0.13	14.67	75.4	0.59	0.04
70.7-100.7	5.50	2.97	0.91	0.79	0.15	14.65	75.0	0.65	0.04
100.7-130.7	4.97	2.94	1.05	1.26	0.24	14.18	75.4	0.58	0.03
130.7-160.7	4.33	3.38	1.17	0.71	0.12	14.65	75.6	0.58	0.04
160.7-190.7	4.72	3.67	1.03	0.62	0.10	14.32	75.5	0.57	0.07
WHOLE BC88-1 AVERAGE	4.89	3.28	1.04	0.76	0.14	14.56	75.3	0.59	0.04

BEARCUB - BC88-1
FELDSPAR - CONCENTRATE

TABLE NO. 22

DEPTH, FT	TEST NO.	HEAD, % Fe_2O_3	WT., %	ASSAY, %							
				K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR
10.7-40.7	8 (1)	0.57	36.46	7.53	5.48	1.46	19.43	0.105	0.01	66.0	98.11
— " —	11 (1)(2)	— " —	37.11	7.40	5.30	1.33	17.35	0.06	0.02	68.5	95.17
40.7-70.7	20 (2)	0.60	46.41	6.19	5.55	1.90	19.99	0.09	0.01	66.3	92.96
70.7-100.7	21	0.79	44.76	7.88	4.69	1.28	18.67	0.28	0.06	67.1	92.60
— " —	22 (2)	— " —	45.01	8.04	4.90	1.30	18.81	0.15	0.03	66.8	95.42
100.7-130.7	23 (2)	1.26	40.12	7.08	5.22	1.63	18.78	0.14	0.03	67.1	94.09
— " —	24	— " —	41.20	7.00	5.20	1.63	18.26	0.18	0.05	67.7	93.45
— " —	26	— " —	41.66	6.61	5.15	1.64	18.00	0.21	0.05	68.3	90.77
130.7-160.7	25 (2)	0.71	43.93	6.00	5.76	1.79	18.64	0.14	0.04	67.6	93.07
160.7-190.7	18 (2)	0.62	45.08	6.27	5.67	1.51	19.45	0.06	0.02	67.0	92.52
— " —	19	— " —	44.79	6.31	5.39	1.45	18.80	0.05	0.02	68.0	90.09
HOLE BC88-1 (2) AVERAGE		0.76	44.11	6.83	5.40	1.58	18.84	0.107	0.025	67.2	93.89

(1) DESLIMING ON 270 MESH; ALL OTHER TESTS, DESLIMING ON 325 MESH

(2) BEST TESTS IN EACH DEPTH INCREMENT SELECTED (FLOWSHEET IMPROVED)

BEARCUB-BC88-1
QUARTZ CONCENTRATE

TABLE NO. 23

DEPTH, FT	TEST, NO.	HEAD, % Fe_2O_3	WT, %	ASSAY, %						
				SiO_2	Fe_2O_3	K_2O	Na_2O	CaO	MgO	Al_2O_3
10.7-40.7	8 (1)	0.57	17.71	98.8	0.03	0.19	0.24	0.10	0.01	0.670
— " —	11 (1)(2)	— " —	17.37	99.3	0.05	0.09	0.11	0.04	0.02	0.380
40.7-70.7	20 (2)	0.60	20.46	98.9	0.03	0.12	0.16	0.07	0.009	0.77
70.7-100.7	21	0.79	21.80	98.6	0.05	0.18	0.17	0.04	0.01	0.97
— " —	22 (2)	— " —	20.78	98.8	0.03	0.16	0.15	0.04	0.01	0.80
100.7-130.7	23 (2)	1.26	19.35	99.1	0.04	0.11	0.09	0.09	0.01	0.56
— " —	24	— " —	22.25	98.9	0.06	0.17	0.18	0.03	0.02	0.59
— " —	26	— " —	19.46	99.2	0.03	0.12	0.13	0.04	0.02	0.50
130.7-160.7	25 (2)	0.71	22.32	98.7	0.03	0.18	0.23	0.07	0.01	0.77
160.7-190.7	18 (2)	0.62	18.75	99.3	0.02	0.12	0.11	0.06	0.02	0.41
— " —	19	— " —	20.43	98.8	0.02	0.14	0.22	0.07	0.01	0.77
HOLE BC 88-1 AVERAGE		0.76	20.33	99.02	0.03	0.13	0.14	0.06	0.013	0.615

(1) DESLIMING ON 270 MESH; ALL OTHER TESTS, DESLIMING ON 325 MESH

(2) BEST TESTS IN EACH DEPTH INCREMENT SELECTED (FLOWSHEET IMPROVED)

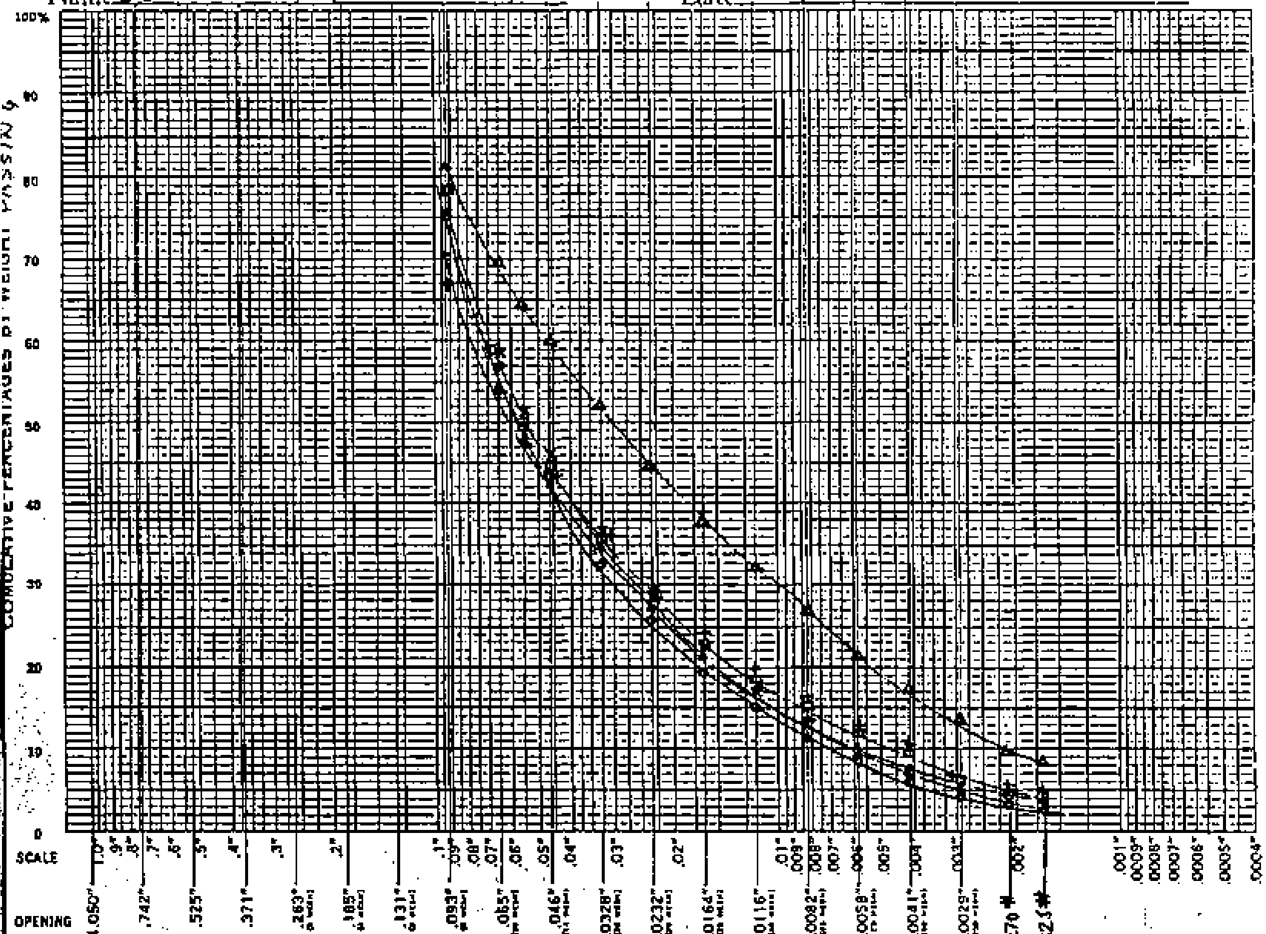
GRAPH NO. 1

Form No. L-5 Please mention above when ordering

The Tyler Standard Screen Scale

Cumulative Logarithmic Diagram of Screen Analysis on Sample of – 6 MESH (HEAD) L-5

Name BEARCUB SAMPLES CRUSHED Date



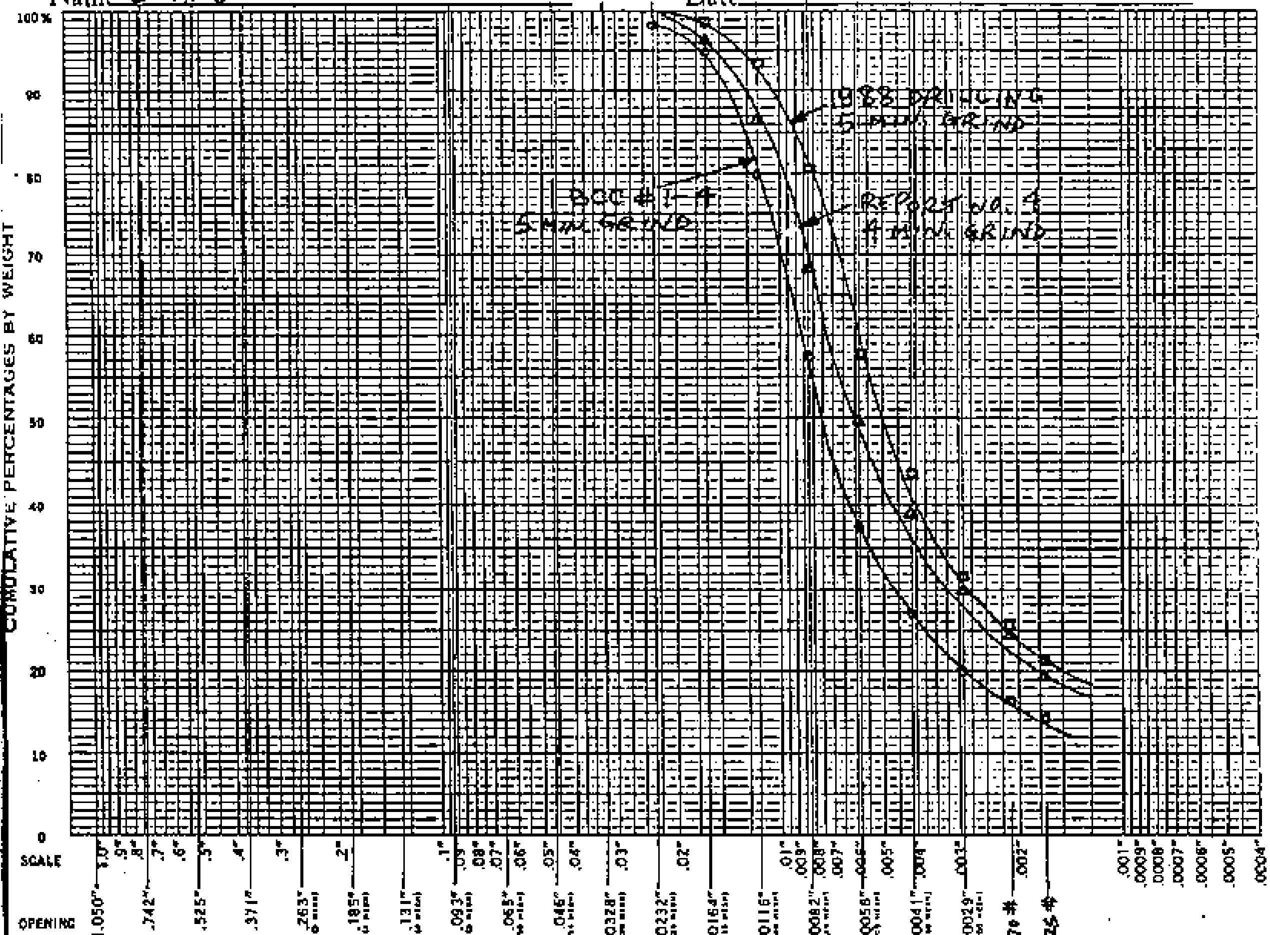
SCREEN SCALE RATIO 1.414

Openings Inches	Openings Millimeters	Tyler Mesh	U.S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67			o—o BEARCUB NO. 1								
.742	18.85											
.525	13.33			x—x BEARCUB NO. 2								
.371	9.423											
.263	6.680	3		●—● BCC NO. 1-4								
.185	4.699	4	4	(BC 88-1)								
.131	3.327	6	6	△—△ HEAD CRUSHED FOR REPORT NO. 4 (JAW CRUSHER ONLY)								
.093	2.362	8	8									
.065	1.651	10	12	□—□ BC88-5 SAMPLE CRUSHED IN JAW AND CONE CRUSHER (B)								
.046	1.168	14	16									
.0328	.833	20	20	+—+ BC88-5 SAMPLE CRUSHED IN JAW CRUSHER ONLY (A)								
.0232	.589	28	30									
.0164	.417	35	40									
.0116	.295	48	50									
.0082	.208	65	70									
.0058	.147	100	100									
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200									
			Totals.									

The Tyler Standard Screen Scale GRAPH NO. 2 Form No. L-5 Please mention above when ordering

Cumulative Logarithmic Diagram of Screen Analysis on Sample of ______ L-5

Name BEARING-GRINDING TESTS Date ______



SCREEN SCALE RATIO 1.414													
Openings Inches	Openings Milli-meters	Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	
1.050	26.67												
.742	18.85												
.525	13.33												
.371	9.423												
.263	6.680	3											
.185	4.699	4	4										
.131	3.327	6	6										
.093	2.362	8	8										
.065	1.651	10	12										
.046	1.168	14	16										
.0328	.833	20	20										
.0232	.589	28	30										
.0164	.417	35	40										
.0116	.295	48	50										
.0082	.208	65	70										
.0058	.147	100	100										
.0041	.104	150	140										
.0029	.074	200	200										
.0029	.074	200	200										
			Totals										

o—o 5 MIN. GRIND USED FOR BCC #1-4 TESTING

△—△ 4 MIN. GRIND USED FOR REPORT NO. 4 TESTING

□—□ 5 MIN. GRIND OF MATERIAL FROM 1988 DRILLING (FOR COMPARISON ONLY)

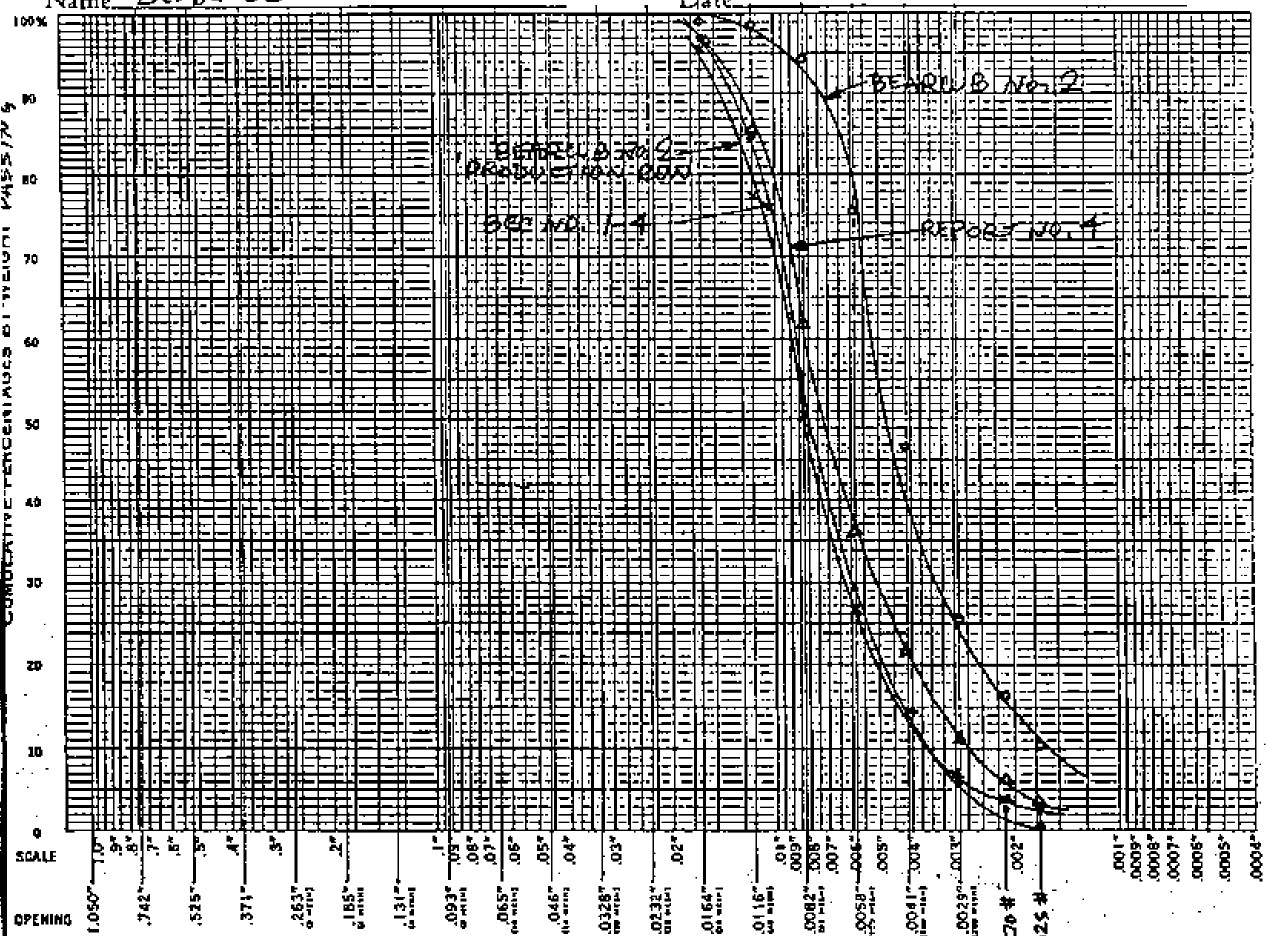
The Tyler Standard Screen Scale

GRAPH NO. 3

Form No. L-5 Please mention above when ordering

Cumulative Logarithmic Diagram of Screen Analysis on Sample of FELDSPAR CONCENTRATES

Name BEARCUB Date



SCREEN SCALE RATIO 1.414

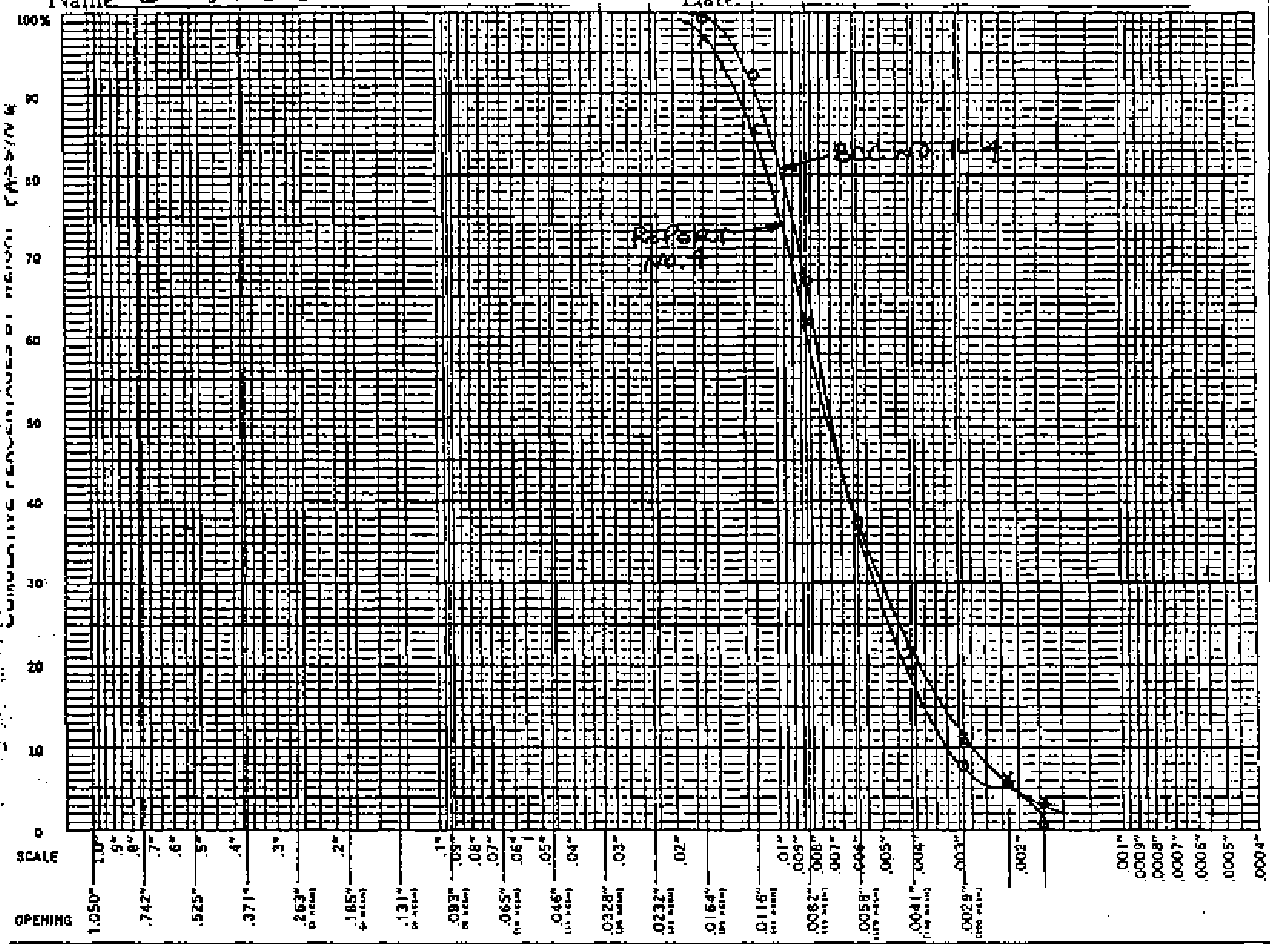
Openings Inches	Openings Millimeters	Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67			o—o BEARCUB NO. 2								
.742	18.85											
.525	13.33			x—x BEARCUB NO. 2 PRODUCTION RUN								
.371	9.423											
.263	6.680	3		•—• BCC NO. 1-4								
.185	4.699	4	4									
.131	3.327	6	6	Δ—Δ REPORT NO. 4								
.093	2.362	8	8									
.065	1.651	10	12									
.046	1.168	14	16									
.0328	.833	20	20									
.0232	.589	28	30									
.0164	.417	35	40									
.0116	.295	48	50									
.0082	.208	65	70									
.0058	.147	100	100									
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200									
			Totals.									

The Tyler Standard Screen Scale

GRAPH NO. 4 — Form No. L-6. Please mention above when ordering. L-5

Cumulative Logarithmic Diagram of Screen Analysis on Sample of QUARTZ CONCENTRATES

Name BEARCUB Date



SCREEN SCALE RATIO 1.414												
Openings: Inches	Openings: Millimeters	Tyler Mesh	U.S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67			o—o	BCC	NO.	1-4					
.742	18.85											
.525	13.33			x—x	REPORT NO. 4							
.371	9.423											
.263	6.680	3										
.185	4.699	4	4									
.131	3.327	6	6									
.093	2.362	8	8									
.065	1.651	10	12									
.046	1.168	14	16									
.0328	.833	20	20									
.0232	.589	28	30									
.0164	.417	35	40									
.0116	.295	48	50									
.0082	.208	65	70									
.0058	.147	100	100									
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200									
			Totals									

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 18	ORE BEARCUB, BC 88-1, 160'-190' — DATE MAR. 22, 1989
OBJECT OF TEST	TESTING THE FLOTATION RESPONSE OF MATERIAL FROM THE BOTTOM OF THE HOLE
GRINDING 4 MIN, CHARGE 11.98 KG	FLOTATION AIR AS REQ'D
976 GR. OF -6 MESH ORE	CELL SIZE 2.3 LIT.
976 ML OF FRESH H_2O	SPEED 1,300 RPM
PRODUCT ___ % - ___ MESH	DENSITY

TEST PROCEDURE: SAME AS IN TEST NO. 10. DESLIMING ON 325 MESH. TWO IRON FLOATS. LESS REAGENTS USED. LONGER SPAR RGH FLOAT.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: BRMAT, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			5 ML	20 ML			2 DP	3 DP		
— " — FLOAT.	3	34.7		1,300								
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP		
— " — FLOAT.	3	32.9		1,300								
— " —	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			10 ML			20 ML	2 DP	3 DP		
— " — FLOAT.	4	28.8		1,300								
— " — CLEANING	2	20.9		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH	16	1.64	8.61	2.37	0.49	27.87	2.80	0.66	60.1		3.10	1.04	0.78	3.12	6.16	14.85	1.31
MICA FROTH	42	4.30	7.13	1.74	0.48	24.86	4.97	0.21	60.6		6.73	2.00	2.01	7.31	28.68	12.39	3.46
IRON FROTH	93	9.53	3.93	3.58	1.05	14.16	2.23	0.12	74.9		8.22	9.12	9.72	9.23	28.52	15.69	9.48
SPAR FROTH	440	45.08	6.27	5.67	1.51	19.45	0.06	0.02	67.0	92.52	62.03	68.28	66.14	59.95	3.63	12.37	40.12
QUARTZ FROTH	183	18.75	0.12	0.11	0.06	0.41	0.02	0.02	99.3		0.49	0.55	1.09	0.53	0.50	5.14	24.73
SPAR CL. TAIL	24	2.46	0.76	0.98	0.32	3.43	0.06	0.06	94.4		0.41	0.64	0.76	0.58	0.20	2.02	3.09
SLIMES	178	18.24	4.75	3.77	1.10	15.46	1.32	0.15	73.5		19.02	18.37	19.50	19.28	32.31	37.54	17.81
CALC. HEAD	976	100.0	4.56	3.74	1.03	14.62	0.75	0.07	75.3		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO

DATE: MARCH 28, 1989 REC'D: MARCH 24, 1989 FILE:BBCTST18.FR

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
+28 MESH	60.1	27.87	2.80	.66	.49	2.37	8.61		
MICA CONC	60.6	24.86	4.97	.21	.48	1.74	7.13		
IRON CONC	74.9	14.16	2.23	.12	1.05	3.58	3.93		
FELDSPAR CONC	67.0	19.45	.06	.02	1.51	5.67	6.27		
QUARTZ CONC	99.3	.41	.02	.02	.06	.11	.12		
FELDSPAR CL TAIL	94.4	3.43	.06	.02	.32	.98	.76		
SLIMES	73.5	15.46	1.32	.15	1.10	3.77	4.75		

Reassays.

D. Perkins'
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 19	ORE BEARCUB, BC 88-1, 160'-190'	DATE MAR. 30, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 18	

GRINDING 3 MIN / CHARGE 11.98 KG	FLOTATION / AIR AS REQ'D	TEST PROCEDURE: FEED SCREENED ON 100 MESH AND ONLY WAS THE GROUND; THE REMAINDER OF PROCEDURE THE SAME.
800 GR. OF +100 MESH ORE	CELL SIZE 2.3 LIT.	
800 ML OF FRESH H_2O	SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH	DENSITY	

STAGE	TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
-"- FLOAT.	3	35.9		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
-"- FLOAT.	3	33.9		1,300								
-"-	5			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	3 DP		
-"- FLOAT.	4	30.5		1,300								
-"- CLEANING	3	21.8		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+28 MESH	28	2.89	6.67	3.38	0.97	20.96	1.18	0.31	66.5		4.36	2.77	2.83	4.32	5.84	10.05	2.52
MICA FROTH	36	3.72	7.00	1.96	0.53	22.26	2.84	0.62	64.8		5.90	2.07	1.99	5.90	18.09	25.87	3.15
IRON -"-	78	8.05	3.66	3.16	0.98	14.59	2.75	0.17	74.7		6.67	7.22	7.96	8.37	37.90	15.35	7.87
SPAR -"-	434	44.79	6.31	5.39	1.45	18.80	0.05	0.02	68.0	90.09	63.99	68.54	65.53	60.02	3.83	10.05	39.88
QUARTZ -"-	198	20.43	0.14	0.22	0.07	0.77	0.02	0.01	98.8		0.65	1.28	1.44	1.12	0.70	2.29	26.43
SPAR CL. TAIL	42	4.33	1.44	2.01	0.55	6.30	0.09	0.02	89.6		1.41	2.47	2.40	1.95	0.67	0.97	5.08
SLIMES	153	15.79	4.76	3.49	1.12	16.28	1.22	0.20	72.9		17.02	19.65	17.85	18.32	32.98	35.42	15.07
CALC. HEAD	969	100.0	4.42	3.52	0.99	14.03	0.58	0.09	76.38		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO

BC 88-1 160' - 190' TEST 19 PEGMATITE

DATE: APRIL 4, 1989 REC'D: MARCH 31, 1989 FILE:BBCTST19.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
+28 MESH	66.5	20.96	1.18	.31	.97	3.38	6.67		
MICA CONC	64.8	22.26	2.84	.62	.53	1.96	7.00		
IRON CONC	74.7	14.59	2.75	.17	.98	3.16	3.66		
FELDSPAR CONC	68.0	18.80	.05	.02	1.45	5.39	6.31		
QUARTZ CONC	98.8	.77	.02	.01	.07	.22	.14		
FELDSPAR CL TAIL	89.6	6.30	.09	.02	.55	2.01	1.44		
SLIMES	72.9	16.28	1.22	.20	1.12	3.49	4.76		

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 20	ORE BEARCUB, BC88-1, 40.7'-70.7'	DATE APR. 7, 1989
OBJECT OF TEST	TESTING THE HOLE NO. BC88-1	

GRINDING 4 MIN	CHARGE 11.98 KG.	FLOTATION AIR AS REQ'D.	TEST PROCEDURE SAME AS IN TEST
1002 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.	NO. 18.
1000 ML OF FRESH H_2O		SPEED 1,300 RPM	
PRODUCT % - MESH		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			5 ML	20 ML			2 DP	3 DP		
— " — FLOAT.	3	36.3		1,300								
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP		
— " — FLOAT.	3	35.0		1,300								
— " —	15			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			16 ML			20 ML	2 DP	3 DP		
— " — FLOAT.	4	31.2		1,300								
— " — CLEANING	3	22.3		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH	17	1.70	8.14	2.19	0.70	26.12	2.34	0.65	59.9	—	3.15	1.08	0.97	2.99	5.26	9.14	1.35	
MICA FROTH	31	3.10	7.70	1.41	0.39	25.87	5.54	1.13	58.0	—	5.43	1.27	0.99	5.40	22.71	28.99	2.39	
IRON — " —	87	8.68	4.50	2.62	0.94	17.51	3.16	0.37	70.9		8.89	6.63	6.66	10.24	36.16	26.58	8.18	
SPAR — " —	465	46.41	6.19	5.55	1.90	19.99	0.09	0.01	68.3	92.96	65.36	75.04	71.97	62.50	5.52	3.84	40.89	
QUARTZ — " —	205	20.46	0.12	0.16	0.07	0.77	0.03	0.009	98.9		0.56	0.95	1.17	1.06	0.81	1.52	26.89	
SPAR CL. TAIL	48	4.79	0.68	0.96	0.29	3.36	0.07	0.01	94.6		0.74	1.34	1.13	1.09	0.44	0.40	6.02	
SLIMES	149	14.87	4.69	3.16	1.41	16.69	1.48	0.24	72.3		15.87	13.69	17.11	16.72	29.10	29.53	14.28	
CALC. HEAD	1002	100	4.39	3.43	1.23	14.84	0.76	0.12	75.3		100	100	100	100	100	100	100	
ASSAYED HEAD			4.75	3.27	1.15	14.67	0.60	0.13	75.4									

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BR[illegible]

DATE: APRIL 11, 1989 REC'D: APRIL 10, 1989 FILE:BCTST[illegible]

BC89-1 SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
+28 MESH	59.9	26.12	2.04	.62	.70	2.19	8.14		
MICA CONC	58.0	25.87	5.54	1.13	.29	1.41	7.78		
IRON CONC	70.9	17.51	3.15	.37	.94	2.62	4.50		
FELDSPAR CONC	66.3	19.99	.09	.01	1.90	5.55	6.19		
QUARTZ CONC	98.9	.77	.03	<.01	.07	.16	.12		
FELDSPAR CL TAIL	94.6	3.36	.07	.01	.29	.96	.68		
SLIME	72.3	16.69	1.48	.24	1.41	3.16	4.69		

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 21.	ORE BEARCUB, BC88-1, 70.7'-100.7'	DATE MAY 25, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 20	

GRINDING 4 MIN CHARGE 11.98 KG	FLOTATION AIR AS REQD	TEST PROCEDURE SAME AS IN TEST NO. 18
1000 GR. OF -6 MESH ORE	CELL SIZE 2.2 LIT.	
1000 ML OF FRESH H_2O	SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH	DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC
MICA CONDIT.	3	~60			5 ML	20 ML			2 DP	3 DP
— " — FLOAT.	3	36.1		1,300						
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP
— " — FLOAT.	3	32.7		1,300						
— " —	5			1,300			10 ML			3 DP
SPAR CONDIT.	3	~60			15 ML			20 ML	2 DP	3 DP
— " — FLOAT.	4	31.0		1,300						
— " — CLEANING	3	21.5		1,300				5 ML		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+28 MESH	22.1	2.21	8.58	2.21	0.52	25.16	2.20	0.59	60.7		3.51	1.62	1.35	4.01	6.22	4.96	1.77
MICA FROTH	77.0	7.70	6.33	2.49	0.66	16.64	2.05	0.42	71.4		9.02	6.35	5.96	9.25	20.21	24.70	7.24
IRON — " —	40.0	4.00	5.20	2.02	0.67	16.84	4.87	0.54	69.9		3.85	2.68	3.14	4.86	24.94	16.50	3.68
SPAR — " —	447.6	44.76	7.88	4.69	1.28	18.67	0.28	0.06	67.1	92.60	65.26	69.57	67.19	60.31	16.04	20.51	39.55
QUARTZ — " —	218.0	21.80	0.18	0.17	0.04	0.97	0.05	0.01	98.6		0.73	1.23	1.02	1.53	1.40	1.66	28.30
SPAR CL. TAIL	47.3	4.73	2.78	2.67	0.75	9.85	0.30	0.05	83.6		2.43	4.18	4.16	3.36	1.82	1.80	5.21
SLIMES	148.0	14.80	5.55	2.93	0.99	15.62	1.55	0.22	73.1		15.20	14.37	17.15	16.68	29.37	24.87	14.25
CALC. HEAD	1000.0	100.00	5.40	3.02	0.85	13.86	0.78	0.13	75.94		100	100	100	100	100	100	100

REMARKS

THE TEST WILL BE REPEATED; PULP LEVEL WAS TOO HIGH AT THE START OF MICA FLOAT AND TOO MUCH OF SPAR WAS PULLED INTO MICA FROTH.

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: June 7, 1989 REC'D: May 30, 1989 FILE:BEARTS21.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
+28 Mesh	60.7	25.16	2.20	.59	.52	2.21	8.58
Mica Conc	71.4	16.64	2.05	.42	.66	2.49	6.33
Iron Conc	69.9	16.84	4.87	.54	.67	2.02	5.20
Feldspar Conc	67.1	18.67	.28	.06	1.28	4.69	7.88
Quartz Conc	98.6	.97	.05	.01	.04	.17	.18
Feldspar Cl Tail	83.6	9.85	.30	.05	.75	2.67	2.78
Slime	73.1	15.62	1.55	.22	.99	2.93	5.55
Check #21	66.5	19.03	.31	.07	1.38	4.74	7.94
Feldspar Conc	67.1	18.67	.28	.06	1.28	4.69	7.88

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 22	ORE BEARCUB, BC88-1, 70.7'-100.7'	DATE MAY 27, 1989
OBJECT OF TEST	REPEATED TEST NO. 21	

GRINDING 4 MIN, CHARGE 11.98 KG	FLOTATION, AIR AS REQD.	TEST PROCEDURE: SAME AS IN TEST NO.
1001 GR. OF -6 MESH ORE	CELL SIZE 2.3 LIT.	
1000 ML OF FRESH H_2O	SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH	DENSITY	

STAGE	TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KERO-SENE	MIBC		
MICA CONDIT.	3	~60			5 ML	20 ML			2 DP	3 DP		
— " — FLOAT	3	36.0		1,300								
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP		
— " — FLOAT.	3	31.2		1,300								
— " —	5			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			15 ML			20 ML	2 DP	3 DP		
— " — FLOAT	4	30.6		1,300								
— " — CLEANING	3	21.6		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELD-SPAR	DISTRIBUTION, % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH	23.3	2.33	8.59	2.32	0.60	25.99	2.26	0.61	59.6		3.62	1.76	1.62	4.28	6.52	10.31	1.84
MICA FROTH	43.0	4.30	8.01	1.19	0.32	25.58	5.96	1.15	57.8		6.24	1.66	1.59	7.77	31.76	35.86	3.30
IRON — " —	82.0	8.19	4.88	2.62	0.75	14.56	2.02	0.24	74.9		7.24	6.97	7.11	8.43	20.50	14.25	8.13
SPAR — " —	450.6	45.01	8.04	4.90	1.30	18.81	0.15	0.03	66.8	95.42	65.53	71.65	67.73	59.82	8.37	9.79	39.85
QUARTZ — " —	208.0	20.78	0.16	0.15	0.04	0.80	0.03	0.01	98.8		0.60	1.01	0.96	1.17	0.77	1.51	27.21
SPAR CL. TAIL	45.1	4.51	2.00	2.07	0.59	7.23	0.23	0.04	87.8		1.63	3.03	3.08	2.30	1.29	1.31	5.25
SLIMES	149.0	14.88	5.62	2.88	1.04	15.44	1.67	0.25	73.1		15.14	13.92	17.91	16.23	30.79	26.97	14.42
CALC. HEAD	1001.0	100.00	5.52	3.08	0.86	14.15	0.81	0.14	75.44		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: June 7, 1989 REC'D: May 30, 1989 FILE:BEARTS22.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
+28 Mesh	59.6	25.99	2.26	.61	.60	2.32	8.59
Mica Conc	57.8	25.58	5.96	1.15	.32	1.19	8.01
Iron Conc	74.9	14.56	2.02	.24	.75	2.62	4.88
Feldspar Conc	66.8	18.81	.15	.03	1.30	4.90	8.04
Quartz Conc	98.8	.80	.03	.01	.04	.15	.16
Feldspar Cl Tail	87.8	7.23	.23	.04	.59	2.07	2.00
Slime	73.1	15.44	1.67	.25	1.04	2.88	5.62
VALUE STD 99-4	65.2 65.9	20.5 20.54	.06 .06	.02 .01	2.14 2.03	6.2 6.16	5.2 5.27

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 23	ORE BEARCUB, BC 88-1, 100.7'-130.7'		DATE MAY 27, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 20		
GRINDING 4 MIN. CHARGE 11.98 KG 987 GR. OF -6 MESH ORE 1000 ML OF FRESH H_2O PRODUCT ___ %- ___ MESH	FLOTATION AIR AS REQD. CELL SIZE 2.3 LT. SPEED 1,300 RPM DENSITY	TEST PROCEDURE	SAME AS IN TEST NO. 18

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC
MICA CONDIT.	3	~.60			5 ML	20 ML			2 DP.	3 DP
— " — FLOAT.	3	34.9		1,300						
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP
— " — FLOAT.	3	32.7		1,300						
— " —	5			1,300			10 ML			3 DP
SPAR CONDIT.	3	~60			1.5 ML			20 ML	2 DP	3 DP
— " — FLOAT.	4	28.0		1,300						
— " — CLEANING	3	19.7		1,300				5 ML		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH	26.0	2.63	8.23	1.94	0.59	26.05	5.81	1.19	56.2		4.38	1.65	1.52	4.86	11.25	12.98	1.96
MICA FROTH	50.0	5.07	7.39	1.43	0.42	22.01	8.39	1.64	58.7		7.58	2.35	2.08	7.92	31.30	34.47	3.95
IRON — " —	109.0	11.04	4.96	2.38	0.80	16.44	3.68	0.58	71.2		11.07	8.50	8.65	12.88	29.90	26.55	10.45
SPAR — " —	396.0	40.12	7.08	5.22	1.63	18.78	0.14	0.03	67.1	94.09	57.43	67.73	64.05	53.47	4.13	4.99	35.78
QUARTZ — " —	191.0	19.35	0.11	0.09	0.09	0.56	0.04	0.01	99.1		0.43	0.56	1.71	0.77	0.57	0.80	25.48
SPAR CL. TAIL	57.0	5.78	1.81	2.05	0.70	7.44	0.22	0.04	87.7		2.12	3.83	3.96	3.05	0.94	0.96	6.74
SLIMES	158.0	16.01	5.25	2.97	1.15	15.01	1.86	0.29	73.5		16.99	15.38	18.03	17.05	21.91	19.25	15.64
CALC. HEAD	987.0	100.00	4.95	3.09	1.02	14.09	1.36	0.24	75.25		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: June 2, 1989 REC'D: May 30, 1989 FILE:BEARTS23.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
+28 Mesh	56.2	26.05	5.81	1.19	.59	1.94	8.23		
Mica Conc	58.7	22.01	8.39	1.64	.42	1.43	7.39		
Iron Conc	71.2	16.44	3.68	.58	.80	2.38	4.96		
Feldspar Conc	67.1	18.78	.14	.03	1.63	5.22	7.08		
Quartz Conc	99.1	.56	.04	.01	.09	.09	.11		
Feldspar Cl Tail	87.7	7.44	.22	.04	.70	2.05	1.81		
Slime	73.5	15.01	1.86	.29	1.15	2.97	5.25		
Slimes Check 22	73.0	15.51	1.87	.29	1.17	2.97 2.94	5.18		
Value Control Std	67.1 67.5	19.17 19.20	.05 .05	.02 .02	1.52 1.53	5.56 5.72	6.12 6.34		

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 24	ORE BEARCUB, BC88-1, 100.7'-130.7'		DATE MAY 29, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 20		
GRINDING 4 MIN CHARGE 11.98 KG	FLOTATION AIR AS REQD.	TEST PROCEDURE	SAME AS IN TEST
971 GR. OF -6 MESH ORE	CELL SIZE 2.3 LT.	NO. 18	
1000 ML OF FRESH H_2O	SPEED 1,300 RPM		
PRODUCT ___ % - ___ MESH	DENSITY		

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP
— " — FLOAT.	4	34.7		1,300						
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP
— " — FLOAT.	3	31.8		1,300						
— " —	5			1,300			10 ML			3 DP
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	3 DP
— " — FLOAT.	4	28.5		1,300						
— " — CLEANING	3	19.1		1,300				5 ML		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
28 MESH	15.9	1.64	8.20	1.87	0.57	26.59	5.73	1.14	55.9		2.47	1.01	0.94	3.21	7.78	7.91	1.21
MICA FROTH	66.0	6.80	7.37	1.42	0.41	21.91	8.41	1.54	58.9		9.21	3.18	2.81	10.97	47.38	44.32	5.26
IRON — " —	75.0	7.72	4.41	2.32	0.75	15.14	1.94	0.50	74.9		6.25	5.89	5.82	8.61	12.41	16.33	7.60
SPAR — " —	400.0	41.20	7.00	5.20	1.63	18.26	0.18	0.05	67.7	93.45	52.99	70.50	67.52	55.42	6.14	8.72	36.63
QUARTZ — " —	216.0	22.25	0.17	0.18	0.03	0.59	0.06	0.02	98.9		0.69	1.32	0.67	0.97	1.11	1.88	28.90
SPAR CL. TAIL	40.0	4.12	5.08	2.02	0.63	7.27	0.27	0.05	88.0		3.85	2.74	2.61	2.21	0.92	0.87	4.76
SLIMES	158.0	16.27	8.21	2.87	1.20	15.53	1.80	0.29	73.2		24.54	15.36	19.63	18.61	24.26	19.97	15.64
CALC. HEAD	970.9	100.00	5.44	3.04	0.99	13.58	1.21	0.24	76.14		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: JUNE 7, 1989 REC'D: MAY 31, 1989 FILE:BEARTS24.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
+28 MESH	55.9	26.59	5.73	1.14	.57	1.87	8.20		
MICA CONC	58.9	21.91	8.41	1.54	.41	1.42	7.37		
IRON CONC	74.9	15.14	1.94	.50	.75	2.32	4.41		
FELDSPAR CONC	67.7	18.26	.18	.05	1.63	5.20	7.00		
QUARTZ CONC	98.9	.59	.06	.02	.03	.18	.17		
FELDSPAR CL TAIL	88.0	7.27	.27	.05	.63	2.03	5.08		
SLIMES	73.2	15.53	1.80	.29	1.20	2.87	8.21		
CHECK #23	55.3	27.00	5.76	1.16	.58	1.97	8.21		

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — ORENDA MINES LTD.

TEST NO. 25 | ORE BEARCUB, BC88-1, 130.7'-160.7' | DATE MAY 30, 1989

OBJECT OF TEST: SAME AS IN TEST NO. 20

GRINDING 4 MIN CHARGE 11.98 KG — 986 GR. OF -6 MESH ORE — 1000 ML OF FRESH H_2O — PRODUCT ___ % - ___ MESH

FLOTATION AIR ASPIRAD. CELL SIZE 2.3 LIT. SPEED 1,300 RPM DENSITY

TEST PROCEDURE SAME AS IN TEST NO. 18

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP
— " — FLOAT	4	35.3		1,300						
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP
— " — FLOAT.	3	32.8		1,300						
— " —	5			1,300			10 ML			
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	3 DP
— " — FLOAT.	4	30.1		1,300						3 DP
— " — CLEANING	3	20.6		1,300				5 ML		

PRODUCT	WEIGHT GR.	%	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH	18.7	1.90	7.57	2.44	0.70	23.48	2.15	0.59	63.1		3.43	1.33	1.19	3.20	4.45	8.21	1.57
MICA FROTH	58.9	5.98	6.97	2.11	0.61	24.09	4.88	0.82	61.3		9.92	3.63	3.27	10.34	31.77	35.93	4.81
IRON — " —	61.0	6.19	3.73	2.52	0.86	16.15	3.88	0.33	72.5		5.50	4.48	4.77	7.17	26.15	14.97	5.89
SPAR — " —	433.0	43.93	6.00	5.76	1.79	18.64	0.14	0.04	67.6	93.07	62.73	72.75	70.49	58.77	6.69	12.88	33.95
QUARTZ — " —	220.0	22.32	0.18	0.23	0.07	0.77	0.03	0.01	98.7		0.95	1.48	1.40	1.23	0.73	1.64	28.90
SPAR CL. TAIL	40.0	4.06	1.50	2.02	0.61	6.56	0.18	0.04	89.1		1.45	2.36	2.22	1.91	0.79	1.19	4.74
SLIMES	154.0	15.62	4.31	3.11	1.19	15.50	1.73	0.22	73.9		16.02	13.97	16.66	17.38	29.42	25.18	15.19
CALC. HEAD	985.6	100.00	4.20	3.48	1.12	13.93	0.92	0.14	76.24		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BC88-1 (130.7' to 160.7') TEST 25

DATE: JUNE 2, 1989 REC'D: MAY 31, 1989 FILE:BEARTS25.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
+28 MESH	63.1	23.48	2.15	.59	.70	2.44	7.57
MICA CONC	61.3	24.09	4.88	.82	.61	2.11	6.97
IRON CONC	72.5	16.15	3.88	.33	.86	2.52	3.73
FELDSPAR CONC	67.6	18.64	.14	.04	1.79	5.76	6.00
QUARTZ CONC	98.7	.77	.03	.01	.07	.23	.18
FELDSPAR CL TAIL	89.1	6.56	.18	.04	.61	2.02	1.50
SLIMES	73.9	15.50	1.73	.22	1.19	3.11	4.31
CONTROL STD.	67.5 67.1	19.20 18.90	.05 .05	.02 .01	1.52 1.55	5.72 5.79	6.42 6.42
FELDSPAR CONC CHECK #24	67.6 67.9	18.64 18.33	.14 .14	.04 .03	1.79 1.79	5.76 5.79	6.00 6.07

D. Perkins

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 26	ORE BEARCUB, BC88-1, 100.7'-130.7'		DATE JUNE 2, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 20		

GRINDING 4 MIN	CHARGE 11.98 KG	FLOTATION AIR AS REQD.	TEST PROCEDURE SAMPLE DESLIMED BEFORE GRINDING ON 325 MESH, THEN PROCEEDED AS PER TEST NO. 18, TWO MICA FLOATS WERE TRIED ALSO.
~900 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.	
~900 ML OF FRESH H_2O		SPEED 1,300 LIT.	
PRODUCT ___ % - ___ MESH		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3+3	~60			10+5 ML	20+10 ML			2+2 DP	3+3 DP		
-"- FLOAT.	3+3	34.8		1,300								
IRON CONDIT.	5+1	~60				10 ML	20 ML			3 DP		
-"- FLOAT.	3	30.6		1,300								
-"-	5			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	3 DP		
-"- FLOAT.	4	27.7		1,300								
-"- CLEANING	3	19.3		1,300				5 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH	14.7	1.50	8.48	1.64	0.47	26.11	6.47	1.28	55.6		2.70	0.80	0.69	2.88	7.79	8.65	1.10
MICA FROTH	98.0	9.98	6.56	1.98	0.61	19.32	6.42	1.13	63.9		14.00	6.40	5.93	14.17	51.43	50.83	8.38
IRON -"-	67.0	6.82	4.19	2.60	0.83	14.28	2.02	0.27	75.8		6.02	5.74	5.52	7.16	11.06	8.30	6.80
SPAR -"-	409.0	41.66	6.61	5.15	1.64	18.00	0.21	0.05	68.3	90.77	58.01	69.46	66.57	55.13	7.02	9.39	37.40
QUARTZ -"-	191.0	19.46	0.12	0.13	0.04	0.50	0.03	0.02	99.2		0.49	0.82	0.76	0.72	0.47	1.75	25.38
SPAR CL. TAIL	36.0	3.67	0.34	0.35	0.12	1.34	0.08	0.03	97.7		0.26	0.41	0.43	0.36	0.24	0.50	1.71
SLIMES	166.0	16.91	5.20	2.99	1.22	15.75	1.62	0.27	73.0		18.52	16.37	20.10	19.58	21.99	20.58	16.23
CALC HEAD	981.7	100.00	4.75	3.09	1.03	13.60	1.25	0.22	76.07		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BC88-1 (100' to 130') TEST 26

DATE: JUNE 7, 1989   REC'D: MAY 31, 1989   FILE:BEARTS26.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
+28 MESH	55.6	26.11	6.47	1.28	.47	1.64	9.48
MICA CONC	63.9	19.32	6.42	1.13	.61	1.98	6.66
IRON CONC	75.8	14.28	2.02	.27	.83	2.60	4.19
FELDSPAR CONC	68.3	18.00	.21	.05	1.64	5.15	6.61
QUARTZ CONC	99.2	.50	.03	.02	.04	.13	.12
FELDSPAR CL TAIL	97.7	1.34	.08	.03	.12	.35	.34
SLIMES	73.0	15.75	1.62	.27	1.22	2.99	5.20
CONTROL STD.	67.5 67.2	19.20 19.00	.05 .04	.02 .02	1.52 1.54	5.72 5.73	6.42 6.45
FELDSPAR CONC CHECK #24	68.3 68.4	18.00 18.02	.21 .20	.05 .06	1.64 1.62	5.15 5.12	6.61 6.55

[signature]

D. Perkins
Chief Chemist

DP:cs

APPENDIX 8
RPT. MAR. 2, 1989

Brenda Mines Ltd.
Peachland, B.C.

BEARCUB METALLURGICAL TESTING
Progress Report No. 4

Branko Nikodijevic

Distribution

Mr. Ross Weeks BDG
Mr. Ron Bradburn BDG
Mr. James Austin BDG

March 2, 1989

BEARCUB METALLURGICAL TESTING
Progress Report No. 4

I. INTRODUCTION

This report covers the treatment of eight samples representing the Northern and Eastern portion of the Bearcub deposit, obtained in the 1988 drilling campaign. The samples consist of composited top 30 ft. of diamond drilled core from eight holes.

II. SUMMARY AND CONCLUSIONS

A. Exploratory drilling of the Bearcub pegmatite deposit to a depth of 200 ft. was carried out during November-December 1988, resulting in 3000 ft. of core available for testing.

B. It was decided at the October 21, 1988 meeting that the initial metallurgical bench scale testwork would involve testing of the top 30 ft. of the deposit.

C. Shelly Logan-Gordanier split the top 30 ft. of the drill core and supplied Brenda Metallurgical Lab with one-half of the core on January 6, 1989.

D. Since the area drilled contains about 24% biotite gneiss, which can be termed as a "waste", the different ratios of pegmatite and gneiss were tested first. The results were reported in Progress Report No. 3, with the conclusion that the maximum tolerable amount of gneiss in the plant feed would be at 20-30%.

E. Ross Weeks in his memo of January 30, 1989 recommended that eight drill holes covering the Northern and Eastern portion of the area drilled and containing $\geq$75% pegmatite should be tested first.

F. Preparation of samples and flotation testwork was performed in the period of January 31 - February 23, 1989.

G. Comparing the head assays of the top 30 ft. of the holes containing pegmatite only with the surface samples of composites BCC #1-4 tested and reported in Progress Report No. 2, it can be seen that the deeper material contains somewhat more silica and loss on ignition, but less alumina, Fe-Mg, and Na-feldspar than the samples obtained from the surface outcrops.

H. The distribution and ratios of feldspar minerals in different drill holes varies, and careful blending and tight control of the plant feed will be necessary to ensure consistent products.

I. For flotation testing, the best "recipe" arrived at in all previous testing was used with small changes in the cleaning stages and of reagent addition rates. One flotation test was performed on each 30 ft. composited sample recommended for testing. Repeated tests were done on two samples, successfully lowering the iron content of feldspar concentrate in the latter tests.

J. Duplicate testing should be done on the top 30 ft. samples to ensure repeatability before proceeding with testing of the deeper samples.

K. Although the iron oxide content was not too high in pegmatite samples, several of them were substantially yellow stained which negatively affected the feldspar recovery in particular. "Iron" froth product, which is a waste, contained large amounts of stained feldspar and some stained quartz. Weight of recovered feldspar concentrate was 13.7% lower than in previous testing.

L. Feldspar concentrate compares favourably with the products of other active producers and it satisfies the industry specifications for alumina content, total alkali, and almost matches at 0.06% Fe_2O_3 the stringent requirement of 0.05% Fe_2O_3 for electrical porcelain. Chemical analysis of the concentrate produced form pegmatite holes is as follows:

%							
K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	Feldspar
6.66	5.64	1.44	18.83	0.06	0.022	67.4	94.14

M. Quartz concentrate more than satisfies the chemical specifications of glass plant feedstock producing colourless containers. On the other hand, to match the very strict requirements of our potential customer, "Consumer Glass" plant in Lavington, we have to lower alumina and alkali content of our concentrate. Chemical analysis of quartz concentrate was the following:

%						
SiO_2	Fe_2O_3	Al_2O_3	K_2O	Na_2O	CaO	MgO
99.21	0.028	0.432	0.134	0.141	0.057	0.016

N. The least attention has been paid so far to the mica concentrate as a potential saleable product. We can obtain two mica products: plus 28 mesh grinding oversize which is quite clean, white muscovite material amounting to 2-2.5

wt., and a flotation concentrate of 7.5-8% wt. that contains some feldspar and quartz and also iron/heavy minerals activated by weathering. Both products have to be degritted to offer a higher quality product. If and when the marketing study becomes available, additional work can be done to satisfy the market specifications of the product (size required, dry or wet grinding, etc.).

O. Further laboratory testwork would include the following activities:

a. Additional testing of the top 30 ft. samples to ensure repeatability.

b. Desliming on 325-400 mesh in order to increase the feldspar and quartz recoveries.

c. Comparison of different frothers.

d. Testing of different dosages of reagents.

e. Trying HCl leaching of products with higher iron content (already initiated).

f. Sending feldspar and quartz concentrate for magnetic separation-cleaning.

g. Performing cycle testing and even trying to recirculate water.

h. Screening of feldspar and quartz concentrates.

i. Testing of samples from deeper parts of the deposit.

III. SUMMARY OF TESTWORK

A. Sample Identification

As it was already mentioned in Progress Report No.3 summarizing the biotite gneiss testing, Shelly split the top 30 ft. of drilled core and supplied Brenda Metallurgical lab with one-half of it. The log of the top 30 ft. of all 15 holes can be seen in Table No. 1. Ross Weeks in his memo to J.W. Austin and R.G. Bradburn dated January 30, 1989 recommended that the composited top 30 ft. of the following holes should be tested first: nos. 1, 2, 6, 7, 11, 12, 13 and 14. The above 8 holes represent the Northern and Eastern portion of the drilled area of the Bearcub deposit. The material in the area for testing contains at least 75% pegmatite. Preliminary biotite gneiss testing indicated that the maximum tolerable amount of gneiss in the plant feed would be 20-30%.

B. Sample Preparation and Description

The samples from the drill hole suggested for testing were crushed in a jaw crusher first to -3/4 inch, and then in a cone crusher to -6 mesh. Ten feet increments were riffled down to about 60 gr samples for head analysis. Also, two 1 kg lots were taken from each 10 ft. increment for a possible future testing. Thirty feet composites for each hole were combined according to a wt. % of material in each ten feet increment of that hole. Composited samples were riffled down to three 1 kg lots for grinding and flotation tests.

C. Head Analysis

The samples for head analysis of each 10 ft. of core were sent for assaying together with the flotation products as the testing proceeded. Head assays reported in Progress Report No. 3 and those obtained during current testwork are listed in Table No.2. Average head assays for the holes containing pegmatite only were:

%							
SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
75.52	14.53	0.651	0.121	0.97	3.59	4.59	0.58

K-spar	Na-spar	Ca-spar	Total feldspar
27	30	5	62

When the hole no. 14, that contains (top 30 ft.) 35.6% of pegmatite only, is included the average head assays are:

%							
SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
75.13	14.54	1.006	0.257	1.23	3.41	4.40	0.81

K-spar	Na-spar	Ca-spar	Total feldspar
26	29	6	61

D. Size Analysis

No further grinding tests were performed. In the first test of the series, five minutes grind was done. To avoid overgrinding and creation of fines, four minutes grind was applied in all other tests. Grinding is being done in a lab rod mill using coarse charge of 11.98 kg.

E. Flotation Testwork

Detailed test report sheets are attached. Basically the same flowsheet was used in all tests, found to be the best "recipe" in all previous testing: 4 min. grind, screening coarse mica on 28 mesh, desliming minus 270 mesh material (minus 325 mesh material in the last test), scrubbing at high density for 10 min., desliming again of minus 270 mesh material, mica conditioning at high density for 3 min., mica flotation for 3 min., iron conditioning at high density for 5 min., one or two iron flotation stages of 3 and 4 min. duration, feldspar conditioning at high density for 3 min. feldspar rougher flotation for 2.5 or 3 min. having quartz concentrate as a tail product and cleaning for 2 min. of feldspar rougher concentrate from the entrained quartz. One flotation test was performed on each 30 ft. composited sample of the holes recommended by Ross Weeks. The exception was in the case of drill holes 88-1 and 88-7 for which feldspar concentrates were obtained with slightly higher iron content of 0.105% Fe2O3. Before proceeding with testing of deeper samples at least one more flotation test should be performed on the top 30 ft. sample from each hole to ensure repeatability of results. As well, desliming can be done at a finer size in order to increase feldspar and quartz recovery. Chemical analysis of feldspar concentrates is shown in Table No. 4, the mineralogy of feldspar concentrates in Table No. 5 and chemical analysis of quartz concentrate in Table No. 6.

IV. RESULTS AND DISCUSSION

All the previous studies involved metallurgical testing of the samples from Bearcub deposit taken from surface outcrops. After the drilling of 3000 ft. of Bearcub deposit was done we now have representative samples to a depth of 200 ft. We are in a position to do the extensive bench scale testing which is probably the most important step in the long series of metallurgical-economic studies involved in bringing the Bearcub into production. It is interesting to compare the head assays obtained during 1988 drilling campaign (top 30 ft.) and the average head assay of composites BCC #1-4 made from fort Bearcub samples taken from surface outcrops and reported in Progress Report No. 2:

	%							
	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
BCC #1-4	74.6	14.96	0.68	0.16	1.23	4.14	4.49	0.41
	K-spar	Na-spar	Ca-spar	Total feldspar				
	27	35	6	68				

	%							
	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	LOI
1988 drilling with hole #14	75.1	14.54	1.006	0.26	1.23	3.41	4.40	0.81
	K-spar	Na-spar	Ca-spar	Total feldspar				
	26	29	6	61				

	%							
1988	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	LOI
drilling	75.5	14.53	0.65	0.12	0.97	3.59	4.59	0.58
pegmatite								
only	K-spar	Na-spar	Ca-spar	Total feldspar				
	27	30	5	62				

As it can be seen, the holes with pegmatite only to a depth of 30 ft. contain somewhat more silica and a loss on ignition, but less alumina, Fe-Mg and Na-feldspar than the surface samples.

Based on chemical analysis of samples treated so far, the calculated percentage of feldspar minerals is shown in Table No. 3. The calculation is done using the stoichiometric formula:

$$\text{Total feldspar, \%} = \left\{ \frac{K_2O}{16.92} + \frac{Na_2O}{11.82} + \frac{CaO}{20.16} \right\} \times 100$$

It can be argued that the formula is "good" when applied to a feldspar product, but not in the case of heads due to the presence of mica-minerals for example. Since all the authors use the mentioned formula for the heads as well, including our own former consultant E.H. Bentzen III, the head mineralogy calculation is attempted for an illustration mainly.

To stray into Shelly's field, when observing the various distribution and ratios of feldspar minerals in different holes, it appears that the deposit is a zoned type pegmatite. Therefore, a careful blending and tight control of the plant feed will be necessary to ensure consistent products.

Although overall iron oxide content was not too high in pegmatite samples, several of them were substantially yellow stained which negatively effected the feldspar recovery. The distribution of iron oxide in the top 30 ft. was the following (pegmatite samples only):

% Fe_2O_3	
upper 10 ft.	0.596
middle 10 ft.	0.654
lower 10 ft.	0.733

Visual examination of mica froth and particularly of iron froth showed large amounts of stained feldspar and some stained quartz. The following table compares the weight of products obtained during this testing with the results when testing BCC #1-4 samples:

	weight, %						
	+28 #	Mica froth	Iron froth	Feldspar conc.	Quartz conc.	Spar C. tail	Slimes
BCC#1-4	2	8	6	51	18	2	13
1988	2.5	7.5	15.7	37.3	17.5	3.7	15.8

The weight of feldspar concentrate was lower by 13.7% during current testing. Most of the feldspar lost was to iron froth (9.7%), and also the slimes losses were higher than before by 2.8%. About 1.7% more feldspar was lost to feldspar cleaner tail as well than in previous testing. Higher slimes losses are peculiar. BCC1 #1-4 testing ("production run") used 5 min. grinding and desliming at 270 mesh; desliming on 200, 270, and 325 mesh has been tested prior to that. Current testing of drill holes nos. 1, 2, 6, 7, 11, 12, 13 and 14 was done with 4 min. grinding (except in the test no. 8) and desliming on 270 mesh was used (except the test no. 17), and yet 2.8% more slimes were generated. Grinding charge in current testing is 11.98 kg and a charge of 12.843 kg was used in previous testing. The only explanation might be that the mineral grains are somewhat smaller or softer at depth, assuming that the length and intensity of desliming was about equal.

Future testing will be done with desliming on 325-400 mesh in trying to increase feldspar recovery and limit the slimes loss to about 10% if possible. The recovery of quartz is almost the same as the one obtained in previous testing.

Being anxious to provide as clean a feldspar and a quartz product as possible (particularly after seeing iron oxide content of 0.105% in the first test), I have to admit that possibly a bit more of a froth was taken off than necessary during the mica and iron flotation steps.

In the last two tests of the series as little froth as possible was removed during the two mentioned flotation steps, resulting in 4-5% higher weight of feldspar concentrate. At the same time, the %Fe_2O_3 in feldspar concentrate increased from 0.058% to 0.065%. The best balance between the grade and recovery has to be worked out in future testing.

Table No. 7 shows the average feldspar concentrate obtained during current testwork, and also for comparison the average BCC #1-4 feldspar concentrate, industry specs and the products from several producers.

Although concentrate produced during this testing contains slightly higher iron oxide and lower alumina oxide than the BCC #1-4 concentrate, it compares favourably with the products of other producers. It satisfies the industry specifications for alumina content, total alkalies and almost matches at 0.06% Fe_2O_3 the stringent requirement of 0.05% Fe_2O_3 for electrical porcelain.

Table No. 8 shows the average quartz concentrate obtained during current testwork, and also the average BCC #1-4 quartz concentrate, glass industry specs, "Consumer Glass" from Lavington specs and the products from several producers.

Quartz concentrate from the current testing was somewhat more "impure" than the BCC #1-4 concentrate, containing less silica but more contaminants: alumina, alkalies and iron. This points out that feldspar-quartz separation has to be improved.
Visually inspecting the quartz concentrate, very few specs of mica were found, so alumina and alkalies have to be attributed to entrained feldspar grains.

Quartz concentrate more than satisfies the chemical specifications of a glass plant feedstock producing colourless containers. In some glass plants an Al_2O_3 content up to 5% does not cause problems, while in others it has to be less than 1%.

When checking specs of our potential customer "Consumer Glass", which by the way are very strict, it can be seen that we have to lower alumina and alkalies content to provide a satisfactory product. More detailed chemical analysis has to be done (including: TiO_2, ZnO_2, Cr_2O_3, heavy minerals) to ensure that our quartz concentrate satisfies all requirements of "Consumer Glass".

The sizing of quartz concentrate is normally negotiated with the glass-making company. Our BBC #1-4 quartz concentrate was somewhat finer (with the 5 min. grind during testing) than the "Consumer Glass" required size analysis. Since in this testing a 4 min. grind was adopted, our quartz concentrate is certainly coarser than before. Size analysis will be checked in the near future.

Two extreme cases were included in Table No. 8 as an example only. The first is a very high purity "silica flour" from Tasmania required in special applications like lead crystal, optical systems, scientific glassware, etc. The other is low grade silica sand from Greece.

The least attention has been paid so far to the mica concentrate which is a potential saleable product that could help offset the cost of the operation. Hal McVey in his 1988 report on mica markets states that the consumption of mica in the eleven Western United States is in the range of 60000 tons per year with only one small producer in Texas. The major source for the eleven Western U.S. is North Carolina and Quebec.

As mentioned in Progress Report No. 3, biotite gneiss contains biotite mica mainly, while Muscovite mica predominates in the pegmatite. It is understood in the industry that a term "mica" means Muscovite mica. Phlogopite mica (brown mica containing Mg) from Quebec is a saleable product also. Biotite mica is a "bad" guy.

Plus 28 mesh mica from grinding oversize is quite clean, white material and amounts to 2-2.5% wt. The quality of this product can be evaluated by the Vanning technique, separating the mica from the sand.

Mica flotation concentrate weighted 7.5-8% of the feed. It contains some feldspar and quartz and also iron and heavy minerals activated by weathering. As reported in Progress Report No. 2, very preliminary flotation cleaning of mica froth product was attempted without success. More trials are necessary to reduce the grit content of mica froth by flotation cleaning and offer a higher quality product. As well, wet screening of mica flotation concentrate on 80 mesh will be attempted and it is anticipated that the plus 80 mesh size should be clean mica. As E. Bentzen pointed out, the quantity and quality of recoverable mica can be better determined during pilot plant testing.

If and when the marketing study is done and the uses for mica defined, additional work can be done to satisfy the market specifications of the product, i.e. size required, dry or wet grinding etc.

Further laboratory testwork would include the following activities:

a. Additional testing of top 30 ft. samples to ensure repeatability.

b. Desliming on 325-400 mesh in order to increase feldspar and quartz recoveries.

c. Comparison of different frothers.

d. Testing of different dosages of reagents.

e. Trying HCl leaching of products with higher iron content (already initiated).

f. Sending feldspar and quartz concentrates for magnetic separation-cleaning.

g. Performing cycle tests and even trying to recirculate water.

h. Screening of feldspar and quartz concentrates.

i. Testing samples from deeper parts of the deposit.

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 8	ORE BEARCUB, IBC 188-1		DATE FEB 3, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 7		
GRINDING 5 MIN, CHARGE 11.98 KG. 972 GR. OF -6 MESH ORE 972 ML OF FRESH H_2O PRODUCT ___ % - ___ MESH	FLOTATION AIR AS REQD. CELL SIZE 2.3 LIT. SPEED 1,300 RPM DENSITY	TEST PROCEDURE	± 28 MESH SCREENED DESLIMING ON 270 MESH DONE BEFORE AND AFTER SCRUBBING.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	MIBC			
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP			
-"- FLOAT.	3	34.1		1,300								
IRON CONDIT.	5	~60				20 ML	20 ML		6 DP			
-"- FLOAT.	3	30.7		1,300								
SPAR CONDIT.	3	~60			20 ML			20 ML	3 DP			
-"- FLOAT.	2.5	23.9		1,300								
-"- CLEANING	2	16.6		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELD-SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+ 28 MESH*	12.1	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MICA FROTH	78.1	8.13	6.48	2.59	0.65	19.65	2.61	0.41	67.7	—	10.26	5.06	5.37	11.20	30.43	44.36	7.30	—
"IRON" FROTH	155.7	16.22	4.87	3.46	0.97	14.02	0.90	0.04	75.9	—	15.39	15.87	15.99	15.94	20.93	8.63	16.34	—
SPAR FROTH	350.1	36.46	7.53	5.48	1.46	19.43	0.105	0.01	66.0	98.11	53.48	56.50	54.10	49.65	5.49	4.85	31.93	—
QUARTZ FROTH	170.0	17.71	0.19	0.24	0.10	0,67	0.03	0.01	98.8	—	0,65	1.20	1.80	0.83	0.76	2,36	23.22	—
SPAR CL. TAIL	30.6	3.19	2.83	3.14	0.82	9,88	0.15	0.02	83.2	—	1.76	2.83	2.66	2.21	0.69	0.85	3.52	—
SLIMES	175.6	18.29	5.18	3.41	1.08	15.74	1.59	0.16	72.9	—	18.46	17.64	20.08	20.17	41.70	38.95	17.69	—
CALC. HEAD	960.1	100.0	5.13	3.54	0.98	14.27	0.70	0.08	75.4	—	100	100	100	100	100	100	100	—

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: FEBRUARY 7/89 REC'D: FEBRUARY 3/89 FILE:BC-TEST8.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
FELDSPAR	65.9	19.49	.11	.01	1.44	5.48	7.53
CONC	66.0	19.37	.10	.01	1.48	5.48	7.53
MICA	67.8	19.52	2.61	.41	.65	2.57	6.48
CONC	67.5	19.77	2.61	.41	.65	2.60	6.48
IRON	75.7	14.07	.90	.04	.97	3.50	4.82
CONC	76.0	13.97	.90	.04	.97	3.41	4.71
QUARTZ	98.8	.67	.03	<.01	.10	.23	.19
CONC	98.8	.67	.03	<.01	.10	.24	.19
SPAR CL.	83.2	9.88	.15	.02	.82	3.14	2.83
TAIL	83.2	9.88	.14	.02	.82	3.14	2.83
SLIMES	72.9	15.69	1.57	.16	1.08	3.41	5.21
	72.8	15.78	1.61	.16	1.08	3.41	5.14
STD 70a	67.5	17.43	.08	.03	.05	2.60	12.28
	67.4	17.33	.07	.03	.04	2.57	12.55
True Value	67.1	17.90	.07	-	.11	2.50	11.80

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 9	ORE BEARCUB BC 188-2	DATE FEB 5, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN	CHARGE 11.98 KG.	FLOTATION — AIR AS REQ'D	TEST PROCEDURE: SCREENING AND DESLIMING SAME AS IN TEST NO. 8. "IRON" FLOATED TWICE.
955 GR. OF −6 MESH ORE		CELL SIZE 2.3 LIT.	
955 ML OF FRESH H_2O		SPEED 1,300 RPM	
PRODUCT ___ %− ___ MESH		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	MIBC
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP
— " — FLOAT.	3	33.1		1,300					
IRON CONDIT.	5+1	~60				20 ML	20 ML		4 DP
— " — FLOAT.	3	30.4		1,300			10 ML		3 DP
— " —	3			1,300					
SPAR CONDIT.	3	~60			20 ML			20 ML	3 DP
— " — FLOAT.	2.5	24.5		1,300					
— " — CLEANING	2	16.7		1,300				5 ML	

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH *	20.0	2.09															
MICA FROTH	62.0	6.63	2.42	2.50	0.77	18.81	5.47	1.34	65.7		5.14	4.09	4.46	8.97	33.54	36.38	5.71
"IRON" FROTH	137.1	14.66	3.02	3.88	1.04	13.82	1.75	0.19	76.3		14.19	14.04	13.31	14.58	23.73	11.40	14.66
SPAR FROTH	333.9	35.72	4.85	6.75	1.68	20.08	0.09	0.07	66.5	94.10	55.50	59.51	52.41	51.61	2.97	10.24	31.14
QUARTZ FROTH	178.9	19.14	0.10	0.19	0.04	0.19	0.01	0.03	99.5		0.61	0.90	0.67	0.26	0.18	2.35	24.97
SPAR CL. TAIL	50.0	5.35	1.88	3.25	0.81	9.55	0.15	0.08	84.3		3.22	4.29	3.78	3.68	0.74	1.75	5.91
SLIMES	173.0	18.50	3.60	3.76	1.57	15.7	2.27	0.50	72.6		24.34	17.17	25.37	20.90	38.84	37.88	17.61
CALC. HEAD	934.9	100.0	3.12	4.05	1.15	13.90	1.08	0.24	76.3		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB PEGMATITE SAMPLES

DATE: FEBRUARY 10, 1989 REC'D: FEBRUARY 7, 1989 FILE: BC-TEST9.FF

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
BC 88-2 Mica Conc	65.9 65.5	18.71 18.90	5.42 5.52	1.33 1.35	0.76 0.77	2.48 2.52	5.39 5.45
BC 88-2 Iron Conc	76.1 76.5	13.97 13.67	1.78 1.72	0.19 0.19	1.05 1.03	3.92 3.84	2.98 3.05
BC 88-2 Feldspar Conc	66.6 66.4	19.96 20.20	0.09 0.09	0.06 0.07	1.66 1.69	6.73 6.76	4.86 4.83
BC 88-2 Quartz Conc	99.4 99.5	0.19 0.19	<.01 <.01	0.03 0.03	0.04 0.03	0.20 0.17	0.10 0.09
BC 88-2 Spar Cl. Tail	84.2 84.4	9.65 9.45	0.15 0.15	0.08 0.08	0.79 0.82	3.26 3.24	1.87 1.89
BC 88-2 Slimes	72.6 72.6	15.70 15.70	2.27 2.27	0.49 0.50	1.60 1.53	3.76 3.76	3.60 3.60
Standard 99a	66.5 66.6	19.79 19.79	0.02 0.03	0.02 0.02	1.98 1.91	6.36 6.30	5.37 5.37
Standard 99A True Value	65.2	20.50	0.06	0.02	2.14	6.20	5.20

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 10 | ORE BEARCUB, BC 88-6 | DATE FEB 3, 1989

OBJECT OF TEST: SAME AS IN TEST NO. 9

GRINDING 4 MIN | CHARGE 1198 KG. | FLOTATION AIR AS REQD.
957 GR. OF -6 MESH ORE | CELL SIZE 2.3 LIT.
957 ML OF FRESH H_2O | SPEED 1,300 RPM
PRODUCT ___ %- ___ MESH | DENSITY

TEST PROCEDURE: SCREENING, SCRUBBING AND DESLIMING SAME AS IN TEST NO. 9. KEROSENE USED AS AN AUXILIARY COLLECTOR IN MICA FLOAT.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	-pH-	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	ML-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	2 DP		
- " - FLOAT.	3	34.4		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
- " - FLOAT.	3	30.6		1,300								
"	3			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML		3 DP		
- " - FLOAT.	2.5	23.3		1,300								
- " - CLEANING	2	16.7		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+28 MESH*	28.3	2.96	—														
MICA FROTH	86.4	9.31	5.69	2.87	0.76	16.68	2.79	0.42	70.8	—	10.56	7.59	7.22	13.21	42.83	44.16	8.65
"IRON" FROTH	168.2	18.12	4.20	3.89	1.12	14.42	0.64	0.07	75.7	—	15.16	20.03	20.70	6.81	19.12	14.33	17.99
SPAR FROTH	336.1	36.20	7.58	5.14	1.35	17.78	0.04	0.02	68.1	94.98	54.67	52.88	49.84	54.74	2.39	8.18	32.33
QUARTZ FROTH	153.3	16.51	0.16	0.18	0.05	0.66	0.03	0.02	98.9	—	0.53	0.85	0.84	0.93	0.82	3.75	21.42
SPAR CL. TAIL	46.9	5.05	3.83	3.17	0.84	11.29	0.05	0.02	80.8		3.85	4.55	4.33	4.85	0.41	1.14	5.35
SLIMES	137.5	14.81	5.16	3.35	1.13	15.45	1.41	0.17	73.4	—	15.23	14.10	17.07	19.46	34.43	28.44	14.26
CALC. HEAD	928.4	100.0	5.02	3.52	0.98	11.76	0.61	0.09	76.24		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 10, BC88-6 - PEGMATITE

DATE: FEBRUARY 15, 1989 REC'D: FEBRUARY 9, 1989 FILE:BCTEST10.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O
MICA CONC	70.9 70.7	16.64 16.71	2.76 2.81	.41 .42	.76 .76	2.86 2.88	5.69 5.69
IRON CONC	75.8 75.6	14.38 14.45	.64 .63	.07 .07	1.11 1.12	3.84 3.94	4.20 4.20
FELDSPAR CONC	68.1 68.1	17.74 17.81	.04 .04	.02 .02	1.34 1.35	5.14 5.14	7.58 7.58
QUARTZ CONC	98.9 98.9	.65 .66	.03 .03	.02 .02	.05 .05	.18 .17	.16 .16
SPAR CL. TAIL	80.9 80.7	11.24 11.34	.04 .05	.02 .02	.83 .85	3.18 3.15	3.81 3.84
SLIMES	73.4 73.4	15.41 15.48	1.40 1.41	.17 .17	1.13 1.13	3.33 3.36	5.16 5.16

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 11	ORE BEARCUB, IBC 88-1	DATE FEB. , 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN CHARGE 11.98KG.	FLOTATION AIR AS REQD.	TEST PROCEDURE
954 GR. OF -6 MESH ORE	CELL SIZE 2.3 LIT.	SAME AS IN TEST NO. 10.
954 ML OF FRESH H_2O	SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH	DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
-"- FLOAT.	3	34.1		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
-"- FLOAT.	3	31.3		1,300								
—"—	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML		3 DP		
-"- FLOAT.	3	23.6		1,300								
-"- CLEANING	2	16.5		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+ 28 MESH *	20.4	2.14																
MICA FROTH	64.9	6.95	6.30	2.41	0.63	18.37	3.14	0.44	68.7		8.99	4.79	4.78	9.64	33.59	35.63	6.22	
IRON FROTH	177.0	18.95	4.17	3.84	1.07	14.36	0.81	0.07	75.8		16.23	20.81	22.13	20.54	23.62	15.45	18.71	
SPAR FROTH	346.6	37.11	7.40	5.30	1.33	17.35	0.06	0.02	68.5	95.17	56.42	56.24	53.87	48.61	3.43	8.65	33.12	
QUARTZ FROTH	162.2	17.37	0.09	0.11	0.04	0.38	0.05	0.02	99.3		0.32	0.55	0.76	0.50	1.34	4.05	22.47	
SPAR CL. TAIL	34.0	3.64	2.43	2.35	0.61	7.87	0.07	0.02	86.6		1.82	2.44	2.42	2.16	0.39	0.85	4.11	
SLIMES	149.2	15.98	4.94	3.32	0.92	15.38	1.53	0.19	73.8		16.22	15.17	16.04	18.55	37.63	35.37	15.37	
CALC. HEAD	933.9	100.0	4.87	3.50	0.92	13.25	0.65	0.09	76.8		100	100	100	100	100	100	100	

REMARKS THE SAMPLE WAS YELLOWISH; IRON STAINING AND CLAYS ?

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 11 - PEGMATITE

DATE: February 16, 1989 REC'D: Februray 9, 1989 FILE:BCTEST11.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
MICA CONC	68.7 68.7	18.37 18.37	3.14 3.14	.44 .43	.62 .64	2.41 2.41	6.30 6.30
IRON CONC	75.8 75.8	14.32 14.39	.80 .82	.07 .07	1.07 1.07	3.84 3.84	4.18 4.15
FELDSPAR CONC	68.5 68.5	17.35 17.35	.06 .06	.02 .02	1.33 1.32	5.30 5.30	7.40 7.40
QUARTZ CONC	99.3 99.3	.38 .37	.05 .05	.01 .02	.04 .04	.11 .10	.09 .09
SPAR CL. TAIL	86.6 86.6	7.87 7.87	.07 .06	.02 .01	.62 .60	2.35 2.35	2.43 2.43
SLIMES	73.8 73.7	15.34 15.41	1.51 1.54	.19 .19	.91 .93	3.30 3.33	4.94 4.94
Std 99a	66.1 66.1	20.22 20.22	.06 .06	.02 .02	2.11 2.11	6.24 6.24	5.30 5.24
True Value	65.2	20.5	.06	.02	2.14	6.2	5.2

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 12	ORE BEARCUB, BC 88-7	DATE FEB. 2, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN CHARGE 11.98 KG.	FLOTATION AIR AS REQD.	TEST PROCEDURE
999 GR. OF -6 MESH ORE	CELL SIZE 2.3 LT.	SAME AS IN TEST NO. 10.
999 ML OF FRESH H_2O	SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH	DENSITY	

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
—"— FLOAT.	3	34.8		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
—"— FLOAT.	3	29.6		1,300								
—"—	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML		3 DP		
—"— FLOAT.	3	22.1		1,300								
—"— CLEANING	2	15.7		1,300				5 ML		2 DP		

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %						
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH*	33.0	3.30															
MICA FROTH	120.0	12.42	5.35	2.72	0.74	18.10	2.43	0.35	70.4		15.87	9.23	8.67	15.94	38.98	46.40	11.48
IRON FROTH	171.0	17.70	3.49	3.74	0.99	13.03	0.61	0.05	78.1		14.75	18.08	16.53	16.32	13.94	9.45	18.16
SPAR FROTH	316.0	32.71	6.11	5.77	1.52	19.07	0.105	0.01	67.4	92.47	47.72	51.56	46.91	44.15	4.44	3.49	28.96
QUARTZ FROTH	148.0	15.32	0.20	0.25	0.55	1.01	0.09	0.01	98.0		0.73	1.05	7.95	1.10	1.78	1.63	19.72
SPAR CL. TAIL	45.0	4.66	2.43	2.86	0.77	9.61	0.15	0.01	84.2		2.70	3.64	3.39	3.17	0.90	0.50	5.15
SLIMES	166.0	17.19	4.44	3.50	1.02	15.90	1.80	0.21	73.2		18.23	16.44	16.55	19.35	39.96	38.53	16.53
CALC. HEAD	966.0	100.0	4.19	3.66	1.06	14.13	0.77	0.09	76.13		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - PEGMATITE - TEST 12

DATE: February 16, 1989 REC'D: February 13, 1989 FILE:BCTEST12.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
BC 88-7 - PEGMATITE							
MICA CONC	70.5 70.2	18.00 18.20	2.43 2.42	0.34 0.36	0.73 0.75	2.74 2.69	5.31 5.30
IRON CONC	78.0 78.2	13.13 12.92	0.60 0.62	0.05 0.05	0.99 0.99	3.76 3.72	3.52 3.46
FELDSPAR CONC	67.5 67.3	19.01 19.12	0.10 0.11	<.01 <.01	1.52 1.52	5.73 5.80	6.11 6.11
QUARTZ CONC	97.9 98.0	1.05 0.96	0.09 0.09	<.01 <.01	0.54 0.56	0.26 0.24	0.20 0.20
SPAR CL. TAIL	84.2 84.1	9.55 9.66	0.14 0.15	0.01 0.01	0.76 0.77	2.87 2.84	2.43 2.43
SLIMES	73.2 73.1	15.85 15.95	1.79 1.80	0.20 0.21	1.01 1.02	3.50 3.50	4.42 4.45
Sy-2	63.2 63.2	11.76 11.76	5.98 6.02	2.60 2.60	7.76 7.72	4.33 4.39	4.38 4.35
True Value	61.6	12.28	6.28	2.90	7.90	4.79	4.26

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 13	ORE BEARCUB, BC 88-11	DATE FEB 0, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN	CHARGE 11.98 KG.	FLOTATION AIR AS REQD.	TEST PROCEDURE
982 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.	SAME AS IN TEST NO. 10.
982 ML OF FRESH H_2O		SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	ML-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
-"- FLOAT.	3	35.7		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
-"- FLOAT.	3	31.8		1,300								
-"-	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML		3 DP		
-"- FLOAT.	3	23.5		1,300								
-"- CLEANING	2	16.6		1,300				5 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+28 MESH*	26.0	2.65															
MICA FROTH	90.0	9.41	5.02	3.32	0.86	18.50	3.465	0.355	68.5		11.53	7.66	8.03	12.16	43.82	49.05	8.51
IRON FROTH	191.0	19.98	3.57	3.81	0.98	13.43	0.855	0.035	77.3		17.41	18.66	19.42	18.74	22.96	10.27	20.40
SPAR FROTH	354.0	37.03	5.93	6.37	1.53	20.04	0.050	0.020	66.1	96.53	53.61	57.82	56.20	51.84	2.49	10.87	32.33
QUARTZ FROTH	158.0	16.53	0.16	0.15	0.07	0.395	0.040	0.010	99.2		0.65	0.61	1.15	0.46	0.89	2.43	21.66
SPAR CL. TAIL	28.0	2.93	1.56	1.95	0.51	6.15	0.060	0.010	89.8		1.12	1.40	1.48	1.26	0.24	0.43	3.47
SLIMES	135.0	14.12	4.55	4.00	0.98	15.75	1.560	0.130	73.1		15.68	13.85	13.72	15.54	29.60	26.95	13.63
CALC. HEAD	956.0	100.0	4.10	4.10	1.01	14.31	0.74	0.07	75.72		100	100	100	100	100	100	100

REMARKS: THE SAMPLE WAS YELLOWISH; IRON AND CLAYS.

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - Pegmatite - Test 13

DATE: February 21, 1989 REC'D: February 13, 1989 FILE:BCTEST13.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O
BC88-11 Mica Conc	68.4 68.6	18.60 18.40	3.45 3.48	0.36 0.35	0.86 0.85	3.35 3.28	5.03 5.00
Iron Conc	77.3 77.3	13.43 13.43	0.86 0.85	0.04 0.03	0.99 0.96	3.81 3.81	3.55 3.58
Feldspar Conc	65.9 66.3	20.16 19.91	0.05 0.05	0.02 0.02	1.53 1.53	6.35 6.38	5.99 5.86
Quartz Conc	99.2 99.2	0.40 0.39	0.04 0.04	0.01 0.01	0.07 0.07	0.14 0.16	0.15 0.17
Spar Cl. Tail	89.8 89.7	6.11 6.18	0.07 0.05	0.01 0.01	0.50 0.52	1.94 1.96	1.56 1.56
Slimes	73.3 72.8	15.57 15.93	1.56 1.56	0.13 0.13	0.98 0.97	3.97 4.02	4.51 4.59

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 14	ORE BEARCUB, BC 88-12	DATE FEB. 7, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN CHARGE 11.98 KG.	FLOTATION AIR AS REQD.	TEST PROCEDURE
995 GR. OF -6 MESH ORE	CELL SIZE 2.3 LIT.	SAME AS IN TEST NO 10.
995 ML OF FRESH H_2O	SPEED 1,300 RPM	
PRODUCT ___ % - ___ MESH	DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	ML-70, 2.5%	HF, 2.5%	KERO-SENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
— " — FLOAT.	4	35.3		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
— " — FLOAT.	3	32.3		1,300								
— " —	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML		3 DP		
— " — FLOAT.	3	26.1		1,300								
— " — CLEANING	2	18.3		1,300				5 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELD-SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+ 28 MESH*	24.5	2.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MICA FROTH	70.0	7.22	6.57	2.46	0.71	21.51	3.720	0.595	64.95	—	9.72	5.06	4.98	10.81	39.69	50.18	6.21	—
IRON FROTH	142.0	14.64	4.01	3.65	1.03	13.92	0.925	0.050	76.40	—	12.04	15.21	14.66	14.19	20.01	8.55	14.81	—
SPAR FROTH	383.0	39.48	7.23	5.31	1.47	19.81	0.050	0.010	66.15	94.95	58.52	59.68	56.42	54.45	2.92	4.61	34.59	—
QUARTZ FROTH	181.0	18.66	0.17	0.14	0.095	0.46	0.020	0.010	99.10	—	0.65	0.74	1.72	0.60	0.55	2.18	24.49	—
SPAR CL. TAIL	37.0	3.81	2.70	2.54	0.73	8.77	0.060	0.010	85.20	—	2.11	2.76	2.70	2.32	0.34	0.44	4.30	—
SLIMES	157.0	16.19	5.11	3.59	1.24	15.64	1.525	0.180	72.75	—	16.96	16.55	19.52	17.63	36.49	34.04	15.60	—
CALC. HEAD	970.0	100.0	4.88	3.51	1.03	14.36	0.68	0.09	75.51		100	100	100	100	100	100	100	

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - Test 14 - Pegmatite

DATE: February 22, 1989 REC'D: February 14, 1989 FILE:BCTEST14.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
BC88-12 Mica Conc	65.6 64.3	21.39 21.63	3.72 3.72	0.59 0.60	0.70 0.71	2.44 2.48	6.58 6.56
Iron Conc	76.4 76.4	13.86 13.97	0.94 0.91	0.05 0.05	1.03 1.03	3.66 3.63	4.02 3.99
Feldspar Conc	66.4 65.9	19.73 19.88	0.04 0.06	0.01 0.01	1.45 1.48	5.25 5.37	7.15 7.31
Quartz Conc	99.1 99.1	0.46 0.46	0.02 0.02	<.01 <.01	0.10 0.09	0.14 0.14	0.17 0.17
Feldspar Cl Tail	85.1 85.3	8.84 8.70	0.06 0.06	0.01 0.01	0.73 0.73	2.57 2.51	2.71 2.69
Slimes	72.8 72.7	15.59 15.69	1.52 1.53	0.18 0.18	1.24 1.24	3.60 3.57	5.09 5.12
Std 1413	83.8 83.9	9.49 9.41	0.26 0.27	0.07 0.08	0.78 0.81	1.70 1.66	3.87 3.87
True Value	83.6	9.90	0.24	0.06	0.74	1.75	3.74

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 5	ORE BEARCUB, BC 88-13	DATE FEB. 5, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN	CHARGE 1198 KG.	FLOTATION	AIR AS REQD	TEST PROCEDURE
970 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.		SAME AS IN TEST NO. 10.
970 ML OF FRESH H_2O		SPEED 1,300 RPM		
PRODUCT ___ % - ___ MESH		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	ARMAC T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KERO-SENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
-"- FLOAT.	3	33.3		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
-"- FLOAT.	3	31		1,300								
-"-	3						10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML		3 DP		
-"- FLOAT.	3	25.1		1,300								
-"- CLEANING	2	17.7						5 ML		2 DP		

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELD-SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH*	25.0	2.58																
MICA FROTH	51.0	5.40	7.02	1.77	0.40	23.31	4.290	0.60	62.65		7.65	2.96	2.57	9.16	31.06	32.65	4.43	
IRON FROTH	137.0	14.50	4.05	3.40	0.88	13.81	0.940	0.11	76.85		11.86	15.25	15.22	14.57	18.27	16.08	14.58	
SPAR FROTH	381.0	40.32	7.34	4.94	1.26	17.96	0.070	0.01	68.45	91.42	59.75	61.62	60.61	52.70	3.78	4.06	36.11	
QUARTZ FROTH	171.0	18.09	0.115	0.07	0.045	0.40	0.020	0.01	99.40		0.42	0.39	0.97	0.53	0.48	1.82	23.53	
SPAR CL. TAIL	25.0	2.64	0.95	1.12	0.20	3.49	0.050	0.01	94.20		0.51	0.92	0.63	0.67	0.18	0.27	3.25	
SLIMES	180.0	19.05	5.15	3.20	0.88	16.14	1.810	0.235	72.60		19.81	18.86	20.00	22.37	46.23	45.12	18.10	
CALC. HEAD	945.0	100.0	4.95	3.23	0.84	13.74	0.75	0.10	76.42		100	100	100	100	100	100	100	

REMARKS: THE SAMPLE WAS YELLOWISH; IRON AND CLAYS.

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - TEST 15 - BRANKO NIKODIJEVIC

DATE: FEBRUARY 24, 1989 DATE REC'D: FEBRUARY 17, 1989 FILE: BCTEST15.FR

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
Mica Conc	62.7 62.6	23.24 23.37	4.27 4.31	0.60 0.60	0.40 0.40	1.78 1.75	7.05 6.99
Iron Conc	77.0 76.7	13.71 13.90	0.91 0.97	0.11 0.11	0.87 0.89	3.38 3.41	4.02 4.07
Feldspar Conc	68.2 68.7	18.13 17.78	0.08 0.06	0.01 0.01	1.27 1.24	4.97 4.90	7.37 7.31
Quartz Conc	99.4 99.4	0.39 0.41	0.02 0.02	<.01 <.01	0.05 0.04	0.07 0.07	0.12 0.11
Feldspar Cl. Tail	94.2 94.2	3.49 3.49	0.05 0.05	0.01 0.01	0.20 0.20	1.13 1.10	0.95 0.95
Slimes	72.7 72.5	16.09 16.18	1.80 1.82	0.23 0.24	0.89 0.87	3.18 3.21	5.12 5.17

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 16 — ORE BEARCUB ; BC 88-14 — DATE FEB 7, 1989

OBJECT OF TEST: SAME AS IN TEST NO. 1

GRINDING 4 MIN — CHARGE 11.98 KG. — FLOTATION AIR AS REQ'D. — TEST PROCEDURE

___ GR. OF -6 MESH ORE — CELL SIZE 2.3 LIT. — SAME AS IN TEST NO. 10; LESS REAGENTS IN SPAR FLOTATION.

___ ML OF FRESH H_2O — SPEED 1,300 RPM

PRODUCT ___ % - ___ MESH — DENSITY

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	3 DP		
— " — FLOAT.	3	32		1,300								
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
— " — FLOAT.	3	25.7		1,300								
— " —	3			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			15 ML			15 ML		2 DP		
— " — FLOAT.	3	12.7		1,300								
— " — CLEANING	2	9.1						5 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+28 MESH *	7.0	0.72															
MICA FROTH	144.0	14.97	4.94	1.13	1.49	16.41	9.810	3.315	62.9		24.67	8.04	7.62	17.02	34.15	38.75	13.01
IRON FROTH	301.0	31.29	1.99	1.66	4.39	13.78	4.270	1.400	72.6		20.77	24.70	46.91	29.88	31.07	34.21	31.38
SPAR FROTH	184.0	19.13	5.15	4.84	2.44	17.44	0.405	0.170	69.6	83.49	32.87	44.04	15.94	23.12	10.99	2.54	18.39
QUARTZ FROTH	82.0	8.52	0.25	0.32	0.41	1.67	0.270	0.120	97.0		0.71	1.30	1.19	0.99	0.54	0.80	11.41
SPAR CL. TAIL	25.0	2.60	0.60	1.01	1.21	4.68	0.595	0.240	91.7		0.52	1.25	1.07	0.84	0.36	0.49	3.29
SLIMES	226.0	23.49	2.61	1.85	3.40	17.29	4.190	1.265	69.4		20.46	20.67	27.27	28.15	22.89	23.21	22.52
CALC. HEAD	962.0	100.0	3.00	2.10	2.93	14.43	4.30	1.28	72.4		100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 16 - BRANKO

DATE: February 24, 1989 REC'D: February 21, 1989 FILE: BCTEST16.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O
BC88-14 MICA CONC	63.1 62.7	16.32 16.50	9.76 9.86	3.30 3.33	1.44 1.53	1.13 1.13	4.94 4.94
IRON CONC	72.6 72.5	13.73 13.82	4.27 4.27	1.40 1.40	4.40 4.37	1.66 1.66	1.99 1.99
FELDSPAR CONC	69.6 69.6	17.44 17.44	0.40 0.41	0.17 0.17	2.44 2.44	4.84 4.84	5.15 5.15
QUARTZ CONC	97.0 97.0	1.67 1.66	0.27 0.27	0.12 0.12	0.42 0.40	0.32 0.32	0.25 0.25
FELDSPAR CL TAIL	91.7 91.7	4.72 4.63	0.61 0.58	0.23 0.25	1.16 1.25	1.02 1.00	0.60 0.60
SLIMES	69.4 69.4	17.24 17.33	4.19 4.19	1.27 1.26	3.43 3.37	1.85 1.85	2.59 2.62
STD 143	83.9 84.0	9.66 9.55	0.23 0.21	0.08 0.08	0.68 0.67	1.64 1.65	3.82 3.85
TRUE VALUE	83.6	9.90	0.24	0.06	0.74	1.75	3.74

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 17	ORE BEARCUB, IBC 88-7	DATE FEB. 3, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN	CHARGE 1.198 KG.	FLOTATION AIR AS REQD.	TEST PROCEDURE: SAME AS IN TEST NO. 10; TWO MICA FLOATS. DESLIMING DONE ON 325 MESH.
975 GR. OF −6 MESH ORE		CELL SIZE 2.3 LIT.	
975 ML OF FRESH H_2O		SPEED 1,300 RPM	
PRODUCT ___ % − ___ MESH		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC T, 2.5%	H_2SO_4, 2.5%	ML-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3+1	~60			10 ML	20 ML			2 DP	2 DP		
— " — FLOAT.	3+3			1,300	5 ML	5 ML				2 DP		
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
— " — FLOAT.	3			1,300								
— " —	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	4 DP	2 DP		
— " — FLOAT	3			1,300								
— " — CLEANING	2			1,300				5 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaC	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiC_2	
+28 MESH	26.0	2.67	7.85	2.74	0.64	24.81	1.805	0.405	61.95	—	4.69	2.00	1.77	4.62	5.99	10.58	2.10	—
MICA FROTH	84.0	8.61	6.35	2.87	0.75	21.63	4.230	0.485	63.65	—	12.56	6.74	6.68	12.99	45.23	40.85	6.96	—
IRON FROTH	114.0	11.69	3.02	3.84	1.01	12.91	0.555	0.060	78.60	—	8.11	11.42	12.22	10.53	8.06	6.86	11.68	—
SPAR FROTH	396.0	40.62	6.17	5.74	1.45	18.81	0.060	0.010	67.80	92.22	57.56	63.56	60.95	53.30	3.03	3.97	34.99	—
QUARTZ FROTH	183.0	18.77	0.145	0.15	0.06	0.56	0.030	0.010	99.15	—	0.62	0.77	1.17	0.73	0.70	1.84	23.64	—
SPAR CL. TAIL	30.0	3.08	1.00	1.25	0.34	3.98	0.075	0.010	93.35	—	0.71	1.05	1.09	0.85	0.28	0.30	3.65	—
SLIMES	142.0	14.56	4.71	3.44	1.07	16.71	2.030	0.250	91.80	—	15.75	13.66	16.12	16.98	36.71	35.60	16.98	—
CALC. HEAD	975.0	100.0	4.35	3.67	1.00	14.34	0.805	0.10	78.71	—	100	100	100	100	100	100	100	—

REMARKS: SOME FELDSPAR FLOATED IN SECOND MICA FLOAT.

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 17 - (PEGMATITE) - BRANKO

DATE: FEBRUARY 27, 1989 REC'D: FEBRUARY 24, 1989 FILE:BCTEST17.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O
BC88-7 PLUS 28 MESH	61.9 62.0	24.81 24.81	1.81 1.80	.41 .40	.64 .64	2.74 2.74	7.68 7.61
MICA CONC	63.9 63.4	21.45 21.81	4.18 4.28	.47 .50	.74 .75	2.83 2.90	6.33 6.37
IRON FROTH REJECTS	78.5 78.7	12.96 12.86	.55 .56	.06 .06	1.01 1.01	3.85 3.82	3.03 3.00
FELDSPAR CONC	67.8 67.8	18.81 18.81	.06 .06	<.01 <.01	1.43 1.46	5.75 5.72	6.18 6.15
QUARTZ CONC	99.1 99.2	.55 .57	.03 .03	<.01 <.01	.06 .06	.15 .15	.15 .14
SPAR CL. TAIL	93.4 93.3	3.93 4.03	.08 .07	<.01 <.01	.32 .35	1.24 1.26	1.00 .99
SLIMES	91.9 91.7	16.65 16.76	2.03 2.03	.25 .25	1.06 1.07	3.43 3.45	4.71 4.71
STD 1413	83.7 83.7	9.76 9.76	.24 .24	.06 .06	.76 .76	1.73 1.75	3.76 3.76
TRUE VALUE	83.6	9.90	.24	.06	.74	1.74	3.74

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB PEGMATITE SAMPLES

DATE: FEBRUARY 10, 1989 REC'D: FEBRUARY 7, 1989 FILE: BCHEADS1.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC 88-1 Head 10.7'-20.7'	75.1 75.2	14.80 14.89	0.58 0.55	0.10 0.08	1.05 0.98	3.77 3.72	4.60 4.57	.49 .52	.02 .02
BC 88-1 Head 20.7'-30.7'	74.8 74.7	15.09 15.09	0.61 0.62	0.12 0.12	0.82 0.89	3.07 3.14	5.45 5.48	.69 .69	.02 <.01
BC 88-1 Head 30.7'-40.7'	75.2 75.1	14.72 14.63	0.51 0.53	0.10 0.10	0.92 0.96	3.47 3.52	5.11 5.20	.47 .48	.03 .02
BC 88-2 Head 15' - 25'	75.7 75.7	14.56 14.56	1.00 0.99	0.19 0.19	1.25 1.27	4.04 4.04	3.26 3.26	.64 .63	.02 .03
BC 88-2 Head 25' - 35'	75.8 75.8	14.27 13.99	0.92 0.96	0.20 0.20	0.99 1.03	4.03 4.12	3.82 3.88	.65 .65	.01 .02
BC 88-2 Head 35' - 45'	75.0 74.8	14.64 14.74	1.42 1.45	0.39 0.40	1.24 1.25	4.00 4.00	3.31 3.34	1.15 1.16	.05 .05
BC 88-2 (3) Head 5' - 15'	74.9 74.9	14.63 14.63	0.91 0.87	0.18 0.17	1.19 1.25	3.87 3.90	4.30 4.33	.63 .62	.02 .01

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - HEADS - PEGMATITE

DATE: February 15, 1989 REC'D: FEBRUARY 9, 1989 FILE:BCHEADS2.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC88-6 12'-22'	75.0 74.8	14.58 14.72	.60 .60	.09 .09	.81 .83	3.23 3.21	5.72 5.75	.56 .54	.06 .06
BC88-6 22'-32'	74.6 74.6	14.67 14.67	.41 .42	.08 .08	.91 .92	3.28 3.28	6.00 6.00	.48 .50	.06 .04
BC88-6 32'-42'	75.2 75.4	14.77 14.70	.65 .65	.14 .13	1.24 1.23	4.01 3.94	3.98 3.95	.56 .59	.05 .04

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - PEGMATITE

DATE: February 16, 1989 REC'D: February 13, 1989 FILE:BCHEADS3.FRM

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
BC88-7 HEAD PEGMATITE									
HEAD 10'-20'	75.9 75.7	14.57 14.67	0.63 0.62	0.11 0.11	1.01 1.00	3.65 3.71	4.15 4.15	.52 .53	.05 .04
HEAD 20'-30'	75.2 73.3	14.81 14.70	0.50 0.49	0.09 0.09	0.88 0.88	3.38 3.38	5.14 5.14	.47 .45	.04 .05
HEAD 30'-40'	76.4 76.3	14.39 14.49	0.72 0.69	0.11 0.11	0.98 0.99	3.77 3.80	3.61 3.61	.73 .73	.05 .04
BC88-11 HEAD PEGMATITE									
HEAD 2'-12'	77.0 77.2	14.07 14.07	0.50 0.49	0.07 0.07	1.11 1.11	4.35 4.29	2.91 2.82	.53 .47	.04 .04
HEAD 12'-22'	76.3 76.1	13.96 14.18	0.58 0.58	0.07 0.06	0.69 0.70	3.38 3.38	5.06 5.00	.49 .50	.05 .03
HEAD 22'-32'	76.1 76.1	14.39 14.49	0.71 0.67	0.07 0.07	0.99 0.98	3.51 3.54	4.23 4.20	.44 .44	.02 .03

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - (PEGMATITE HEAD) - BRANKO

DATE: February 24, 2989 REC'D: February 24, 1989 FILE: BCHEADSS.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC88-13 5'-15'	76.4 77.1	14.18 13.71	0.41 0.44	0.08 0.08	0.80 0.77	3.18 3.12	4.91 4.77	.58 .57	.13 .15
15'-25'	75.0 75.0	14.72 14.72	0.73 0.76	0.13 0.13	0.86 0.84	3.27 3.27	5.27 5.30	.58 .58	.11 .11
25'-35'	76.3 76.3	14.27 14.27	0.60 0.59	0.12 0.12	0.80 0.80	3.12 3.12	4.80 4.80	.68 .71	.12 .11
BC88-14	(Biotite Gneiss and Pegmatite)								
14'-24'	69.4 69.5	14.46 14.37	5.30 5.30	1.69 1.70	6.28 6.28	1.20 1.19	1.66 1.66	3.29 3.30	.15 .16
27'-34'	76.2 75.7	14.28 14.66	0.47 0.45	0.13 0.13	1.08 1.08	3.61 3.71	4.21 4.29	.68 .66	.05 .07
BC88-8	(Pegmatite Head)								
32'-43'	76.7 75.7	14.88 14.66	0.60 0.56	0.11 0.11	0.91 0.94	4.00 4.00	4.85 4.85	.57 .57	.07 .07

D. Perkins
Chief Chief

DP:cs

BEARCUB - TOP 30 FT.

1988 Drilling Campaign

Table No. 1

Hole No.	Depth, Ft.	Material
1	10.7 - 20.7 20.7 - 30.7 30.7 - 40.7	Pegmatite
2	15 - 25 25 - 35 35 - 45	Pegmatite
3	5 - 15 15 - 25.7 25.7 - 35	Pegmatite Pegmatite Biot. Gneiss
4	10 - 20 20 - 30 30 - 40	Pegmatite
5	5 - 15 15 - 25 25 - 35	Pegmatite
6	12 - 22 22 - 32 32 - 42	Pegmatite
7	10 - 20 20 - 30 30 - 40	Pegmatite
8	13 - 22 22 - 32.2 32.2 - 43	Biot. Gneiss Biot. Gneiss Pegmatite

Hole No.	Depth, Ft.	Material
9	6.3 - 16.3 16.3 - 26.3 26.3 - 36.3	Pegmatite
10	0.5 - 10.5 10.5 - 20.5 20.5 - 30.5	Pegmatite
11	2 - 12 12 - 22 22 - 32	Pegmatite
12	1 - 11 11 - 21 21 - 31	Pegmatite
13	5 - 15 15 - 25 25 - 35	Pegmatite
14	14 - 24 27.2 - 34 34 - 37.3 37.3 - 44	Biot. Gneiss Pegmatite Pegmatite Biot. Gneiss
15	10 - 20.5 20.5 - 30.5 30.5 - 40.5	Biot. Gneiss Pegmatite Pegmatite

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - (~~21'~~ 1'-31') - Pegmatite Head

DATE: February 22, 1989 REC'D: February 14, 1989 BCHEADS4.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC88-12	75.3	14.36	0.47	0.10	0.68	2.92	6.20	.49	.10
1'-11'Head	75.2	14.44	0.46	0.09	0.68	2.98	6.14	.53	.07
BC88-12	75.5	14.73	0.79	0.14	1.40	4.37	3.12	.52	.10
11'-21'Head	75.1	15.04	0.79	0.14	1.38	4.42	3.10	.54	.09
BC88-12	75.1	14.44	0.44	0.08	0.88	3.25	5.80	.40	.07
21'-31'Head	75.3	14.36	0.43	0.09	0.89	3.19	5.78	.42	.06

D. Perkins
Chief Chemist

DP:cs

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - (PEGMATITE HEAD) - BRANKO

DATE: February 24, 2989 REC'D: February 24, 1989 FILE: BCHEADSS.FRM

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
BC88-13 5'-15'	76.4 77.1	14.18 13.71	0.41 0.44	0.08 0.08	0.80 0.77	3.18 3.12	4.91 4.77	.58 .57	.13 .15
15'-25'	75.0 75.0	14.72 14.72	0.73 0.76	0.13 0.13	0.86 0.84	3.27 3.27	5.27 5.30	.58 .58	.11 .11
25'-35'	76.3 76.3	14.27 14.27	0.60 0.59	0.12 0.12	0.80 0.80	3.12 3.12	4.80 4.80	.68 .71	.12 .11
BC88-14	(Biotite Gneiss and Pegmatite)								
14'-24'	69.4 69.5	14.46 14.37	5.30 5.30	1.69 1.70	6.28 6.28	1.20 1.19	1.66 1.66	3.29 3.30	.15 .16
27'-34'	76.2 75.7	14.28 14.66	0.47 0.45	0.13 0.13	1.08 1.08	3.61 3.71	4.21 4.29	.68 .66	.05 .07
BC88-8	(Pegmatite Head)								
32'-43'	76.7 75.7	14.88 14.66	0.60 0.56	0.11 0.11	0.91 0.94	4.00 4.00	4.85 4.85	.57 .57	.07 .07

D. Perkins
Chief Chief

DP:cs

BEARCUB - TOP 30 FT.

1988 Drilling Campaign

Table No. 1

Hole No.	Depth, Ft.	Material
1	10.7 - 20.7 20.7 - 30.7 30.7 - 40.7	Pegmatite
2	15 - 25 25 - 35 35 - 45	Pegmatite
3	5 - 15 15 - 25.7 25.7 - 35	Pegmatite Pegmatite Biot. Gneiss
4	10 - 20 20 - 30 30 - 40	Pegmatite
5	5 - 15 15 - 25 25 - 35	Pegmatite
6	12 - 22 22 - 32 32 - 42	Pegmatite
7	10 - 20 20 - 30 30 - 40	Pegmatite
8	13 - 22 22 - 32.2 32.2 - 43	Biot. Gneiss Biot. Gneiss Pegmatite

Hole No.	Depth, Ft.	Material
9	6.3 - 16.3 16.3 - 26.3 26.3 - 36.3	Pegmatite
10	0.5 - 10.5 10.5 - 20.5 20.5 - 30.5	Pegmatite
11	2 - 12 12 - 22 22 - 32	Pegmatite
12	1 - 11 11 - 21 21 - 31	Pegmatite
13	5 - 15 15 - 25 25 - 35	Pegmatite
14	14 - 24 27.2 - 34 34 - 37.3 37.3 - 44	Biot. Gneiss Pegmatite Pegmatite Biot. Gneiss
15	10 - 20.5 20.5 - 30.5 30.5 - 40.5	Biot. Gneiss Pegmatite Pegmatite

*HOLE ASSAYS CALCULATED ACCORDING TO WT.% OF MATERIAL IN EACH 10 FT. INCREMENT

HEAD ASSAYS
TABLE #2

HOLE# NO.	DEPTH, FT.	MATERIAL	ASSAY, %							
			SIO2	AL2O3	FE2O3	MGO	CAO	NA2O	K2O	L.O.I.
1	10.7-20.7	Pegmatite	75.15	14.85	0.565	0.09	1.02	3.75	4.59	0.51
1	20.7-30.7	Pegmatite	74.75	15.09	0.615	0.12	0.86	3.11	5.47	0.69
1	30.7-40.7	Pegmatite	75.15	14.68	0.520	0.10	0.94	3.50	5.16	0.48
1	10.7-40.7	Pegmatite	75.02	14.87	0.565	0.103	0.94	3.46	5.06	0.56
2	15-25	Pegmatite	75.7	14.56	0.995	0.29	1.26	4.04	3.26	0.64
2	25-35	Pegmatite	75.8	14.13	0.940	0.20	1.01	4.08	3.85	0.65
2	35-45	Pegmatite	74.9	14.69	1.435	0.40	1.25	4.00	3.33	1.16
2	15-45	Pegmatite	75.54	14.42	1.085	0.247	1.16	4.05	3.51	0.78
3	5-15	Pegmatite	74.9	14.63	0.890	0.18	1.22	3.89	4.32	0.63
3	15-25.7	Pegmatite	73.0	15.60	0.480	0.09	2.30	4.77	3.80	1.08
3	25.7-35	Biot.gneiss	64.2	9.45	3.470	2.06	18.56	1.17	1.06	5.97
3	5-35	66% Pegmat.	70.51	13.23	1.614	0.788	7.56	3.30	3.01	2.63
6	12-22	Pegmatite	74.9	14.65	0.600	0.09	0.82	3.22	5.74	0.55
6	22-32	Pegmatite	74.6	14.67	0.415	0.08	0.92	3.28	6.00	0.49
6	32-42	Pegmatite	75.3	14.74	0.650	0.14	1.24	3.98	3.97	0.58
6	12-42	Pegmatite	74.93	14.69	0.549	0.104	1.00	3.50	5.23	0.54
7	10-20	Pegmatite	75.80	14.62	0.625	0.11	1.01	3.68	4.15	0.53
7	20-30	Pegmatite	74.25	14.76	0.495	0.09	0.88	3.38	5.14	0.46
7	30-40	Pegmatite	76.35	14.44	0.705	0.11	0.99	3.79	3.61	0.73
7	10-40	Pegmatite	75.45	14.61	0.607	0.103	0.96	3.61	4.31	0.57
8	13-32.2	Biot.gneiss	70.9	15.01	6.090	1.90	1.18	1.92	2.92	2.53
8	32.2-43	Pegmatite	76.2	14.77	0.580	0.11	0.93	4.00	4.85	0.57
8	13-43	34% Pegmat.	72.71	14.93	4.211	1.29	1.09	2.63	3.58	1.86
11	2-12	Pegmatite	77.1	14.07	0.495	0.07	1.11	4.32	2.87	0.50
11	12-22	Pegmatite	76.2	14.07	0.580	0.07	0.70	3.38	5.03	0.50
11	22-32	Pegmatite	76.1	14.44	0.690	0.07	0.99	3.53	4.22	0.44
11	2-32	Pegmatite	76.47	14.20	0.589	0.07	0.93	3.74	4.04	0.48
12	1-11	Pegmatite	75.25	14.40	0.465	0.095	0.68	2.95	6.17	0.51
12	11-21	Pegmatite	75.30	14.89	0.790	0.140	1.39	4.40	3.11	0.53
12	21-31	Pegmatite	75.20	14.40	0.435	0.085	0.89	3.22	5.79	0.41
12	1-31	Pegmatite	75.25	14.57	0.571	0.108	1.00	3.55	4.96	0.49
13	5-15	Pegmatite	76.75	13.95	0.425	0.08	0.79	3.15	4.84	0.58
13	15-25	Pegmatite	75.00	14.72	0.745	0.13	0.85	3.27	5.29	0.58
13	25-35	Pegmatite	76.30	14.27	0.595	0.12	0.80	3.12	4.80	0.70
13	5-35	Pegmatite	75.96	14.33	0.593	0.11	0.82	3.19	5.00	0.61
14	14-24	Biot.gneiss	69.45	14.42	5.300	1.695	6.28	1.20	1.66	3.30
14	27.2-34	Pegmatite	75.95	14.47	0.460	0.130	1.08	3.66	4.25	0.67
14	34-44	B.G. + Peg.	73.20	14.84	3.58	1.39	1.15	2.17	3.68	2.66
14*	14-44	35.6% Peg.	72.45	14.60	3.488	1.209	3.03	2.16	3.06	2.43

HEAD MINERALOGY

TABLE #3

HOLE, #	K-SPAR%	NA-SPAR%	CA-SPAR%	TOTAL FELDSPAR%
1	30	29	5	64
2	21	34	6	61
3 (Peg. Only)	24	37	9	60
6	31	30	5	66
7	25	31	5	61
8 (Overall)	21	22	5	48
8 (Peg. Only)	29	34	5	68
11	24	32	5	61
12	29	30	5	64
13	30	27	4	61
14 (Overall)	18	18	15	51
14 (Peg. Only, 27.2'- 34')	25	31	5	61
14 (31% Peg., 34' - 44')	22	18	6	46
14 Average (Peg. Only)	27	32	5	64

FELDSPAR CONCENTRATE
TABLE #4

ASSAY,%

HOLE #	DEPTH, FT.	MATERIAL	TEST#	CONC.WT.,%	K2O	NA2O	CAO	AL2O3	FE2O3	MGO	SIO2	FELDSPAR
88-1	10.7-40.7	Pegmatite	8	36.46	7.53	5.48	1.46	19.43	0.105	0.01	66.0	98.11
88-1	10.7-40.7	Pegmatite	11	37.11	7.40	5.30	1.33	17.35	0.06	0.02	68.5	95.17
88-2	15-45	Pegmatite	9	35.72	4.85	6.75	1.68	20.08	0.09	0.07	66.5	94.10
88-6	12-42	Pegmatite	10	36.20	7.58	5.14	1.35	17.78	0.04	0.02	68.1	94.98
88-7	10-40	Pegmatite	12	32.71	6.11	5.77	1.52	19.07	0.105	0.01	67.4	92.47
88-11	2-32	Pegmatite	13	37.03	5.93	6.37	1.53	20.04	0.050	0.02	66.1	96.53
88-12	1-31	Pegmatite	14	39.48	7.23	5.31	1.47	19.81	0.050	0.01	66.2	94.95
88-13	5-35	Pegmatite	15	40.32	7.34	4.94	1.26	17.96	0.070	0.01	68.5	91.42
88-14	14-44	35.6% Pegmatite	16	19.13	5.15	4.84	2.44	17.44	0.405	0.17	69.6	83.49
88-7	10-40	Pegmatite	17	40.62	6.17	5.74	1.45	18.81	0.060	0.01	67.8	92.22
Weighted avg. of tests 9, 10, 11, 13 14, 15 and 17; Pegmatite only				38.07	6.66	5.64	1.44	18.83	0.060	0.022	67.4	94.14
Weighted avg. of tests 9, 10, 11, 13 14, 15, 16 and 17				35.70	6.56	5.58	1.50	18.73	0.083	0.032	67.5	93.43

FELDSPAR CONCENTRATE MINERALOGY

TABLE #5

HOLE#	MATERIAL	TEST#	CONC.WT	K-SPAR	NA-SPAR	CA-SPAR	TOTAL FELDSPAR
1	Peg.	8	36.46	44.5	46.4	7.2	98.1
1	Peg.	11	37.11	43.7	44.8	6.6	95.1
2	Peg.	9	35.72	28.7	57.1	8.3	94.1
6	Peg.	10	36.20	44.8	43.5	6.7	95.0
7	Peg.	12	32.71	36.1	48.8	7.5	92.4
7	Peg.	17	40.62	36.5	48.6	7.2	92.3
7	Peg.	13	37.03	35.0	53.9	7.6	96.5
12	Peg.	14	39.48	42.7	44.9	7.3	94.9
13	Peg.	15	40.32	43.4	41.8	6.2	91.4
14	35.6% Peg.	16	19.13	30.4	40.9	12.1	83.4
Weighted Average of tests 9,10,11, 13,14,15 & 17			38.07	39.4	47.7	7.1	94.2
Weighted Average of tests 9,10,11, 13,14,15,16 & 17			35.70	38.8	47.2	7.4	93.4

QUARTZ CONCENTRATE
TABLE #6

ASSAY,%

HOLE #	DEPTH, FT.	MATERIAL	TEST#	CONC.WT.,%	SIO2	FE2O3	K2O	NA2O	CAO	MGO	AL2O3
88-1	10.7-40.7	Pegmatite	8	17.71	98.8	0.03	0.19	0.24	0.10	0.01	0.670
88-1	10.7-40.7	Pegmatite	11	17.37	99.3	0.05	0.09	0.11	0.04	0.02	0.380
88-2	15-45	Pegmatite	9	19.14	99.5	0.01	0.10	0.19	0.04	0.03	0.190
88-6	12-42	Pegmatite	10	16.51	98.9	0.03	0.16	0.18	0.05	0.02	0.660
88-7	10-40	Pegmatite	12	15.32	98.0	0.09	0.20	0.25	0.55	0.01	1.010
88-11	2-32	Pegmatite	13	16.53	99.2	0.04	0.16	0.15	0.07	0.01	0.395
88-12	1-31	Pegmatite	14	18.66	99.1	0.02	0.17	0.14	0.095	0.01	0.460
88-13	5-35	Pegmatite	15	18.09	99.4	0.02	0.115	0.07	0.045	0.01	0.400
88-14	14-44	35.6% Pegmatite	16	8.52	97.0	0.27	0.25	0.32	0.41	0.12	1.670
88-7	10-40	Pegmatite	17	18.77	99.2	0.03	0.145	0.15	0.06	0.01	0.560
Weighted avg. of tests 9, 10, 11, 13 14, 15 and 17; Pegmatite only				17.87	99.21	0.028	0.134	0.141	0.057	0.016	0.432
Weighted avg. of tests 9, 10, 11, 13 14, 15, 16 and 17				16.70	99.07	0.043	0.141	0.152	0.080	0.023	0.511

FELDSPAR CONCENTRATE
TABLE #7

%	INDUSTRY SPECS	MIDDLETOWN GLASS GRADE	MIDDLETOWN CERAMIC GRADE	FELDSPAR CORPORATION SPRUCE PINE	FELDSPAR CORPORATION MONTI-CELLO	FELDSPAR CORPORATION SPRUCE PINE	TANCO, MANI-TOBA	PACER, SOUTH DAKOTA	CUSTOR, SOUTH DAKOTA	OY-LOLYA, FINLAND	K/S NOR-FLOAT, NORWAY	NEPH.SY-ENITE, ONTARIO	BCC #1-4	HOLES 88-1,2, 6,7,11, 12,13
AL2O3	17.9 - 18.5	18.5	18.5	18.6	18.3	18.8	17.4	16.5	16.1	18.5	18.7	22.7	19.6	18.8
K2O + NA2O	11.5 - 13.5	11.1	11.1	11.0	13.2	11.0	11.3	11.8	11.3	13.1	14.5	14.5	12.2	12.3
FE2O3 COLOURED GLASS	0.25 - 0.3													
FE2O3 FLINT GLASS	0.1 (MAX)	0.1						0.16	0.09	0.10				
FE2O3 CERAMIC	0.08 MAX		0.07	0.07	0.08	0.07					0.06	0.06		0.060
FE2O3 ELECTR. PORCEL.	0.05 MAX						0.043						0.053	
CAO		0.90	0.90	1.85	1.00	1.85	0.17	0.07	0.48	0.60	0.50	0.70	1.50	1.44
SIO2		68.9	68.9	68.4	67.2	68.2	68.0	71.4	71.8	67.5	65.4	61.4	66.8	67.4
MGO		TRACE	TRACE	TRACE	TRACE	TRACE	0.10	0.008	TRACE	?	7	TRACE	0.033	0.022
L.O.I.		0.25	0.25	0.13	0.22	0.13	0.70	?	0.20	?	0.30	0.60	0.34	NA
SIZE RANGE GLASS	95% + 74μ	96.1% + 74μ				98.8% + 74μ							94% +74μ	NA
SIZE RANGE CERAMIC			94.5% - 44μ		95% - 44μ									
SIZE RANGE														

QUARTZ CONCENTRATE
TABLE #8

%		GLASS INDUSTRY SPECS	SPRUCE PINE	KINGS MTN.	EDGAR GLASS SAND, SPRUCE PINE	SILICA FLOUR, TASMANIA	SILICA SAND, GREECE	CONSUMER GLASS, LAVINGTON SPECS	BCC #1-4	HOLES 88-1,2,6,7,11,12,13
SIO2 MIN	OPTICAL	99.5				99.8			99.75	
	DECORATIVE GLASSWARE	99.5		99.3	99.3	High Purity, for lead crystal, optical systems, scientific glassware		99.3 min.		99.21
	COLOURLESS CONTAINERS	98.5	92-98				90.5			
AL2O3		≤1.00	0.4 (0.5-3.0)	0.32	0.50 ±0.05	0.01	5.0	0.10 max.	0.125	0.432
FE2O3		≤0. 03	0.1-0.15	0.02	0.04 max.	0.002	0.09	0.035 max.	0.018	0.028
K2O			0.5-2.0	0.23	CaO .01 ± .005	0.001	1.22	0.03 max.	0.028	0.134
NA2O				0.08	0.01 max.	0.001	2.01	0.01 max.	0.033	0.141
SIZE RANGE	+30 MESH	<1%			1.0%			2.0%	<1.0%	
	+40 MESH	8-10%			-100 mesh, 40.0%	+60 mesh, 1.0%		20.0%	6.5%	
	-140 MESH	≤5%	100% +200 mesh	97.5% +200 mesh	-150 mesh, 5.0%	-200 mesh, 30.0%		-200 mesh, 3.0%	-200 mesh, 7.75%	

APPENDIX B
RPT. FEB 6, 1989

BEARCUB METALLURGICAL TESTING
Progress report no. 3

FEB. 6, 1989

This report summarizes the results of preliminary metallurgical testing of Biotite gneiss encountered within the Bearcub pegmatite deposit during the 1988 drilling campaign.
As discussed at October 21 meeting, the process test program at this phase will involve testing of the top 30 ft of the deposit. Subsequently, Shelly Logan Gordanier split the top 30 ft of the drill core and supplied Brenda Metallurgical lab with one half of it.
The samples were crushed to minus 6 mesh and enough of that size material was then riffled into 1 kg lots for grinding and flotation tests.
To speed up the testing, the samples for head analysis of every 10 ft of core are submitted for assaying together with other flotation products as the testing proceeds. Several head assays obtained so far are listed in Table no. 1.
After the drilling of 15 holes to depth of 200 ft has been finished and the drill core logged, it was found out that Pegmatite represents about 76 % of the material, with the remainder being predominantly Biotite gneiss.
In order to assess the "processability" of gneiss and the possibility of making marketable products when treating such a material, seven tests were done. First four tests were performed on the material supplied by Shelly on January 6th; the sample was an uninterrupted sequence of Biotite gneiss from the hole no. 8 and the depth of 13'-32.2':

depth	weight
13'- 22'	9,148 gr
22'-32.2'	12,032 gr

The whole core was assumed to weigh about 42,360 gr or 93.4 lbs. The weight of the rock was therefore 2.19 kg/ft or 4.84 lbs/ft and bulk density was 98.6 lbs/ft3 or 1,579 kg/m3.
Further samples were combined from drill holes nos. 3 and 14 to test different ratios of Biotite gneiss and Pegmatite as follows :

Test no.	% Biotite gneiss
5	69
6	47
7	32

During previous testing, it has been found out that grinding of 5 minutes is necessary to provide the mineral liberation and avoid overgrinding. In the case of Gneiss, it was anticipated that less grinding would be needed due to the parallel banding and foliation of the rock.
Grinding tests of 3, 4 and 5 minutes duration, at 50 % solids were done in the lab rod mill using coarse charge weighing 11.98 kg. Size analysis is shown in Tables nos. 2, 3 and 4. Grinding time of 2 and 3 minutes was then chosen for 100 %

Biotite gneiss testing, with the prolongued grinding used as the ratio of Pegmatite increases.
Flotation test reports including the details of procedures, test conditions and metallurgical results are appended.
The weights and assays of Feldspar and Quartz concentrates obtained during testing are shown in Tables nos. 5 and 6.
Test no. 7 with 32 % Biotite gneiss in the feed gave the only Feldspar froth resembling an acceptable product that would still require further magnetic separation. Iron oxide level of 0.22 % would be good for coloured glass only.
The same test resulted in a Quartz froth containing 0.44 % Fe_2O_3; the content of alkalies was high at 2-3 % each and alumina even higher at 8 %. Silica was low at 84 %, although 100 % Biotite gneiss tests had an average of 88 % SiO_2.
As far as Mica is concerned, Biotite gneiss contains Biotite variety mainly/only; with the increasing ratio of Pegmatite, Muscovite mica predominates.
In the test no. 7 with 32 % of Biotite gneiss, coarse grinding oversize of plus 28 mesh Mica product amounted to 4.4 % wt., whilst Mica flotation concentrate weighed 16.6 %. Mica flotation concentrate will have to be cleaned because it contains Feldspar and Quartz.
It is interesting to note that some of the samples, particularly from the Gneiss series, contain a high Ca content that coincides with the high loss on ignition. Drill holes no. 88-3 (depth 125'-143'), no. 88-4 (depth 107'-125') and no. 88-6 (depth 170'-176') contain 12 %, 13 % and 13 % of CaO respectively. Also, hole no. 8 at the depth of 25.7'-35' (Biotite gneiss) contains 18.6 % of CaO. That is probably Dolomite and/or Calcite, which is not going to make processing easier.
In conclusion, it can be said that the maximum tolerable amount of Biotite gneiss in the plant feed would be at 20-30 %. More testing is necessary to arrive at the best flowsheet for the treatment of 3:1 mixture of Pegmatite and Biotite gneiss and to prove that the marketable products can be made.

B. Nikodijevic
Proj. Metallurgist

BEARCUB - 1988 DRILLING
HEAD ASSAYS

TABLE NO. 1

HOLE NO.	DEPTH, FT	MATERIAL	ASSAY, %								
			SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	L.O.I.	H_2O
3	15-25.7	PEGMATITE	73.0	15.60	0.48	0.09	2.30	4.77	3.80		
3	25.7-35	BIOTITE GNEISS	64.2	9.45	3.47	2.06	18.56	1.17	1.06	5.97	0.07
8	13-32.3	— " —	70.9	15.01	6.09	1.90	1.18	1.92	2.92	2.53	0.01
14	34-44	69% BIOTITE GNEISS	73.2	14.84	3.58	1.39	1.15	2.17	3.68	2.66	0.17

SIZE ANALYSIS

TABLE No. 2

3 MINUTES GRIND

SCREEN SIZE, MESH	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	39.63	4.08	4.08	95.92
+35	17.61	1.81	5.89	94.11
+48	86.53	8.90	14.79	85.21
+65	154.49	15.89	30.68	69.32
+100	183.15	18.84	49.52	50.48
+150	108.93	11.21	60.73	39.27
+200	113.02	11.63	72.36	27.64
+270	77.60	7.98	80.34	19.66
+325	20.65	2.13	82.47	17.53
−325	170.39	17.53	100.00	
TOTAL	972.00	100.00		

TABLE No. 3

4 MINUTES GRIND

SCREEN SIZE, MESH	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	18.95	1.87	1.87	98.13
+35	2.11	0.21	2.08	97.92
+48	0.42	0.04	2.12	97.88
+65	145.24	14.31	16.43	83.57
+100	211.76	20.86	37.29	62.71
+150	162.51	16.01	53.30	46.70
+200	159.98	15.76	69.06	30.94
+270	95.99	9.46	78.52	21.48
+325	23.58	2.32	80.84	19.16
−325	194.46	19.16	100.00	
TOTAL	1,015.00	100.00		

TABLE No. 4

5 MINUTES GRIND

SCREEN SIZE, MESH	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	11.10	1.09	1.09	98.91
+35	1.03	0.10	1.19	98.81
+48	24.18	2.37	3.56	96.44
+65	56.62	5.56	9.12	90.88
+100	128.14	12.58	21.70	78.30
+150	161.16	15.82	37.52	62.48
+200	209.43	20.55	58.07	41.93
+270	129.04	12.66	70.73	29.27
+325	31.01	3.04	73.77	26.23
−325	267.29	26.23	100.00	
TOTAL	1,019.00	100.00		

BEARCUB – 1988 DRILLING
BIOTITE GNEISS TESTING
FELDSPAR FROTH

TABLE NO. 5

HOLE, NO.	DEPTH, FT	MATERIAL	TEST, NO.	WT., %	ASSAY, %							
					K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	FELDSPAR
8	13 - 22	100% BIOTITE GNEISS	1	32.5	3.79	3.98	2.00	17.67	4.93	1.68	66.9	68.2
—"— (1)	—"—	—"—	2	7.9	1.86	3.36	1.78	12.40	1.66	0.55	78.4	49.0
—"— (1)	—"—	—"—	—"—	22.4	3.24	4.35	2.04	16.6	3.36	1.18	69.2	66.1
—"—	22-32	—"—	3	18.4	3.98	3.55	1.89	17.5	7.35	2.62	63.1	62.9
—"—	—"—	—"—	4	30.8	3.25	3.16	1.68	15.5	5.92	2.06	68.4	54.3
14	34-44	69% BIOTITE GNEISS	5	26.8	5.20	3.03	1.08	16.5	4.30	1.85	68.0	61.7
3	15-35	47% BIOTITE GNEISS	6	19.7	3.85	5.18	4.45	17.5	0.77	0.48	67.8	88.7
—"—	5-15 25.7-35	32% BIOTITE GNEISS	7	16.9	5.83	5.97	2.41	20.6	0.22	0.11	64.9	96.9

(1) IN TEST NO. 2, REVERSE FLOTATION WAS TRIED TO REMOVE "IRON" AND HEAVY MINERALS; THE RESULT WAS FELDSPAR "CONCENTRATE" OF 7.9% WT. AND FELDSPAR "CLEANER TAIL" OF 22.4% WT.

BEARCUB — 1988 DRILLING
BIOTITE GNEISS TESTING
QUARTZ FROTH

TABLE NO. 6

HOLE, NO	DEPTH, FT	MATERIAL	TEST, NO.	WT., %	ASSAY, %						
					K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
8	13-22	100% BIOTITE GNEISS	1	28.6	0.73	1.05	0.56	4.99	0.86	0.30	91.5
—〃—	—〃—	—〃—	2	24.9	1.24	1.75	1.00	7.64	1.31	0.45	86.6
—〃—	22-32	—〃—	3	26.7	0.93	1.25	0.77	6.20	1.52	0.53	88.3
—〃—	—〃—	—〃—	4	24.0	0.84	1.19	0.80	6.53	1.31	0.46	88.9
14	34-44	69% BIOTITE GNEISS	5	28.3	1.85	1.86	0.73	8.44	0.94	0.30	85.9
3	15-35	47% BIOTITE GNEISS	6	21.2	1.97	3.21	7.04	11.99	1.11	0.73	74.0
—〃—	5-15 25.7-35	32% BIOTITE GNEISS	7	29.7	2.08	2.30	3.04	8.22	0.44	0.26	83.7

LAB FLOTATION TEST REPORT

BRENDA MINES LTD.

TEST NO. 1	ORE BEARCUB, BC88-8 (13'-22'), BIOTITE GNEISS	DATE	JAN. 16, 1989
OBJECT OF TEST	TO RECOVER FELDSPAR, MICA AND QUARTZ INTO SEPARATE CONCENTRATES		

GRINDING 3 MIN	CHARGE 11,98 KG	FLOTATION	AIR AS REQD.	TEST PROCEDURE
1,024.5 GR. OF -6 MESH ORE		CELL SIZE 2,3 LIT.		+28 MESH SCREENED AFTER GRINDING. DESLIMING DONE ON 270 MESH BEFORE AND AFTER SCRUBBING.
1,025 ML OF FRESH H_2O		SPEED 1,300 RPM		
PRODUCT ___ % - ___ MESH		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	ARMAC-T, 2,5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2,5%	D-250			
SCRUBBING	10	~70		1,700								
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP			
- " - FLOAT.	4	35		1,300								
IRON CONDIT.	5	~60				20 ML	20 ML		3 DP			
- " - FLOAT.	3	31.6		1,300								
- " - - " -	3	31.0		1,300			10 ML		2 DP			
SPAR CONDIT.	3	~60			20 ML			20 ML	3 DP			
- " - FLOAT.	3,5	27		1,300								

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %						
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+ 28 MESH*	8.4	0.82															
MICA FROTH	80.0	7.87	5.56	1.10	0.64	21,09	11.61	3.56	56.3		15.49	3.77	3.76	11.70	22.67	19.43	5.98
"IRON" FROTH	105.7	10.40	2.82	2.32	1.58	13.83	5.90	1.74	71.7		10.39	10.50	12.28	10.14	15.23	12.55	10.06
SPAR FROTH	330.0	32.48	3.79	3.98	2.00	17.67	4.93	1.68	66.9		43.60	56.28	48.53	40.44	39.74	37.84	29.31
QUARTZ FROTH	290.4	28.58	0.73	1.05	0.56	4.99	0.86	0.30	91.5		7.39	13.07	11.96	10.05	6.10	5.95	35.27
SLIMES	210.0	20.67	3.16	1.82	1.52	19.00	3.17	1.69	69.5		23.13	16.38	23.47	27.67	16.26	24.23	19.38
CALC. HEAD	1016.1	100	2,83	2.30	1.34	14.19	4.03	1.44	74.13		100	100	100	100	100	100	100

COMMENT: ENORMOUS FROTH, WITH LARGE EMPTY BUBBLES IN MICA AND IRON

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO

DATE: JANUARY 24, 1989 REC'D: JANUARY 19, 1989 FILE:BC88-8T1.FRM

SAMPLE: BC88-8	% K_2O	% Na_2O	% Al_2O_3	% CaO	% MgO	% Fe_2O_3	% MnO	% BaO	% LOI	% H_2O	% SiO_2
Conc #1 (13'-22')	5.56	1.10	21.09	.64	3.56	11.61	.10	.05	4.65	.13	56.3
Conc #2 (13'-22')	2.82	2.32	13.83	1.58	1.74	5.90	.09	.04	2.08	.07	71.7
Conc #3 (13'-22')	3.79	3.98	17.67	2.00	1.68	4.93	.04	.05	1.33	.05	65.9
Conc #4 (13'-22')	.73	1.05	4.99	.56	.30	.86	.01	.02	.68	.04	91.5
Slimes (13'-22')	3.16	1.82	19.00	1.52	1.69	3.17	.06	.04	4.27	.12	69.5
Std SY2 True Value	4.59 4.26	4.44 4.79	12.60 12.28	7.52 7.90	2.60 2.90	6.05 6.28	.30 .32	.05 .05			61.9

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT

BRENDA MINES LTD.

TEST NO. 2	ORE BEARCUB, BC188-8(13'-22'), BIOTITE GNEISS		DATE JAN. 18, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1		
GRINDING 2 MIN; 950 GR. OF -6 MESH ORE; 950 ML OF FRESH H_2O; PRODUCT ___ % - ___ MESH	CHARGE 11.98 KG	FLOTATION AIR AS REQD.; CELL SIZE 2.3 LIT.; SPEED 1,300 RPM; DENSITY	TEST PROCEDURE +28 MESH SCREENED AFTER GRINDING. DESLIMING ON 270 MESH BEFORE AND AFTER SCRUBBING. FELDSPAR AND QUARTZ CLEANED ONCE; ONE CLEANER TAIL. SCRUBBING SAME AS IN TEST NO. 1.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	FUEL OIL	D-250		
MICA CONDIT.	3+1	~60			20 ML	20 ML			4 DP	3 DP		
-"- FLOAT.	3+3	30.5		1,300	10 ML				4 DP	2 DP		
IRON CONDIT.	5+1	~60				20 ML	20 ML		3 DP	3 DP		
-"- FLOAT.	3	23		1,300								
-"-	4			1,300			10 ML			2 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	2 DP		
-"- FLOAT.	3+2	20		1,300			10 ML		2 DP	2 DP		
QUARTZ CLEAN.	2 5	17		1,300			10 ML	10 ML	2 DP	2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH*	40.0	4.21																
MICA FROTH	171.5	18.85	5.55	1.17	0.78	18.57	11.56	3.78	58.6		34.65	9.33	10.96	23.90	44.85	44.64	15.31	
"IRON" FROTH	70.5	7.75	2.45	2.14	1.61	13.16	5.45	1.55	73.6		6.29	7.01	9.30	6.95	8.69	7.53	7.91	
SPAR FROTH	72.0	7.91	1.86	3.36	1.78	12.41	1.66	0.55	78.4		4.87	11.24	10.49	6.70	2.70	2.73	8.59	
QUARTZ FROTH	227.0	24.94	1.24	1.75	1.00	7.64	1.31	0.45	86.6		10.25	18.45	18.59	13.01	6.73	7.03	29.93	
CLEANER TAIL	203.5	22.36	3.24	4.35	2.04	16.60	3.36	1.18	69.2		24.00	41.13	33.99	25.34	15.46	16.53	21.44	
SLIMES	165.5	18.19	3.31	1.67	1.23	19.41	5.76	1.89	66.7		19.94	12.84	16.67	24.10	21.57	21.54	16.82	

REMARKS TOO MUCH FROTH IN MICA AND IRON FLOTATION STAGES, WITH LARGE POORL[illegible] ... COLLECTOR DID NOT HELP MUCH

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - BRANKO

DATE: JANUARY 24/89 REC'D: JANUARY 19/89 FILE:BC88-8T2.FRM

SAMPLE BC88-8 #2	% K_2O	% Na_2O	% Al_2O_3	% CaO	% MgO	% Fe_2O_3	% LOI	% H_2O	% SiO_2
Conc #1 (13'-22')	5.60 5.49	1.17 1.15	18.80 18.33	0.73 .82	3.79 3.77	11.58 11.53	3.35	<.01	58.3 58.9
Conc #2 (13'-22')	2.45	2.14	13.16	1.61	1.55	5.45	2.18	<.01	73.6
Conc #3 (13'-22')	1.86	3.36	12.41	1.78	.55	1.66	.92	<.01	78.4
Conc #4 (13'-22')	1.24	1.75	7.64	1.00	.45	1.31	.66	<.01	86.6
CL Tail (13'-22')	3.24	4.35	16.60	2.04	1.18	3.36	1.22	<.01	69.2
Slimes (13'-22')	3.31	1.67	19.41	1.23	1.89	5.76	4.58	.05	66.7
Std SY2	4.35	4.70	12.09	7.89	2.66	6.12			61.9
True Value	4.26	4.79	12.28	7.90	2.90	6.28			

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 3	ORE BEARCUB, BC 88-8 (22'-32'), BIOTITE GNEISS		DATE JAN. 19, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1		
GRINDING 2 MIN CHARGE 11.98 KG. 963 GR. OF -6 MESH ORE 963 ML OF FRESH H_2O PRODUCT ___ % - ___ MESH	FLOTATION AIR AS REQD. CELL SIZE 2.3 LIT. SPEED 1,300 RPM DENSITY	TEST PROCEDURE +28 MESH SCREENED. DESLIMING AND SCRUBBING SAME AS IN TEST NO. 2	

STAGE	TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	ARMAC T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	FUEL OIL	D-250		
MICA CONDIT.	3+1	~60			20 ML	20 ML			4 DP	3 DP		
— " — FLOAT.	3+3	32.2		1,300	10 ML				3 DP	2 DP		
IRON CONDIT.	5+1+1	~60				20 ML	20 ML		2 DP	3 DP		
— " — FLOAT.	4	26.5		1,300								
— " — — " —	4+4			1,300			10+10 ML			2+2 DP		
SPAR CONDIT.	3	~60				20 ML		20 ML	2 DP	2 DP		
— " — FLOAT.	3.5	21.7		1,300								
— " — CLEAN.	3	14.3		1,300				10 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		DISTRIBUTION, % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH*	37.7	3.92																
MICA FROTH	133.0	14.38	5.84	0.76	0.80	18.81	13.53	4.48	55.78		30.62	6.01	9.61	19.31	34.31	34.04	11.09	
"IRON" FROTH	110.0	11.89	1.74	1.74	1.31	13.30	4.73	1.30	75.88		7.54	11.37	13.02	11.29	9.92	8.19	12.47	
SPAR FROTH	170.5	18.44	3.98	3.55	1.89	17.51	7.35	2.62	63.10		26.76	35.99	29.13	23.06	23.90	25.61	16.08	
QUARTZ FROTH	247.3	26.74	0.93	1.25	0.77	6.20	1.52	0.53	88.30		9.07	18.37	17.21	11.84	7.17	7.51	32.64	
SPAR CL. TAIL	80.2	8.67	2.21	2.98	1.65	13.21	3.70	1.30	74.95		6.99	14.20	11.95	8.18	5.65	5.98	8.98	
SLIMES	183.9	19.68	2.65	1.30	1.16	18.73	5.49	1.78	68.89		19.02	14.06	19.08	26.32	19.05	18.57	18.74	
CALC. HEAD	924.9	100.0	2.74	1.82	1.20	14.00	5.67	1.89	72.35		100	100	100	100	100	100	100	

REMARKS: LARGE AIR BUBBLES IN MICA FLOTATION. FELDSPAR CONCENTRATE CLEANED ONCE

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST#3 BRANKO

DATE: JANUARY 27/89 REC'D: JANUARY 19/89 FILE:BC88-8T3.FRM

SAMPLE BC88-8	% K_2O	% Na_2O	% Al_2O_3	% CaO	% MgO	% Fe_2O_3	% SiO_2	% LOI	% H_2O
CONC 1 (22'-32')	5.84	0.76	18.81	0.80	4.48	13.53	55.78	4.47	.06
CONC 2 (22'-32')	1.74	1.74	13.30	1.31	1.30	4.73	75.88	2.48	.07
CONC 3 (22'-32')	3.98	3.55	17.51	1.89	2.62	7.35	63.10	1.74	.04
CONC 4 (22'-32')	0.93	1.25	6.20	0.77	0.53	1.52	88.30	0.91	.05
CL TAIL (22'-32')	2.21	2.98	13.21	1.65	1.30	3.70	74.95	1.22	.05
SLIMES (22'-32')	2.65	1.30	18.73	1.16	1.78	5.49	68.89	4.75	.10

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 4	ORE BEARCUB, BC88-8(22'-32'), BIOTITE GNEISS	DATE JAN. 19, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 2 MIN	CHARGE 11.98 KG.	FLOTATION AIR AS REQD	TEST PROCEDURE +28 MESH SCREENED
963 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.	DESLIMING ON 200 MESH DONE BEFORE
963 ML OF FRESH H_2O		SPEED 1,300 RPM	AND AFTER SCRUBBING. SILICA FEED CLEANED; TAIL ADDED TO SPAR FROTH.
PRODUCT ___ % - ___ MESH		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	FUEL OIL	D_T-250		
MICA CONDIT.	3+1	~60			20 ML	20 ML			4 DP	3 DP		
—"— FLOAT.	3+3	29.8		1,300	10 ML				3 DP	2 DP		
IRON CONDIT.	5+1+1	~60				20 ML	20 ML		2 DP	3 DP		
—"— FLOAT.	4	25.3		1,300								
—"—	4+4			1,300		10+10 ML				2 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	2 DP		
—"— FLOAT.	3.5	21.9		1,300								
QUARTZ CLEAN.	2	10		1,300	10 ML			10 ML		2 DP		

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH *	41.90	4.35																
MICA FROTH	101.60	11.03	5.66	0.82	1.00	18.80	13.56	4.38	55.78		23.06	4.94	9.00	14.39	26.78	26.12	8.50	
"IRON" FROTH	78.50	8.52	1.69	1.74	1.36	14.05	4.90	1.33	74.93		5.32	8.10	9.45	8.30	7.47	6.13	8.82	
SPAR FROTH	283.60	30.78	3.25	3.16	1.68	15.52	5.92	2.06	68.41		36.95	53.13	42.20	33.14	32.62	34.28	29.09	
QUARTZ FROTH	220.90	23.97	0.84	1.19	0.80	6.53	1.31	0.46	88.87		7.43	15.58	15.65	10.86	5.62	5.96	29.43	
SLIMES	236.80	25.70	2.87	1.30	1.13	18.68	5.98	1.98	68.07		27.24	18.25	23.70	33.31	27.51	27.51	24.16	
CALC. HEAD	921.40	100.0	2.71	1.83	1.23	14.41	5.59	1.85	72.39		100	100	100	100	100	100	100	

REMARKS ONCE AGAIN, LARGE POORLY LOADED BUBBLES IN MICA FLOTATION.

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST#4 BRANKO
~~(BOTTLE~~ GNEISS (100%))
BIOTITE

DATE: JANUARY 27/89 REC'D: JANUARY 23/89 FILE:BC88-8T4.FRM

SAMPLE BC88-8	% K2O	% Na2O	% Al2O3	% CaO	% MgO	% Fe2O3	% SiO2	% LOI	% H2O
CONC 1 (22'-32')	5.66	0.82	18.80	1.00	4.38	13.56	55.78	4.09	.11
CONC 2 (22'-32')	1.69	1.74	14.05	1.36	1.33	4.90	74.93	2.67	.12
CONC 3 (22'-32')	3.25	3.16	15.52	1.68	2.06	5.92	68.41	1.53	.07
CONC 4 (22'-32')	0.84	1.19	6.53	0.80	0.46	1.31	88.87	0.82	.06
SLIMES	2.86 2.88	✓ 1.30	19.30 18.06	✓ 1.13	1.95 2.00	5.96 6.00	67.50 68.63	4.39	.21
Std SY-3 True Value	4.29 4.20	4.15 4.15	11.72 11.8	7.86 8.26	2.55 2.67	6.18 6.42	63.25 59.7		

D. Perkins
D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 5 | ORE BEARCUB, BC 88-14 (34'-44'), 69% BIOTITE GNEISS | DATE JAN. 24, 1989

OBJECT OF TEST: SAME AS IN TEST NO. 1

GRINDING 3 MIN CHARGE 11.98 KG.
970 GR. OF −6 MESH ORE
970 ML OF FRESH H_2O
PRODUCT ___ % − ___ MESH

FLOTATION AIR AS REQ'D
CELL SIZE 2.3 LIT.
SPEED 1,300 RPM
DENSITY

TEST PROCEDURE: +28 MESH SCREENED. DESLIMING ON 200 MESH DONE BEFORE AND AFTER SCRUBBING AND AFTER MICA AND IRON FLOTATION. KEROSENE AND MIBC TESTED.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	MI-70, 2.5%	HF_2 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3+1	~60			10 ML	20 ML			2 DP	2 DP		
— " — FLOAT.	3	30.3		1,300								
— " — "	3			1,300	10 ML				4 DP	2 DP		
IRON CONDIT.	5+1	~60				20 ML	20 ML			3 DP		
— " — FLOAT	4	26.4		1,300								
— " —	3			1,300			10 ML			2 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	2 DP		
— " — FLOAT.	4	22.8		1,300								

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH*	18.60	1.92																
MICA FROTH	90.00	9.46	5.23	1.09	0.51	18.40	11.08	3.70	60.0		14.26	4.96	4.88	11.94	24.63	23.52	7.76	
"IRON" FROTH	82.50	8.67	2.84	1.63	1.24	13.36	6.92	1.89	72.1		7.10	6.79	10.87	7.95	14.10	11.01	8.55	
SPAR FROTH	254.70	26.77	5.20	3.03	1.08	16.54	4.30	1.85	68.0		40.13	38.99	29.22	30.37	27.05	33.28	24.89	
QUARTZ FROTH	269.20	28.29	1.85	1.86	0.73	8.44	0.94	0.30	85.9		15.09	25.29	20.88	16.38	6.25	5.70	33.22	
SLIMES	255.20	26.81	3.03	1.86	1.26	18.14	4.44	1.47	69.8		23.42	23.97	34.15	33.36	27.97	26.49	25.58	
CALC. HEAD	951.60	100.0	3.47	2.08	0.99	14.58	4.26	1.49	73.15		100	100	100	100	100	100	100	

REMARKS KEROSENE AND MIBC AS A REPLACEMENT FOR FUEL OIL AND D-250 PRODU-

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - TEST 5 "69% BIOTITE GNEISS" - BRANKO

DATE: JANUARY 31/89 REC'D: JANUARY 25/89 FILE:BC88-8T5.FRM

SAMPLE BC88-14	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% LOI	% H_2O
HEAD (34'-44')	73.2	14.84	3.58	1.39	1.15	2.17	3.68	2.66	.17
CONC 1 (34'-44')	60.0	18.40	11.08	3.70	0.51	1.09	5.23	4.67	.19
CONC 2 (34'-44')	72.1	13.36	6.92	1.89	1.24	1.63	2.84	3.23	.15
CONC 3 (34'-44')	68.1 67.9	16.59 16.48	4.26 4.33	1.73 1.97	1.08 1.07	3.04 3.02	✓ 5.20	1.70	.10
CONC 4 (34'-44')	85.9	8.44	0.94	0.30	0.73	1.86	1.85	.96	.07
SLIMES (34'-44')	69.8	18.14	4.44	1.47	1.26	1.86	3.03	4.81	.32
BC88-3 HEAD 69%Biotite (25'-35')	64.2	9.45	3.47	2.06	18.56	1.17	1.06	5.97	.07
BC88-3 HEAD Pegmatite (15'-25')	73.0	15.60	0.48	0.09	2.30	4.77	3.80		
Std Sy-3 True Value	63.49 59.7	11.20 11.8	6.19 6.42	2.57 2.67	7.95 8.26	4.24 4.15	4.36 4.20		

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 6	ORE BEARCUB, BC88+3 (15'-35'), 47% BIOTITE GNEISS		DATE JAN. 26, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1		

GRINDING 4 MIN	CHARGE 11.98 KG	FLOTATION	AIR AS REQD.	TEST PROCEDURE	+28 MESH SCREENED
968 GR. OF -6 MESH ORE		CELL SIZE	2.3 LIT.	DESLIMING by 200 MESH DONE BEFORE AND AFTER SCRUBBING AND AFTER IRON FLOTATION	
968 ML OF FRESH H_2O		SPEED	1,300 RPM		
PRODUCT ___ % - ___ MESH		DENSITY			

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	20 ML			2 DP	2 DP		
— " — FLOAT.	3.5	31.3		1,300								
IRON CONDIT.	5+1+1	~60				20 ML	20 ML			5 DP		
— " — FLOAT.	3	23		1,300								
— " —	3			1,300			10 ML			3 DP		
— " —	4			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	2 DP		
— " — FLOAT.	3.5	16.7		1,300								

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2
+28 MESH*	25.0	2.58															
MICA FROTH	190.2	20.18	2.57	2.19	7.76	11.39	3.46	1.41	71.22		21.41	14.77	15.39	18.08	31.72	25.80	21.01
"IRON" FROTH	144.6	15.34	1.29	1.76	20.20	10.88	3.09	1.74	61.04		8.17	9.03	30.46	13.12	21.53	24.20	13.69
SPAR FROTH	185.2	19.65	3.85	5.18	4.45	17.45	0.77	0.48	67.82		31.23	34.02	8.60	26.96	6.88	8.55	19.49
QUARTZ FROTH	200.0	21.22	1.97	3.21	7.04	11.99	1.11	0.73	73.95		17.26	22.77	14.68	20.01	10.79	14.05	22.95
SLIMES	222.6	23.61	2.25	2.46	13.30	11.76	2.72	1.28	66.23		21.93	19.41	30.87	21.83	29.17	27.40	22.86
CALC. HEAD	942.6	100.0	2.42	2.99	10.17	12.72	2.20	1.10	68.39		100	100	100	100	100	100	

REMARKS THE PRODUCTS APPEARED CLEANER TREATING FEED WITH 53% PEGMATITE. CONTINUED

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - (47% Biotite Gneiss) - Branko

DATE: FEBRUARY 2/89 REC'D: JANUARY 27/89 FILE:BC88-3T6.FRM

SAMPLE BC88-3 (15'-35')	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
TEST 6 Conc 1	71.22	11.39	3.46	1.41	7.76	2.19	2.57	3.20	.08
Conc 2	61.04	10.88	3.09	1.74	[2.02%?] 20.20	1.76	1.29	8.11	.07
Conc 3	67.82	17.45	0.77	0.48	4.45	5.18	3.85	0.96	.04
Conc 4	73.95	11.99	1.11	0.73	7.04	3.21	1.97	1.11	.06
Slimes	66.23	11.76	2.72	1.28	13.30	2.46	2.25	6.90	.15

D. Perkins
Chief Chemist

DP:cs

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 7	ORE BEARCUB, BC 88-3 (5'-15' + 25.7'-35'), 32% BIOT. GNEISS	DATE JAN. 30, 1989
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING 4 MIN. CHARGE 11.98 KG.	FLOTATION AIR AS REQD.	TEST PROCEDURE +28 MESH SCREENED.
984 GR. OF -6 MESH ORE	CELL SIZE 2.3 LIT.	DESLIMING AND SCRUBBING SAME AS IN
984 ML OF FRESH H_2O	SPEED 1,300 LIT.	TEST NO. 6. LOWER COLLECTOR DOSAGE
PRODUCT ___ % - ___ MESH	DENSITY	IN MICA AND "IRON" FLOTATION.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T, 2.5%	H_2SO_4, 2.5%	M-70, 2.5%	HF, 2.5%	KEROSENE	MIBC		
MICA CONDIT.	3	~60			10 ML	15 ML			2 DP	2 DP		
—"— FLOAT.	3.5	33.7		1,300								
IRON CONDIT.	5+1	~60				15 ML	20 ML			4 DP		
—"— FLOAT.	3	26.9		1,300								
—"—	3			1,300			10 ML			3 DP		
SPAR CONDIT.	3	~60			20 ML			20 ML	2 DP	2 DP		
—"— FLOAT.	3	21.7		1,300								
—"— CLEAN.	2	14.8		1,300				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2		DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	MgO	SiO_2	
+28 MESH*	43.0	4.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MICA FROTH	155.8	16.56	3.19	1.95	6.94	12.22	3.64	1.37	70.7	—	16.64	10.69	17.46	15.91	34.50	29.06	16.26	—
"IRON" FROTH	120.1	12.76	1.49	1.68	16.80	11.32	3.44	1.89	63.4	—	5.99	7.10	32.56	11.36	25.12	30.89	11.24	—
SPAR FROTH	158.8	16.87	5.83	5.97	2.41	20.56	0.22	0.11	64.9	—	30.98	33.36	6.18	27.27	2.12	2.38	15.21	—
QUARTZ FROTH	279.3	29.68	2.08	2.20	3.04	8.22	0.44	0.26	83.7	—	19.45	22.61	13.71	19.18	7.47	9.89	34.50	—
SPAR CL. TAIL	60.0	6.38	4.61	5.18	2.64	17.07	0.39	0.20	70.0	—	9.27	10.95	2.56	8.57	1.43	1.63	6.20	—
SLIMES	167.0	17.75	3.16	2.60	10.21	12.69	2.89	1.15	67.3	—	17.67	15.29	27.53	17.71	29.36	26.15	16.99	—
CALC. HEAD	941.0	100.0	3.17	3.02	6.58	12.72	1.75	0.78	72.0	—	100	100	100	100	100	100	100	—

REMARKS AS IN TEST NO. 6, FELDSPAR AND QUARTZ CONCENTRATES LOOK QUITE CLEAN

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES - 32% Biotite Gneiss) - Branko

DATE: FEBRURY 3, 1989 REC'D: JANUARY 27, 1989 FILE:BC88-3T7

SAMPLE BC88-3 (5' - 15') (25.7-35')	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% LOI	% H2O
TEST 7	70.7	12.17	3.64	1.37	6.97	1.97	3.19	3.44	.02
Conc 1	70.7	12.27	3.64	1.37	6.90	1.92	3.19	3.45	.01
	63.6	11.32	3.47	1.89	16.58	1.67	1.47	6.19	.02
Conc 2	63.2	11.32	3.41	1.89	17.02	1.69	1.50	6.20	.02
	64.8	20.63	0.22	0.11	2.41	5.95	5.85	.51	.03
Conc 3	65.0	20.48	0.22	0.11	2.41	5.98	5.81	.52	.02
	83.7	8.22	0.43	0.26	3.00	2.30	2.08	.43	.02
Conc 4	83.6	8.22	0.44	0.25	3.07	2.30	2.08	.43	.03
Cleaner	70.0	17.01	0.38	0.19	2.69	5.21	4.64	.49	.02
Tail	70.0	17.12	0.39	0.20	2.59	5.14	4.58	.47	.02
	67.4	12.64	2.89	1.15	10.17	2.60	3.16	5.33	.06
Slimes	67.2	12.73	2.89	1.15	10.24	2.60	3.16	5.38	.06
Std 70-a	67.5	17.78	0.08	0.03	0.08	2.55	11.98		
	67.3	17.89	0.07	0.03	0.08	2.55	12.04		
True Value	67.1	17.90	0.07	-	0.11	2.50	11.80		

D. Perkins
Chief Chemist

DP:cs

APPENDIX B
RPT. 25 July 1989

MEMORANDUM

TO: J.W. Austin

FROM: B.M. Nikodijevic, Rodney McMorran

DATE: July 25, 1988

SUBJECT: Bearcub Metallurgical Testing
Progress Report #2

I INTRODUCTION

This report covers the studies and "Production Runs" completed on samples of Bearcub Pegmatite in continuation of testing reported in Progress Report #1 in January 1988.

II SUMMARY AND CONCLUSIONS

(a) Previous testing of Bearcub 2 sample done in January - March 1988 period produced the following results:

	K2O%	NA2O%	CAO%	AL2O3%	FE2O3%	SIO2%	WT.%	FELDSPAR RECOVERY,%
FELDSPAR CONCENTRATE								
"PROGRESS REPORT #1" ROUGHER CONC.	7.41	4.56	1.34	15.5	0.015	68.5	58.9	81.0
"ORE SORTERS"	8.11	4.25	N.A.	18.4	0.015	N.A.	47.8	63.0
BEARCUB 2 "PROD. RUN"	8.12	4.98	1.00	18.94	0.015	63.0	-	-
SILICA CONC.								
"PROGRESS REPORT #1"	0.02	0.02	0.01	0.10	0.01	96.5	19.8	-
"ORE SORTERS"	0.12	0.09	N.A.	0.30	0.01	95.7	20.4	-
BEARCUB 2 "PROD. RUN"	0.02	<0.05	<0.01	0.07	0.01	99.1	-	-

(b) BCC #1-4 composites tested in May - June 1988 period were markably different from the Bearcub 2 sample in that they were yellow stained containing more iron-bearing minerals, Na-Feldspar, Ca-Feldspar, Silica and Biotite-Phlogopite Mica but less K-Feldspar.

(c) On the basis of the flotation testwork of all four composites, the best flowsheet was chosen and forty kg of samples were processed to make the concentrates for marketing purposes. That "Production Run" gave the following results:

	K2O%	NA2O%	CAO%	AL2O3%	FE2O3%	SIO2%	WT.%
FELDSPAR CONCENTRATE	7.0	5.2	1.5	19.6	0.05	66.8	51.0
SILICA CONCENTRATE	0.028	0.033	0.02	0.125	0.018	99.8	18.0

Those marketable products compare quite favourably with the industry specifications and the products of several known suppliers, as can be seen from the corresponding tables in the report.

(d) The separation of K-Feldspar and Na-Feldspar has been attempted without much success. If it is necessary to provide higher K2O - content in the Feldspar concentrate, further testing can be done and information sought from the Norwegian producer.

(e) In the case of a further testing, M.I.B.C. as a replacement for D-250 can be considered, Duomen-TDO instead of Duomac-T can be tried and Cyanamide 400-Series reagents also, with the further improvement in the flowsheet and lower reagent dosage being sought.

III SUMMARY OF TESTWORK

(a) FURTHER TESTING OF BEARCUB 2

In order to keep this report at a reasonable size, this part will be only briefly mentioned.

To determine the coarsest grind with sufficient mineral liberation, 1 kg samples were ground for 5, 7.5 and 10 minutes in a lab rod mill with a reduced 12.843 kg charge at 40% solids. Size analysis of all three grinds is shown in table #1 and graph #1. Distribution of elements per size fractions of a 5 minutes grind, which was then used in all further testing, is shown in table #2.

The assays per size fractions of the head and 5 minutes grind can be seen in table #3.

Distribution of elements per size fractions of the head sample is shown in tables #4 and 4a.

As a continuation of previous testing, two more flotation tests were done at coarser and medium grind. In the test #4, the fuel oil was tested as an auxiliary collector. In the test #5, the Armac-T collector was tested instead of Econofloat. Detailed test report sheets are appended, although the flotation products were not analysed because of the other priorities of the Assay Office and the arrival of Mr. E. Bentzen.

(b) ORE SORTERS (NORTH AMERICA) STUDY

Mr. E.H. Bentzen III performed a preliminary study in February 1988 on Bearcub 2 sample and one test on Bearcub 1 sample, and also helped Brenda Metallurgical Lab Personnel in upgrading our knowledge of Feldspar beneficiation.

All the details can be seen in Mr. Bentzen's report of March 29, 1988.

(c) BEARCUB 2 "PRODUCTION RUN"

At the request of Mr. R. Weeks, in March 1988 ten kg were processed in the lab using the best recipe from "Ore Sorters" study in order to produce ten pounds of Feldspar concentrate for marketing purposes.

Size and chemical analysis of Feldspar and Silica concentrates are shown in tables #5 and 6.

(d) BEARCUB COMPOSITES BCC #1-4

Testing was performed in May - June 1988 period.

(1) SAMPLE IDENTIFICATION

Early in April 1988 the sampling program was conducted on Bearcub property (on the top of the hill) with 40 samples being obtained by blasting Pegmatite outcrops at chosen points to a depth of 2'- 3' and subsequently analysed by Chemex Labs Ltd. and Brenda Assay Office (see tables #7 and 8).

The remainder of 40 samples consisting of big lumps of material was received in Metallurgical Lab on May 2. Upon discussion with Mr. Weeks, several samples were excluded and the rest divided by location into four composites for testing:

BCC #1

SAMPLE #		WEIGHT, GR
BC 8801		4158.7
BC 8804		4939.2
BC 8805		4041.0
BC 8806		2368.7
BC 8809		2857.1
BC 8810		2953.2
	TOTAL WEIGHT	21317.9

(2) SAMPLE PREPARATION AND DESCRIPTION

All the samples comprising the composites were crushed to -6 mesh and split in half. One half was sealed in plastic bags and put aside. The other half was riffled into 1 kg lots, with the sample being taken for head analysis.

Natural pH of the samples, pulped with fresh water pH = 7.0, was the following:

BCC #1	BCC #2	BCC #3	BCC #4	MEAN
7.6	7.2	6.9	6.8	7.1

Specific gravity of pulverised samples was as follows:

BCC #1	BCC #2	BCC #3	BCC #4	MEAN
2.61	2.54	2.68	2.71	2.64

(3) HEAD ANALYSIS

As already mentioned, the assays of 40 samples done by Chemex Labs Ltd. and of 20 samples done by Brenda Assay Office are shown in tables #7 and 8.

Mean head assays of four composites can be seen in table #9, showing also Bearcub 2 head assay for comparison.

As an illustration, a comparison between mean head assays of four composites and head assays calculated from size fractions and flotation products is given in table #10.

(4) SCREEN ANALYSIS AND ELEMENT DISTIBUTION PER SIZE FRACTIONS

Screen analysis of the head, chemical analysis of the head and element distribution per size fractions of the head for four composites is shown in tables #11 - 24.

(5) FLOTATION TESTWORK

Detailed test report sheets are appended.

Two flowsheets (figures #1 and 2) and non-HF float were tested.

(a) BCC #1

Five flotation tests were performed. First two tests were ran using flowsheet #1 (Desliming on 200 Mesh) and #2 (Desliming on 270 Mesh) respectively. Slime loses were about 5% higher in test #1, Feldspar concentrate weight lower by 1.8% and Silica concentrate weight lower by 0.5%. On the other hand, Feldspar concentrate grade was higher by 2% (92% vs 90%) in test #1 and Feldspar recovery lower by 1.4% (64.7% vs 66.1%). Silica concentrate in test #2 was of a higher grade (99.9% vs 99.7% SiO_2).

The following three tests were non-HF float trials. Duomac-T reagent (Tallow Propane Diamine Diacetate) together with H_2SO_4 was used in place of Armac-T (Tallow Alkylamine Acetate) and HF in the separation stage of Feldspar and Silica. Fuel oil was tried in tests #4 and 5 and also the reduction of slimes was done (screening on 325 mesh instead of 200 mesh) in test #5.

Enormous amount of large froth bubbles was experienced in Feldspar rougher and cleaner flotation in test #3. In test #4, there was still a lot of large bubbles insufficiently loaded. In test #5 the froth looked somewhat better; Petroleum Sulphonate has been added also in the separation of Feldspar and Silica, the same as in E. Bentzen testing of non-HF float of Gillibrand Co. material.

Separation of Feldspar and Silica has not been good. Feldspar concentrate weighed only 35.4%, 41.9% and 25.8% in three tests. Feldspar content was at 86% in the third and fourth test, with 0.04% and 0.05% Iron oxide. Alumina was better in fourth test at 18.2%, compared with only 16.7% in the third test. Feldspar concentrate was good in the fifth test at 91%, but the Iron oxide of 0.29% was very high. Alumina was also good at 19%. Silica concentrates were all of a low grade: 84.8%, 91.2% and 81.3% SiO_2 in the three tests. Mica froth in the amount of 6-7% weight was the same as in all other tests.

(b) <u>BCC #2</u>

Four tests were done. First three tests were identical to those of BCC #1; in the fourth test the M.I.B.C. was tested in place of D-250 which was otherwise used in all other tests.

Substantial amount of yellow stained Feldspar and Silica was floating in "Iron" flotation stage in all tests.

Out of two standard HF-float tests, second test was markedly better: 8% wt. more of Feldspar concentrate was recovered, 7% less slimes was lost (due to desliming done on 270 mesh vs 200 mesh in test #1), Feldspar concentrate grade was 6% better (94% vs 86%) and Feldspar recovery was 12.5% higher. Iron oxide at 0.05% was identical in both tests. Alumina was also higher by 1% in the second test. Silica concentrates were almost identical assaywise, with 2.2% weight of concentrate more in test #2. Mica froth product amounted to 6.7% and 5.4% in two tests.

Non-HF test, as in the case of BCC #1, did not provide adequate separation of Feldspar and Silica. Fuel oil and less frother gave better froth appearance. Feldspar concentrate of 41% wt., 88.7% grade and 52.8% Feldspar recovery was obtained. Silica concentrate at 22% wt. was of a low grade with 86.7% SiO_2.

Test #4 with M.I.B.C. replacing D-250 and desliming done on 325 mesh provided Feldspar concentrate of 58.5% wt., 93.3% grade and 80.4% Feldspar recovery. Iron oxide in Feldspar concentrate was higher at 0.08%, but the use of M.I.B.C. frother certainly warrants further testing. Silica concentrate of 19% wt. had a grade of 98.8% SiO2 that would require upgrading. Only 3.43% of Mica was recovered in Mica froth product; coarse +28 mesh Mica at 2.25% weighed more than in other tests (usually 1.0 - 1.5%).

(c) BCC #3

Three tests done were the same as the first three tests of BCC #2.

When comparing two HF-float tests, second test shows 4.8% wt. more Feldspar concentrate and 2.8% higher Feldspar recovery, but lower Feldspar grade by 1.95%. Iron oxide was quite high in both tests at 0.08%. Silica concentrate in test #1 was slightly better: 99.7% SiO2 vs 99.5% SiO2 in test #2; it also had less AL2O3, K2O, Na2O and CaO impurities. Amount of Mica froth was about the same as before.

Non-HF float again did not provide good separation between Feldspar and Silica. Fuel oil and less frother helped to avoid frothing problem. Feldspar concentrate of 45.5% wt., 80.4% grade and 56.3% Feldspar recovery was obtained. Silica concentrate at 20.4% wt. was of a somewhat higher grade at 93.7% SiO2. Mica froth product was the same as in other tests.

(d) BCC #4

Three tests performed were the same as in the case of BCC #3.

Two HF-float tests showed similar results. Test #2 gave slightly better flotation concentrate: 1.6% more weight and 2% higher recovery at the same grade. Iron oxide impurity was also better at 0.03% vs 0.04% in test #1. Silica concentrate of test #2 weighed 0.5% more at about the same grade. Amount of Mica froth was almost the same.

As in the previous testing of composites BCC #1-3, non-HF float failed in comparison with HF-float. Feldspar concentrate of 45.3% wt., 86.9% grade and 59.5% Feldspar recovery was the result. Silica concentrate of 17.2% wt. and 92.3% SiO2 was obtained. Mica froth product was similar to other Mica products, but at lower weight of 5%.

(6) BCC #1-4 "PRODUCTION RUN"

In June 1988 the best flowsheets/recipes for composites #1-4 were chosen and ten kg of each were processed to produce Feldspar, Silica and Mica concentrates for marketing purposes. The object was also to evaluate the consistency of products obtained when treating feed material from different locations of the deposit.

Size analysis of all Feldspar, Silica and Mica concentrates is shown in tables #25-30.

Chemical analysis of all products of BCC #1-4 "Production Run" is shown in tables #31-33.

Test summary of BCC #1-4 composites of the "Production Run" can be seen in tables #34-37.

Tables #38 and 39 show the comparison of industry specs and of several known suppliers with BCC #1-4 composites for Feldspar and Silica concentrates.

As an overview, table #40 shows the possible marketable products which can be obtained from BCC #1-4 composites.

IV RESULTS AND DISCUSSION

Metallurgical testing done and reported in "Preliminary Metallurgical Testing of Bearcub Pegmatite - Progress Report #1", "Ore Sorters (North America) Preliminary Study" and "Bearcub 2 Production Run" all involved treatment of only two samples taken from Bearcub surface outcrops.

Three tests were done by Brenda Metallurgical Lab Personnel, inexperienced in treatment of industrial minerals, and without the cleaning of Feldspar concentrate produced the following results when treating Bearcub 2 samples:

	K2O%	NA2O%	CAO%	AL2O3%	FE2O3%	SIO2%	WT.%	FELDSPAR RECOVERY%
HEAD*	5.54	3.09	0.92	12.1	0.56	64.0		
ROUGHER FELDSPAR CONC.	7.41	4.56	1.34	15.5	0.09**	68.5	58.9	81.0
SILICA CONC.	0.02	0.02	0.01	0.10	0.14**	96.5	19.8	

* All assays were done by Brenda Assay Office.

**Products pulverised in a unit made of iron; actual assays are 0.01% Fe2O3 for both concentrates.

After five tests done on Bearcub 2 sample, industrial minerals specialist from Ore Sorters reported the following results (rougher Feldspar concentrate has been cleaned):

	K2O%	NA2O%	CAO%	AL2O3%	FE2O3%	SIO2%	WT.%	FELDSPAR RECOVERY%
HEAD*	5.91	3.16	1.08	14.80	0.43	74.7		
FELDSPAR CONC.	8.11	4.25	N.A.	18.4	0.01	N.A.	47.8	63.0
SILICA CONC.	0.12	0.09	N.A.	0.30	0.01	95.7	20.4	

* All assays done by Mineral Lab.

Armed with a better understanding of tricky practices in Pegmatite beneficiation, conveyed to us by E. Bentzen, Brenda Metallurgical Group processed 10 kg of Brenda 2 samples to make the following products for market search:

	K2O%	NA2O%	CAO%	AL2O3%	FE2O3%	SIO2%
FELDSPAR CONC.	8.12	4.98	1.00	18.94	0.015	63.0
SILICA CONC.	0.02	<0.05	<0.01	0.07	0.01	99.1

* All assays were done by Brenda Assay Office.

Bearcub forty samples, of which composites BCC #1-4 were made, received for testing in early May were markably different from the Bearcub 2 sample treated earlier (see table #9):

	K2O%	NA2O%	CAO%	AL2O3%	FE2O3%	SIO2%	MgO%
BEARCUB2*	5.73	3.13	1.00	13.45	0.50	69.4	0.09
BCC #1-4	4.49	4.14	1.23	14.96	0.68	74.6	0.16

* Mean assay of Mineral Lab and Brenda Assay Office.

As can be seen, BCC #1-4 composites contain more Na-Feldspar and Ca-Feldspar ~~than~~ K-Feldspar, more Silica, more iron-bearing minerals and more Biotite-Phlogopite Mica minerals.

Upon visual examination, the sample lumps were found to be substantially yellow stained and as E. Bentzen points out "the surface material samples subject to weathering effect the recovery during froth flotation".

That could suggest the difficulty in obtaining the higher K2O value in Feldspar concentrate when employing a conventional HF-Amine reagent combination in standard froth flotation procedure.

When examining the size analysis of BCC #1-4 composites crushed to -6 mesh, it appears that samples making up the BCC #3 were the coarsest:

	% +8 MESH	% -325 MESH
BCC #1	26.71	3.76
BCC #2	26.64	3.56
BCC #3	34.12	3.02
BCC #4	29.15	3.52

The analysis of element distribution per size fractions of BCC #1-4 heads crushed to -6 mesh shows that generally Feldspar (K-Feldspar in particular) and Silica are represented more in coarser classes, while Fe2O3 and MgO (loss on ignition also) minerals go more to fines.

In flotation testwork, two flowsheets (figures #1 and 2) were applied and non-HF float was tried also. Flowsheet #1 is basically the best recipe arrived at in all previous testing. Flowsheet #2 includes additional screening ahead of grinding in order to provide more coarse Mica and prevent overgrinding of Feldspar and Silica with subsequent losses to fines.

Comparison of two HF-floats was inconclusive and, in order to avoid complicated treatment procedure, the flowsheet #1 was chosen with the desliming on 325 mesh to provide higher recovery of Feldspar and Silica. "Iron" flotation stage was ran longer and with more frother when processing BCC #2, 3 and 4 samples which contain more iron oxide than samples of BCC #1.

Preliminary testing of non-HF float did not provide good separation of Feldspar and Silica. As far as we know, all Feldspar plants in the world still use conventional HF-Amine reagent system. If and when necessary, further detailed testing would be required in proving Tallow Propane Diamine Diacetate - H2SO4 combination as a viable alternative.

Despite the pressure to meet the deadline when processing forty kg of samples of BCC #1-4 composites, without suggesting that somewhat better results could have been achieved at a slower pace, the marketable concentrates produced (see tables 38-40) compare quite favourably with the industry specifications and the products of some known producers.

In spite of the difference in head samples, BCC #1-4 "Production Run" products do not differ much from those obtained in the previous testing:

	$K_2O + NA_2O$%	CAO%	AL_2O_3%	FE_2O_3%	SIO_2%	WT.%
FELDSPAR CONC.						
BEARCUB 2, "PROGRESS REPORT 1"	11.97	1.34	15.5	0.015	68.5	58.9
"ORE SORTERS"	12.36	N.A.	18.4	0.015	N.A.	47.8
BEARCUB 2 "PROD. RUN"	13.1	1.00	18.94	0.015	63.0	-
BCC #1-4	12.2	1.50	19.6	0.05	66.8	51.0

	$K_2O + NA_2O$%	CAO%	AL_2O_3%	FE_2O_3%	SIO_2%	WT.%
SILICA CONC.						
BEARCUB 2, "PROGRESS REPORT 1"	0.04	0.01	0.10	0.01	96.5	19.8
"ORE SORTERS"	0.21	N.A.	0.30	0.01	95.7	20.4
BEARCUB 2 "PROD. RUN"	0.065	<0.01	0.07	0.01	99.1	-
BCC #1-4	0.061	0.02	0.125	0.018	99.8	18.0

In the case of a further testing, M.I.B.C. as a replacement for D-250 has to be seriously considered.

The flotation cleaning of Mica froth product was tried but without success.

Also, the separation of K-Feldspar and Na-Feldspar was attempted using Na_2SiO_3 as a Na-Feldspar depressant and more Amine collector plus kerosene for K-Feldspar recovery as suggested in the literature with no visible improvement. If it is critical to provide higher K_2O content of the Feldspar concentrate at fairly low K_2O content in the feed, further testing can be done. As well, the information can be sought from E. Bentzen and from the Norwegian producer that was known to separate K-Feldspar from Na-Feldspar.

ACKNOWLEDGMENT

The hard work of Brenda Assay Office Personnel is sincerely appreciated.

Miss Harsche and Mrs. Flintoff also deserve praise for the fine work done especially when typing difficult tables.

B. Nikodijevic
R. McMorran

BN,RMcM/sch
cc. R. Weeks

BEARCUB 2

5 MIN. GRIND

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	17.09	1.71	1.71	98.29
+35	34.82	3.48	5.19	94.81
+48	148.62	14.86	20.05	79.95
+65	224.38	22.44	42.49	57.51
+100	199.88	19.99	62.48	37.52
+150	105.74	10.58	73.06	26.94
+200	69.31	6.93	79.99	20.01
+270	36.43	3.64	83.63	16.37
+325	17.73	1.77	85.40	14.60
-325	146.00	14.60	100.00	
TOTAL	1,000.00	100.00		

7.5 MIN. GRIND

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	5.34	0.53	0.53	99.47
+35	5.34	0.53	1.06	98.94
+48	28.50	2.85	3.91	96.09
+65	65.90	6.59	10.50	89.50
+100	219.08	21.91	32.41	67.59
+150	210.53	21.05	53.46	46.54
+200	146.77	14.68	68.14	31.86
+270	73.02	7.30	75.44	24.56
+325	41.68	4.17	79.61	20.39
-325	203.84	20.39	100.00	
TOTAL	1,000.00	100.00		

10 MIN. GRIND

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	2.28	0.23	0.23	99.77
+35	2.58	0.26	0.49	99.51
+48	8.75	0.88	1.37	98.63
+65	26.04	2.60	3.97	96.03
+100	108.00	10.80	14.77	85.23
+150	156.57	15.66	30.43	69.57
+200	119.15	11.91	42.34	57.66
+270	58.26	5.83	48.17	51.83
+325	32.22	3.22	51.39	48.61
-325	486.15	48.61	100.00	
TOTAL	1,000.00	100.00		

BEARCUB #2 - 5 MIN. GRIND ELEMENT DISTRIBUTION

SCREEN SIZE, #	WEIGHT %	K20 %	K20 CONTENT	K20 DIST. %	% RET.	Na20 %	Na20 CONTENT	Na20 DIST. %	% RET.	Al20 %	Al20 CONTENT	Al20 DIST. %	% RET.
+ 35	5.19	8.85	45.9315	7.23	7.23	1.39	7.2141	2.26	2.26	28.01	145.3719	9.24	9.24
+ 48	14.86	8.19	121.7034	19.14	26.37	2.47	36.7042	11.48	13.74	23.80	353.6680	22.47	31.71
+ 65	22.44	6.87	154.1628	24.25	50.62	3.64	81.6816	25.55	39.29	16.30	365.7720	23.24	54.95
+100	19.99	6.20	123.9380	19.50	70.12	3.79	75.7621	23.70	62.99	14.00	279.8600	17.78	72.73
+150	10.58	5.48	57.9784	9.12	79.24	3.41	36.0778	11.29	74.28	13.90	147.0620	9.35	82.08
+200	6.93	5.30	36.7290	5.78	85.02	3.23	22.3839	7.00	81.28	13.20	91.4760	5.81	87.89
+270	3.64	4.88	17.7632	2.79	87.81	3.05	11.1020	3.47	84.75	11.20	40.7680	2.59	90.48
+325	1.77	4.52	8.0004	1.26	89.07	2.88	5.0976	1.59	86.34	7.90	13.9830	0.89	91.37
-325	14.60	4.76	69.4960	10.93	100.00	2.99	43.6540	13.66	100.00	9.30	135.7800	8.63	100.00
TOTAL	100.00	6.36	635.7027	100.00		3.20	319.6773	100.00		15.74	1573.7409	100.00	

SCREEN SIZE, #	WEIGHT %	Fe203 %	Fe203 CONTENT	Fe203 DIST. %	% RET.	CaO %	CaO CONTENT	CaO DIST. %	% RET.	MgO %	MgO CONTENT	MgO DIST. %	% RET.
+ 35	5.19	3.43	17.8017	13.49	13.49	0.25	1.2975	1.46	1.46	1.19	6.1761	19.92	19.92
+ 48	14.86	2.86	42.4996	32.21	45.70	0.62	9.2132	10.39	11.85	0.85	12.6310	40.74	60.66
+ 65	22.44	1.20	26.9280	20.41	66.11	0.95	21.3180	24.04	35.89	0.30	6.7320	21.71	82.37
+100	19.99	0.57	11.3943	8.64	74.75	1.11	22.1889	25.02	60.91	0.12	2.3988	7.74	90.11
+150	10.58	0.43	4.5494	3.45	78.20	1.03	10.8974	12.29	73.20	0.07	0.7406	2.39	92.50
+200	6.93	0.51	3.5343	2.68	80.88	0.95	6.5835	7.42	80.62	0.07	0.4851	1.57	94.07
+270	3.64	0.63	2.2932	1.74	82.62	0.89	3.2396	3.65	84.27	0.07	0.2548	0.82	94.89
+325	1.77	0.58	1.0266	0.78	83.40	0.87	1.5399	1.74	86.01	0.07	0.1239	0.40	95.29
-325	14.60	1.50	21.9000	16.60	100.00	0.85	12.4100	13.99	100.00	0.10	1.4600	4.71	100.00
TOTAL	100.00	1.32	131.9271	100.00		0.89	88.6880	100.00		0.31	31.0023		

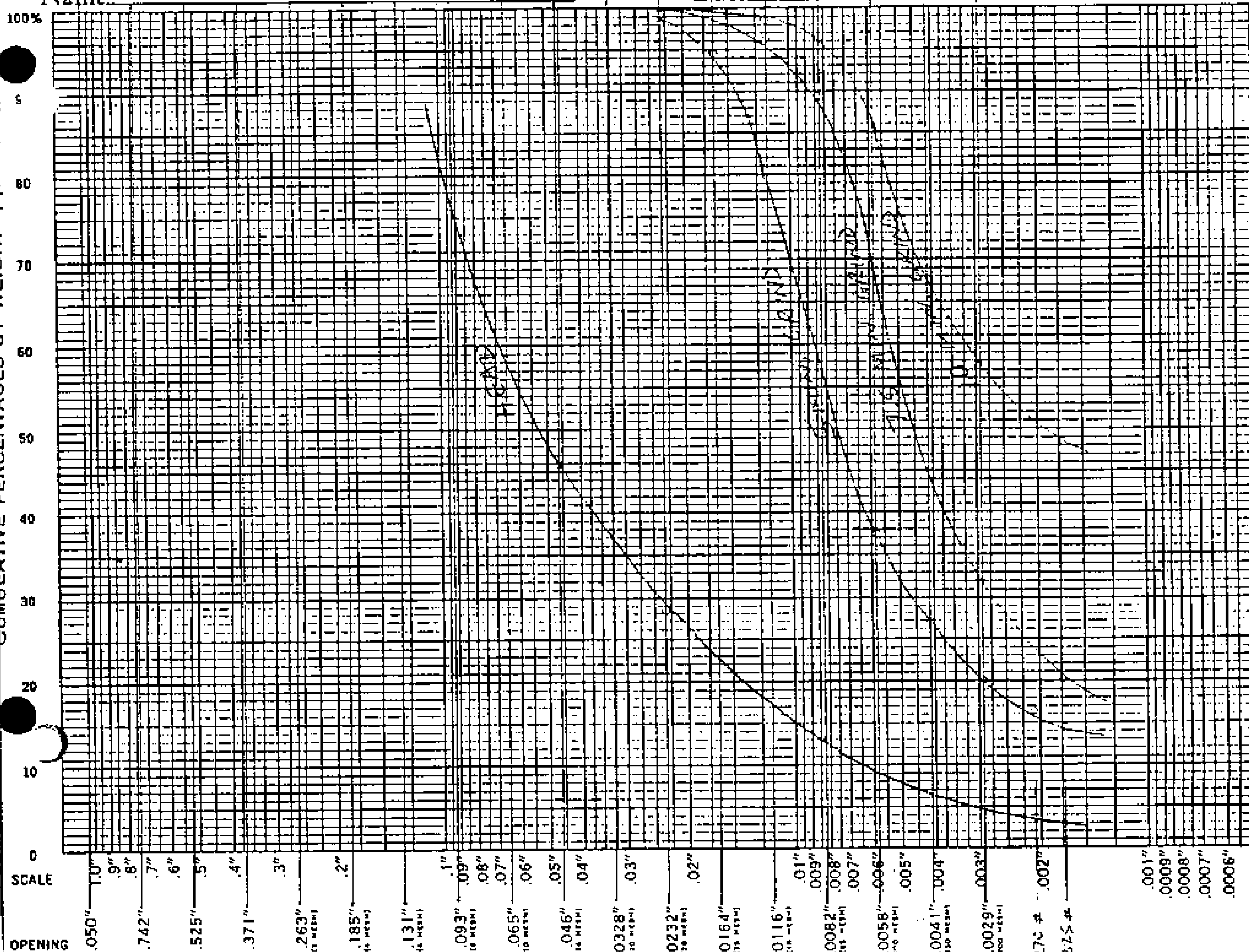
TABLE NO. 2

Form No. 1-B
Please mention ab
when ordering

The Tyler Standard Screen Scale

Cumulative Logarithmic Diagram of Screen Analysis on Sample of BEARCUB 2

Name__________ Date HEAD AND GRIND TESTS



SCREEN SCALE RATIO 1.414												
Openings: Inches	Openings: Milli-meters	Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67											
.742	18.85											
.525	13.33											
.371	9.423											
.263	6.680	3										
.185	4.699	4	4									
.131	3.327	6	6									
.093	2.362	8	8									
.065	1.651	10	12									
.046	1.168	14	16									
.0328	.833	20	20									
.0232	.589	28	30									
.0164	.417	35	40									
.0116	.295	48	50									
.0082	.208	65	70									
.0058	.147	100	100									
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200									
			Totals,									

TABLE NO 3

BRENDA MINES LTD.

ASSAY LAB REPORT

BEARCUB2 - MILL FLOTATION

DATE: FEBRUARY 8, 1988 FILE NAME: BEARCUB3.LAB

SAMPLE DATE	SAMPLE		%K2O	%Na2O	%FE2O3	%CaO	%MgO	%A12O3	%SiO2	% Calc. Feldspar
05/01/88	5 MIN.									
	GRIND	+35	8.85	1.39	3.43	.25	1.19	28.1		65.30
		+48	8.19	2.47	2.86	.62	.85	23.8		72.37
		+65	6.87	3.64	1.20	.95	.30	16.3		76.11
		+100	6.20	3.79	.57	1.11	.12	14.0		74.21
		+150	5.48	3.41	.43	1.03	.07	13.9		66.34
		+200	5.30	3.23	.51	.95	.07	13.2		63.36
		+270	4.88	3.05	.63	.89	.07	11.2		59.06
		+325	4.52	2.88	.58	.87	.07	7.9		55.39
		-325	4.76	2.99	1.50	.85	.10	9.3		57.64
05/01/88	HEAD	+8	6.14	3.65	.50	.95	.11	14.6		71.88
		+10	6.32	3.73	.49	.94	.11	14.4		73.57
		+12	6.15	3.72	.55	.97	.10	14.8		72.63
		+14	6.05	3.75	.57	.95	.10	14.6		72.19
		+20	6.07	3.69	.53	.97	.10	15.3		71.90
		+28	5.82	3.73	.63	.98	.10	14.1		70.81
		+35	5.64	3.65	.75	.97	.11	14.6		69.02
		+48	5.41	3.59	.76	.94	.10	13.3		67.00
		+65	5.17	3.54	.83	.94	.10	12.3		65.16
		+100	5.12	3.51	.90	.97	.11	13.4		64.76
		+150	5.13	3.52	1.03	1.01	.13	13.2		65.10
		+200	5.01	3.49	1.13	1.06	.16	14.3		64.39
		+270	5.17	3.37	1.18	1.06	.14	12.6		64.32
		+325	5.24	3.31	1.23	1.13	.13	13.7		64.57
		-325	-	3.21	1.61	1.27	.20	15.3		-

COMMENTS: SIO2 Results to follow if required.

D. Perkins
Assay Lab

DP:cs

BEARCUB #2
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		K2O				Na2O				Al2O3			
Screen Size,#	Weight %	%	Content	Dist. %	% Ret.	%	Content	Dist. %	% Ret.	%	Content	Dist. %	% Ret.
+ 8	24.55	6.14	150.7370	25.58	25.58	3.65	89.6075	24.57	24.57	14.6	358.430	24.99	24.99
+ 10	17.06	6.32	107.8192	18.29	43.87	3.73	63.6338	17.45	42.02	14.4	245.664	17.13	42.12
+ 12	7.05	6.15	43.3575	7.36	51.23	3.72	26.2260	7.19	49.21	14.8	104.340	7.28	49.40
+ 14	5.46	6.05	33.0330	5.61	56.84	3.75	20.4750	5.61	54.82	14.6	79.716	5.56	54.96
+ 20	9.13	6.07	55.4191	9.40	66.24	3.69	33.6897	9.24	64.06	15.3	139.689	9.74	64.70
+ 28	8.42	5.82	49.0044	8.31	74.55	3.73	31.4066	8.61	72.67	14.1	118.722	8.28	72.98
+ 35	5.61	5.64	31.6404	5.37	79.92	3.65	20.4765	5.61	78.28	14.6	81.906	5.71	78.69
+ 48	5.82	5.41	31.4862	5.34	85.26	3.59	20.8938	5.73	84.01	13.3	77.406	5.40	84.09
+ 65	3.90	5.17	20.1630	3.42	88.68	3.54	13.8060	3.79	87.80	12.3	47.970	3.34	87.43
+100	3.81	5.12	19.5072	3.31	91.99	3.51	13.3731	3.67	91.47	13.4	51.054	3.56	90.99
+150	2.56	5.13	13.1328	2.23	94.22	3.52	9.0112	2.47	93.94	13.2	33.792	2.36	93.35
+200	2.02	5.01	10.1202	1.72	95.94	3.49	7.0498	1.93	95.87	14.3	28.886	2.01	95.36
+270	1.11	5.17	5.7387	0.97	96.91	3.37	3.7407	1.03	96.90	12.6	13.986	0.98	96.34
+325	0.63	5.24	3.3012	0.56	97.47	3.31	2.0853	0.57	97.47	13.7	8.631	0.60	96.94
-325	2.87	5.20*	14.9240	2.53	100.00	3.21	9.2127	2.53	100.00	15.3	43.911	3.06	100.00
TOTAL	100.00	5.89	589.3839	100.00	-	3.65	364.6877	100.00		14.34	1434.103	100.00	

* Not assayed, calculated/assumed.

TABLE No. 4

BEARCUB #2
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		Fe203				CaO				MgO			
SCREEN SIZE,#	WEIGHT %	%	CONTENT	DIST. %	%. RET.	%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.
+ 8	24.55	0.50	12.2750	18.97	18.97	0.95	23.3225	24.04	24.04	0.11	2.7005	24.42	24.42
+ 10	17.06	0.49	8.3594	12.92	31.89	0.94	16.0364	16.53	40.57	0.11	1.8766	16.97	41.39
+ 12	7.05	0.55	3.8775	5.99	37.88	0.97	6.8385	7.05	47.62	0.10	0.7050	6.37	47.76
+ 14	5.46	0.57	3.1122	4.81	42.69	0.95	5.1870	5.34	52.96	0.10	0.5460	4.94	52.70
+ 20	9.13	0.53	4.8389	7.48	50.17	0.97	8.8561	9.13	62.09	0.10	0.9130	8.26	60.96
+ 28	8.42	0.63	5.3046	8.20	58.37	0.98	8.2516	8.50	70.59	0.10	0.8420	7.61	68.57
+ 35	5.61	0.75	4.2075	6.50	64.87	0.97	5.4417	5.61	76.20	0.11	0.6171	5.58	74.15
+ 48	5.82	0.76	4.4232	6.84	71.71	0.94	5.4708	5.64	81.84	0.10	0.5820	5.26	79.41
+ 65	3.90	0.83	3.2370	5.01	76.72	0.94	3.6660	3.78	85.62	0.10	0.3900	3.53	82.94
+100	3.81	0.90	3.4290	5.30	82.02	0.97	3.6957	3.81	89.43	0.11	0.4191	3.79	86.73
+150	2.56	1.03	2.6368	4.08	86.10	1.01	2.5856	2.66	92.09	0.13	0.3328	3.01	89.74
+200	2.02	1.13	2.2826	3.53	89.63	1.06	2.1412	2.21	94.30	0.16	0.3232	2.92	92.66
+270	1.11	1.18	1.3098	2.03	91.66	1.06	1.1766	1.21	95.51	0.14	0.1554	1.41	94.07
+325	0.63	1.23	0.7749	1.20	92.86	1.13	0.7119	0.73	96.24	0.13	0.0819	0.74	94.81
-325	2.87	1.61	4.6207	7.14	100.00	1.27	3.6449	3.76	100.00	0.20	0.5740	5.19	100.00
TOTAL	100.00	0.65	64.6891	100.00		0.97	97.0265	100.00		0.11	11.0586	100.00	

TABLE No. 4a

BEARCUB
FELDSPAR CONCENTRATE

Size Analysis

Screen Size		%	% Cumulative	
Mesh (Tyler)	Microns	Wt.	Retained	Passing
+ 35	+420	4.43	4.43	95.57
+ 48	+297	18.17	22.60	77.40
+ 65	+210	26.80	49.40	50.60
+100	+149	23.88	73.28	26.72
+150	+105	12.16	85.44	14.56
+200	+ 74	7.55	92.99	7.01
+270	+ 53	3.22	96.21	3.79
+325	+ 44	1.48	97.69	2.31
-325	- 44	2.31	100.00	
TOTAL		100.00		

Chemical Analysis

K2O,%	8.12
Na2O,%	4.98
Al2O3%	18.94
Fe2O3%	0.015
SiO2,%	63.00

TABLE NO. 6

BEARCUB
ROUGHER SILICA CONCENTRATE

Chemical Analysis

SiO_2,%	99.1
Na_2O,%	<0.05
K_2O,%	0.02
MgO,%	<0.05
Al_2O_3,%	0.07
CaO,%	<0.01
P_2O_5,%	<0.05
S,%	<0.05
TiO_2,%	<0.01
MnO,%	<0.01
Fe_2O_3,%	<0.01
BaO,%	<0.01
Cl,%	<0.02

Size Analysis

96% - 28 mesh + 200 mesh (-595 MK + 74 MK)

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

To: P[illegible]DA MINES LIMITED
P.O. BOX 420
PEACHLAND, B.C.
V0H 1X0

Project :
Comments: CC: MR. ROSS WEEKS

Page No. : [illegible]
Tot. Pages: 1
Date : 13-APR-88
Invoice # : I-8813981
P.O. # : B 1212

CERTIFICATE OF ANALYSIS A8813981

SAMPLE DESCRIPTION	PREP CODE		SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	BaO %	LOI %	TOTAL %
BC-8801	248	232	73.25	14.92	0.39	0.11	0.34	2.22	8.07	0.03	0.10	0.01	0.04	0.32	99.81
BC-8802	248	232	75.77	14.49	0.47	0.12	1.30	4.56	3.25	0.03	0.10	0.03	0.01	0.36	100.50
BC-8803	248	232	73.93	15.20	0.35	0.10	0.81	3.30	5.56	0.02	0.10	0.01	0.02	0.34	99.75
BC-8804	248	232	75.41	14.91	0.55	0.19	1.59	4.67	3.15	0.03	0.17	0.01	0.01	0.43	101.10
BC-8805	248	232	72.55	15.63	0.74	0.25	1.30	3.59	5.34	0.05	0.18	0.02	0.01	0.50	100.15
BC-8806	248	232	73.75	15.23	0.41	0.09	0.76	3.29	6.31	0.02	0.10	0.03	0.01	0.51	100.50
BC-8807	248	232	73.14	15.53	0.74	0.17	0.76	2.77	6.36	0.06	0.10	0.02	0.01	0.58	100.25
BC-8808	248	232	75.29	14.73	0.44	0.11	0.85	2.87	5.29	0.02	0.10	0.04	0.01	0.53	100.30
BC-8809	248	232	74.30	15.19	0.86	0.19	1.39	3.87	3.99	0.07	0.11	0.03	0.02	0.64	100.65
BC-8810	248	232	73.55	14.63	0.30	0.08	0.20	2.17	8.71	0.01	0.12	0.01	0.01	0.31	100.10
BC-8811	248	232	75.16	14.71	0.64	0.12	1.30	4.13	4.07	0.04	0.10	0.04	0.01	0.32	100.65
BC-8812	248	232	74.24	14.74	1.55	0.19	1.29	4.26	3.41	0.04	0.13	0.37	0.02	0.44	100.70
BC-8813	248	232	75.99	14.07	0.61	0.09	1.04	4.27	4.23	0.01	0.17	0.27	0.01	0.20	100.90
BC-8814	248	232	75.21	14.56	0.46	0.11	1.36	3.98	4.04	0.04	0.11	0.01	0.05	0.35	100.30
BC-8815	248	232	73.95	14.77	0.57	0.12	1.19	4.41	4.32	0.03	0.11	0.05	< 0.01	0.29	99.83
BC-8816	248	232	75.53	15.30	0.95	0.14	1.54	4.86	2.34	0.03	0.13	0.18	< 0.01	0.47	101.50
BC-8817	248	232	74.62	15.06	0.97	0.22	1.40	3.59	4.40	0.09	0.11	0.02	0.02	0.72	101.25
BC-8818	248	232	72.49	15.09	0.60	0.18	0.67	2.60	7.88	0.03	0.18	< 0.01	0.03	0.30	100.90
BC-8819	248	232	75.10	14.68	0.87	0.13	1.18	3.80	5.06	0.02	0.12	0.14	0.01	0.22	101.35
BC-8820	248	232	76.29	14.15	0.44	0.12	0.84	2.61	5.91	0.02	0.11	0.03	0.01	0.39	100.95
BC-8821	248	232	74.33	14.55	0.98	0.21	0.88	2.98	5.81	0.08	0.12	0.03	0.02	0.43	100.45
BC-8822	248	232	75.80	14.67	0.71	0.16	1.23	3.84	4.05	0.04	0.12	0.04	< 0.01	0.54	101.20
BC-8823	248	232	75.19	15.32	0.70	0.10	2.10	5.52	2.15	0.01	0.12	0.19	< 0.01	0.26	101.70
BC-8824	248	232	76.45	13.85	0.37	0.13	1.01	2.95	5.97	0.03	0.11	0.03	0.07	0.33	101.30
BC-8825	248	232	74.00	14.94	0.26	0.09	0.44	2.55	7.92	0.01	0.11	0.01	0.06	0.29	100.70
BC-8826	248	232	73.68	16.19	1.27	0.23	1.08	3.08	5.07	0.10	0.13	0.06	0.03	0.78	101.70
BC-8827	248	232	76.63	14.14	0.35	0.12	1.20	3.17	4.09	0.03	0.10	0.01	0.02	0.47	100.30
BC-8828	248	232	76.08	14.16	0.99	0.31	1.57	3.40	4.10	0.08	0.19	0.03	0.01	0.64	101.55
BC-8829	248	232	73.49	15.32	0.36	0.11	0.55	2.75	8.06	0.02	0.11	0.01	0.02	0.23	101.05
BC-8830	248	232	76.15	14.94	0.24	0.09	2.34	5.07	2.28	0.01	0.11	< 0.01	0.01	0.10	101.35
BC-8831	248	232	75.56	14.90	0.79	0.18	1.48	4.65	3.30	0.06	0.12	0.05	0.02	0.44	101.55
BC-8832	248	232	75.19	15.25	0.78	0.18	2.15	4.95	2.52	0.04	0.12	0.07	< 0.01	0.60	101.85
BC-8833	248	232	76.10	14.51	0.73	0.21	1.30	3.58	4.70	0.05	0.12	0.04	0.01	0.36	101.70
BC-8834	248	232	75.06	14.99	0.62	0.16	1.46	4.13	4.91	0.03	0.12	0.04	0.01	0.36	101.90
BC-8835	248	232	72.64	15.02	0.63	0.11	1.11	3.73	5.77	0.01	0.12	0.13	0.02	0.12	99.43
BC-8836	248	232	70.49	15.34	0.30	0.10	0.99	2.53	8.42	0.02	0.10	0.01	0.09	0.25	99.15
BC-8837	248	232	73.11	15.31	0.88	0.22	1.83	4.51	3.86	0.07	0.10	0.02	0.03	0.29	100.25
BC-8838	248	232	74.21	15.11	0.97	0.25	1.96	4.69	3.80	0.08	0.15	0.02	0.02	0.55	101.80
BC-8839	248	232	74.85	14.90	0.57	0.19	1.98	5.27	3.13	0.04	0.16	0.02	0.01	0.20	101.35
BC-8840	248	232	69.02	16.32	0.32	0.14	0.36	2.13	10.30	0.01	0.16	< 0.01	0.05	0.25	99.10

CERTIFICATION

TABLE NO 8

BRENDA MINES LTD.

ASSAY REPORT

BEARCUB SAMPLES

DATE REPORTED: 18/04/88 DATE REC'D: 05/04/88 FILE NAME: BEARCUBS.LAB

SAMPLES	% SiO2	% AlO3	% Fe2O3	% MgO	% CaO	% NaO2	% K2O	LOI	% MnO	% BaO
BC 8801 B-A	72.6	15.84	.41	.13	.60	2.82	7.61	.35	.01	.01
BC 8802 B-A	75.1	15.71	.44	.13	1.38	4.91	2.33	.43	.02	<.01
BC 8803 B-A	72.3	15.71	.28	.05	.27	2.45	8.92	.34	.02	<.01
BC 8804 B-A	74.8	15.48	.24	.07	1.65	4.97	2.80	.39	.02	<.01
BC 8805 B-A	74.7	15.28	.34	.10	.83	3.10	5.61	.56	.01	<.01
BC 8806 B-A	71.2	16.60	.23	.05	.38	2.71	8.79	.29	.03	<.01
BC 8807 B-A	72.7	16.22	.50	.12	.97	3.13	6.36	.55	.02	<.01
BC 8808 B-A	75.2	15.12	.35	.08	.35	2.72	6.11	.61	.04	<.01
BC 8809 B-A	75.3	14.47	.68	.15	1.15	3.53	4.72	.51	.02	.01
BC 8810 B-A	72.2	15.08	.23	.06	.13	2.20	10.11	.27	<.01	<.01
BC 8811 B-A	72.3	15.83	.37	.08	.70	3.25	7.50	.31	.01	<.01
BC 8812 B-A	71.9	16.27	.21	.04	.64	3.22	7.65	.41	.01	.02
BC 8813 B-A	73.1	15.46	.58	.13	1.29	4.89	4.42	.19	.14	<.01
BC 8814 B-A	74.9	14.60	.42	.08	.88	3.69	5.43	.42	<.01	.01
BC 8815 B-A	73.8	14.96	.27	.07	.65	3.58	6.66	.28	.02	<.01
BC 8816 B-A	75.2	15.28	.67	.09	1.28	4.69	2.63	.54	.12	.01
BC 8817 B-A	74.5	15.23	.74	.18	1.19	3.49	4.68	.51	.02	.01
BC 8818 B-A	75.4	14.43	.53	.10	1.24	3.81	4.52	.39	.01	<.01
BC 8819 B-A	74.5	14.96	.63	.16	1.29	4.44	3.98	.30	.03	<.01
BC 8820 B-A	74.9	14.74	.54	.10	.98	2.90	5.73	.48	.07	<.01
BC 8803 A-R	72.8	15.08	.28	.05	.28	2.41	8.70	.33	.02	.01
BC 8811 A-R	71.6	15.93	.35	.09	.76	3.36	7.52	.35	.01	<.01
BC 8817 A-R	73.5	15.38	.84	.17	1.21	3.51	4.79	.55	.02	.01
STD SY-2 *T	60.0	12.30	6.28	2.70	7.98	4.79	4.76	-	.32	-
STD SY-2 **A	60.2	12.84	6.31	2.80	8.33	4.59	4.54	.97	.32	.05
STD 99-A *T	65.2	20.50	-	.02	2.14	6.20	5.20	-	.02	.26
STD 99-A **A	65.1	20.74	.07	.03	2.19	6.33	5.29	.25	<.01	.22

Comments: *T = True Value
**A = Analysis

Derek Perkins
Chief Chemist

DP:cs

TABLE NO. 9

BEARCUB COMPOSITES

COMP. NO.	SAMPLES INCLUDED, NO.	MEAN ASSAY, %							
		SiO_2	Al_2O_3	Fe_2O_3	K_2O	Na_2O	CaO	MgO	L.O.I.
BCC #1	1,4,5,6, 9,10	73.80	15.09	0.54	5.93	3.30	0.93	0.15	0.45
BCC #2	11,12,14, 15,16,17, 18,19	74.54	14.86	0.83	4.44	3.95	1.24	0.15	0.39
BCC #3	20,21,22, 23,25,26, 27	75.13	14.85	0.68	3.39	5.00	1.11	0.15	0.44
BCC #4	29,30,31, 32,33,34, 37,38	74.86	15.04	0.67	4.18	4.29	1.63	0.18	0.37
MEAN BCC #1 TO BCC #4		74.58	14.96	0.68	4.49	4.14	1.23	0.16	0.41
BEARCUB 2 (TESTED EARLIER)		69.4	13.45	0.50	5.73	3.13	1.00	0.09	

BEARCUB - COMPARISON OF ASSAYED AND CALCULATED HEADS

		%							
	BULK HEAD	SIO2	AL2O3	FE2O3	K2O	NA2O	CAO	MGO	L.O.I.
BCC #1	ASSAYED	73.80	15.09	0.54	5.93	3.30	0.93	0.15	0.45
	CALC. FROM SIZE FRACTIONS	76.97	12.63	0.33	6.04	3.32	0.77	0.09	0.40
	CALC. FROM FLOT PRODUCTS	73.51	15.38	0.51	5.95	3.33	0.84	0.10	-
BCC #2	ASSAYED	74.54	14.86	0.83	4.44	3.95	1.24	0.15	0.39
	CALC. FROM SIZE FRACTIONS	74.48	14.66	0.46	5.37	3.92	1.00	0.09	0.39
	CALC. FROM FLOT PRODUCTS	72.54	15.33	0.65	5.29	3.74	1.00	0.10	-
BCC #3	ASSAYED	75.13	14.85	0.68	3.39	5.00	1.11	0.15	0.44
	CALC. FROM SIZE FRACTIONS	75.44	14.63	0.49	4.61	3.65	1.02	0.10	0.51
	CALC. FROM FLOT PRODUCTS	75.57	14.42	0.64	4.51	3.50	1.05	0.09	-
BCC #4	ASSAYED	74.86	15.04	0.67	4.18	4.29	1.63	0.18	0.37
	CALC. FROM SIZE FRACTIONS	75.61	14.65	0.56	4.55	3.94	1.22	0.12	0.35
	CALC. FROM FLOT PRODUCTS	74.30	15.18	0.56	4.42	4.08	1.29	0.08	-

TABLE No. 10

BEARCUB COMPOSITE #1
HEAD

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+8	269.00	26.71	26.71	73.29
+10	160.17	15.90	42.61	57.39
+12	70.08	6.96	49.57	50.43
+14	49.72	4.94	54.51	45.49
+20	83.93	8.33	62.84	37.16
+28	77.41	7.69	70.53	29.47
+35	59.26	5.88	76.41	23.59
+48	45.29	4.50	80.91	19.09
+65	44.92	4.46	85.37	14.63
+100	36.33	3.61	88.98	11.02
+150	28.40	2.82	91.80	8.20
+200	23.54	2.34	94.14	5.86
+270	10.76	1.07	95.21	4.79
+325	10.36	1.03	96.24	3.76
-325	37.83	3.76	100.00	
TOTAL	1,007.00	100.00		

BEARCUB COMPOSITE #2
HEAD

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+8	269.55	26.64	26.64	73.36
+10	158.56	15.67	42.31	57.69
+12	70.28	6.94	49.25	50.75
+14	49.83	4.92	54.17	45.83
+20	83.54	8.26	62.43	37.57
+28	77.23	7.63	70.06	29.94
+35	61.26	6.05	76.11	23.89
+48	46.10	4.56	80.67	19.33
+65	45.99	4.54	85.21	14.79
+100	37.69	3.72	88.93	11.07
+150	29.71	2.94	91.87	8.13
+200	24.45	2.42	94.29	5.71
+270	10.66	1.05	95.34	4.66
+325	11.09	1.10	96.44	3.56
-325	36.06	3.56	100.00	
TOTAL	1,012.00	100.00		

BEARCUB COMPOSITE #3
HEAD

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+8	344.95	34.12	34.12	65.88
+10	177.69	17.58	51.70	48.30
+12	72.90	7.21	58.91	41.09
+14	48.56	4.80	63.71	36.29
+20	75.60	7.48	71.19	28.81
+28	65.46	6.47	77.66	22.34
+35	48.71	4.82	82.48	17.52
+48	34.26	3.39	85.87	14.13
+65	33.01	3.27	89.14	10.86
+100	26.16	2.59	91.73	8.27
+150	20.53	2.03	93.76	6.24
+200	16.80	1.66	95.42	4.58
+270	8.10	0.80	96.22	3.78
+325	7.73	0.76	96.98	3.02
-325	30.54	3.02	100.00	
TOTAL	1,011.00	100.00		

BEARCUB COMPOSITE #4
HEAD

SCREEN SIZE, #	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+8	295.01	29.15	29.15	70.85
+10	167.45	16.55	45.70	54.30
+12	70.80	7.00	52.70	47.30
+14	49.13	4.85	57.55	42.45
+20	82.23	8.13	65.68	34.32
+28	74.43	7.35	73.03	26.97
+35	57.45	5.68	78.71	21.29
+48	42.33	4.18	82.89	17.11
+65	40.94	4.05	86.94	13.06
+100	32.27	3.19	90.13	9.87
+150	24.93	2.46	92.59	7.41
+200	20.29	2.01	94.60	5.40
+270	9.31	0.92	95.52	4.48
+325	9.76	0.96	96.48	3.52
-325	35.67	3.52	100.00	
TOTAL	1,012.00	100.00		

TABLE NO. 13

BRENDA MINES LTD.

ASSAY LAB REPORT

BEARCUB - SCREEN TEST

DATE: MAY 19, 1988 DATE REC'D: MAY 10, 1988 FILE: BCC1TST1.SCR

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% MnO	% BaO	% LOI	% H2O
BCC #1 HEAD											
+ 8	80.6	8.66	.21	.08	.73	3.19	6.52	<.01	<.01	.32	<.01
+ 10	76.7	13.86	.20	.06	.75	3.38	6.09	<.01	<.01	.31	<.01
+ 12	75.3	14.07	.27	.09	.77	3.27	6.23	.01	<.01	.38	<.01
+ 14	77.7	11.84	.29	.07	.73	3.30	6.04	.01	<.01	.40	.01
+ 20	74.5	14.76	.28	.08	.75	3.26	6.36	<.01	<.01	.42	.02
+ 28	75.5	14.07	.32	.08	.76	3.30	5.94	.02	<.01	.41	.02
+ 35	75.2	14.24	.40	.09	.78	3.22	5.96	.03	<.01	.43	.02
+ 48	74.9	14.71	.48	.10	.80	3.21	5.78	.03	<.01	.42	.01
+ 65	76.6	13.68	.50	.10	.85	3.48	4.77	.03	<.01	.45	.02
+100	76.2	13.71	.55	.11	.83	3.48	5.03	.03	<.01	.47	.02
+150	75.3	13.93	.60	.11	.89	3.56	5.55	.03	<.01	.43	.03
+200	74.9	14.27	.64	.12	.89	3.62	5.53	.04	<.01	.48	.02
+270	74.9	14.78	.65	.12	.87	3.66	5.57	.04	<.01	.52	.02
+325	74.3	14.82	.66	.13	.89	3.63	5.56	.04	<.01	.60	.01
-325	73.1	15.94	.76	.15	.92	3.71	5.42	.04	<.01	.65	.01
STD SY-3	62.1	11.89	6.49	2.67	8.04	4.32	4.11	.31	.05	-	-
TRUE VAL	59.7	11.80	6.42	2.67	8.26	4.15	4.20	.31	.05	-	-

D. Perkins
Chief Chemist

DP:cs

TABLE NO. 1

14

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - SCREEN TEST

DATE: JUNE 15, 1988 DATE REC'D: MAY 10, 1988 FILE: BCC2TST1.SCR

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% MnO	% BaO	% LOI	% H2O
BCC #2 HEAD											
+ 8	74.8	14.45	.31	.08	1.00	3.95	5.42	.02	<.01	.35	<.01
+ 10	74.5	14.48	.33	.08	1.03	4.02	5.58	.01	<.01	.36	<.01
+ 12	74.4	14.69	.40	.09	.96	3.95	5.52	.02	<.01	.38	.02
+ 14	74.9	14.65	.39	.09	.97	3.89	5.05	.02	<.01	.38	.02
+ 20	73.9	15.12	.43	.09	1.00	3.99	5.67	.02	<.01	.40	.01
+ 28	74.1	14.76	.30	.09	1.01	3.95	5.55	.03	<.01	.38	.03
+ 35	73.9	14.88	.62	.11	1.05	4.00	5.34	.06	<.01	.39	.06
+ 48	74.9	14.62	.64	.10	.92	3.67	5.09	.05	<.01	.38	.03
+ 65	74.6	14.78	.68	.11	.97	3.72	5.07	.05	<.01	.36	.04
+100	74.9	14.45	.76	.11	.98	3.75	5.01	.05	<.01	.37	.03
+150	74.8	14.54	.79	.12	.99	3.77	4.96	.05	<.01	.41	.04
+200	74.4	14.79	.80	.12	1.01	3.80	4.99	.05	<.01	.44	.06
+270	74.4	14.63	.80	.13	1.01	3.92	5.04	.05	<.01	.48	.06
+325	75.9	13.56	.80	.12	.95	3.77	4.85	.05	<.01	.50	.06
-325	72.9	15.74	.97	.14	1.03	3.91	5.23	.05	<.01	.71	.05
STD 70-H	67.9	17.29	.08	.05	.13	2.53	11.98	<.01	<.01	-	-
TRUE VAL	67.1	17.90	.07	-	.11	2.50	11.80	-	-	-	-

D. Perkins
Chief Chemist

DP:cs

TABLE NO. 15

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - SCREEN TEST

DATE: JUNE 20, 1988 DATE REC'D: MAY 10, 1988 FILE:BCC3TST1.SCR

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% MnO	% BaO	% LOI	% H_2O
BCC #3 HEAD											
+ 8	75.9	14.36	.33	.09	.99	3.57	4.75	.02	<.01	.48	.01
+ 10	75.3	14.80	.35	.08	1.01	3.66	4.75	.02	<.01	.46	.01
+ 12	74.8	15.12	.41	.09	1.04	3.75	4.75	.04	<.01	.47	<.01
+ 14	75.1	14.88	.46	.09	1.02	3.69	4.75	.04	<.01	.49	.02
+ 20	74.3	15.29	.54	.09	1.04	3.69	4.64	.07	<.01	.48	<.01
+ 28	75.3	14.78	.66	.11	1.04	3.58	4.42	.08	<.01	.46	<.01
+ 35	75.3	14.69	.76	.12	1.06	3.82	4.34	.10	<.01	.52	<.01
+ 48	75.3	14.60	.83	.13	1.07	3.65	4.29	.11	<.01	.50	<.01
+ 65	75.5	14.52	.85	.13	1.08	3.62	4.21	.11	<.01	.53	<.01
+100	77.4	12.97	.77	.15	1.02	3.56	4.05	.08	<.01	.55	<.01
+150	76.8	13.39	.75	.16	1.04	3.71	4.13	.07	<.01	.61	<.01
+200	78.6	11.75	.75	.15	1.02	3.65	4.03	.07	<.01	.65	.02
+270	74.7	15.12	.79	.15	1.12	3.79	4.23	.06	<.01	.68	<.01
+325	74.7	15.12	.84	.14	1.14	3.76	4.27	.07	<.01	.72	.01
-325	72.6	16.65	.91	.16	1.14	3.83	4.67	.07	<.01	1.08	.03
STD SY-3	62.6	11.51	6.55	2.58	8.07	4.26	4.06	.30	.05	-	-
TRUE VAL	59.7	11.80	6.42	2.67	8.26	4.15	4.20	.32	-	-	-
STD SY-2	61.7	12.41	6.19	2.61	7.77	4.62	4.39	.31	.04	-	-
TRUE VAL	60.1	12.12	6.28	2.70	7.98	4.34	4.48	.32	-	-	-

D. Perkins
Chief Chemist

P:cs

TABLE NO. 16

BRENDA MINES LTD..

ASSAY LAB REPORT

BEARCUB - SCREEN TEST

DATE: JUNE 20, 1988 DATE REC'D: MAY 10, 1988 FILE:BCC4TST1.SCR

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% MnO	% BaO	% LOI	% H2O
BCC #4 HEAD											
+ 8	74.0	15.22	.52	.13	1.27	4.09	4.80	.02	<.01	.33	.01
+ 10	79.2	14.65	.32	.08	1.24	4.02	4.56	.02	<.01	.28	<.01
+ 12	74.5	14.94	.38	.11	1.24	4.02	4.80	.04	<.01	.32	.01
+ 14	74.9	14.86	.43	.12	1.21	3.89	4.55	.04	<.01	.43	.03
+ 20	75.6	14.33	.46	.11	1.19	3.81	4.47	.03	<.01	.37	<.01
+ 28	75.8	14.22	.57	.12	1.17	3.72	4.31	.06	<.01	.36	<.01
+ 35	76.3	13.86	.70	.13	1.15	3.67	4.15	.09	<.01	.33	.02
+ 48	75.8	14.04	.84	.14	1.16	3.69	4.17	.13	<.01	.31	.03
+ 65	75.3	14.50	.86	.15	1.16	3.77	4.19	.12	<.01	.33	.03
+100	75.3	14.50	.86	.13	1.17	3.77	4.22	.10	<.01	.36	.04
+150	74.8	14.68	.88	.14	1.18	3.89	4.28	.11	<.01	.39	.05
+200	73.9	15.12	.90	.14	1.20	3.95	4.39	.09	<.01	.44	.06
+270	74.0	15.30	.89	.14	1.23	4.01	4.47	.08	<.01	.49	.05
+325	76.6	13.01	.87	.14	1.07	3.91	4.30	.06	<.01	.51	.07
-325	75.8	12.89	.96	.15	1.20	4.08	4.86	.01		.75	.07
STD SY-3	62.6	11.68	6.39	2.64	8.02	4.23	4.05	.29	.05	-	-

D. Perkins
Chief Chemist

P:CS

BEARCUB BCC #1
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		K20			Na20			CaO			Al203		
SCREEN SIZE, #	WT %	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.
+ 8	26.71	6.52	28.83	28.83	3.19	25.66	25.66	0.73	25.21	25.21	8.66	18.31	18.31
+ 10	15.90	6.09	16.03	44.86	3.38	16.18	41.84	0.75	15.42	40.63	13.86	17.44	35.75
+ 12	6.96	6.23	7.18	52.04	3.27	6.85	48.69	0.77	6.93	47.56	14.07	7.75	43.50
+ 14	4.94	6.04	4.94	56.98	3.30	4.91	53.60	0.73	4.66	52.22	11.84	4.63	48.13
+ 20	8.33	6.36	8.77	65.75	3.26	8.18	61.78	0.75	8.08	60.30	14.76	9.73	57.86
+ 28	7.69	5.94	7.56	73.31	3.30	7.64	69.42	0.76	7.56	67.86	14.07	8.57	66.43
+ 35	5.88	5.96	5.80	79.11	3.22	5.70	75.12	0.78	5.93	73.79	14.24	6.63	73.06
+ 48	4.50	5.78	4.31	83.42	3.21	4.35	79.47	0.80	4.65	78.44	14.71	5.24	78.30
+ 65	4.46	4.77	3.52	86.94	3.48	4.67	84.14	0.85	4.90	83.34	13.68	4.83	83.13
+100	3.61	5.03	3.01	89.95	3.48	3.78	87.92	0.83	3.87	87.21	13.71	3.92	87.05
+150	2.82	5.55	2.59	92.54	3.56	3.02	90.94	0.89	3.24	90.45	13.93	3.11	90.16
+200	2.34	5.53	2.14	94.68	3.62	2.55	93.49	0.89	2.69	93.14	14.27	2.64	92.80
+270	1.07	5.57	0.99	95.67	3.66	1.18	94.67	0.87	1.20	94.34	14.78	1.25	94.05
+325	1.03	5.56	0.95	96.62	3.63	1.13	95.80	0.89	1.19	95.53	14.82	1.21	95.26
-325	3.76	5.42	3.38	100.00	3.71	4.20	100.00	0.92	4.47	100.00	15.94	4.74	100.00
TOTAL	100.00	6.04	100.00		3.32	100.00		0.77	100.00		12.63	100.00	

TABLE NO. 17

TABLE No. 18

BEARCUB BCC #1
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

SCREEN SIZE #	WT %	SiO_2 %	SiO_2 DIST. %	SiO_2 %RET.	Fe_2O_3 %	Fe_2O_3 DIST. %	Fe_2O_3 %RET.	MgO %	MgO DIST. %	MgO %RET.	L.O.I. %	L.O.I. DIST. %	L.O.I. %RET.
+ 8	26.71	80.6	27.97	27.97	0.21	16.97	16.97	0.08	24.89	24.89	0.32	21.60	21.60
+ 10	15.90	76.7	15.85	43.82	0.20	9.62	26.59	0.06	11.11	36.00	0.31	12.45	34.05
+ 12	6.96	75.3	6.81	50.63	0.27	5.69	32.28	0.09	7.30	43.30	0.38	6.68	40.73
+ 14	4.94	77.7	4.99	55.62	0.29	4.33	36.61	0.07	4.03	47.33	0.40	4.99	45.72
+ 20	8.33	74.5	8.06	63.68	0.28	7.06	43.67	0.08	7.76	55.09	0.42	8.84	54.56
+ 28	7.69	75.5	7.54	71.22	0.32	7.45	51.12	0.08	7.17	62.26	0.41	7.97	62.53
+ 35	5.88	75.2	5.75	76.97	0.40	7.12	58.24	0.09	6.16	68.42	0.43	6.39	68.92
+ 48	4.50	74.9	4.38	81.35	0.48	6.54	64.78	0.10	5.24	73.66	0.42	4.78	73.70
+ 65	4.46	76.6	4.44	85.79	0.50	6.75	71.53	0.10	5.20	78.86	0.45	5.07	78.77
+100	3.61	76.2	3.57	89.36	0.55	6.01	77.54	0.11	4.63	83.49	0.47	4.29	83.06
+150	2.82	75.3	2.76	92.12	0.60	5.12	82.66	0.11	3.61	87.10	0.43	3.06	86.12
+200	2.34	74.9	2.28	94.40	0.64	4.53	87.19	0.12	3.27	90.37	0.48	2.84	88.96
+270	1.07	74.9	1.04	95.44	0.65	2.10	89.29	0.12	1.50	91.87	0.52	1.41	90.37
+325	1.03	74.3	0.99	96.43	0.66	2.06	91.35	0.13	1.56	93.43	0.60	1.56	91.93
-325	3.76	73.1	3.57	100.00	0.76	8.65	100.00	0.15	6.57	100.00	0.85	8.07	100.00
TOTAL	100.00	76.97	100.00		0.33	100.00		0.09	100.00		0.40	100.00	

BEARCUB BCC #2
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

SCREEN SIZE, #	WT %	K2O %	K2O DIST.%	K2O %RET.	Na2O %	Na2O DIST.%	Na2O %RET.	CaO %	CaO DIST.%	CaO %RET.	Al2O3 %	Al2O3 DIST.%	Al2O3 %RET.
+ 8	26.64	5.42	26.88	26.88	3.95	26.84	26.84	1.00	26.65	26.65	14.45	26.26	26.26
+ 10	15.67	5.58	16.28	43.16	4.02	16.06	42.90	1.03	16.16	42.81	14.48	15.48	41.74
+ 12	6.94	5.52	7.13	50.29	3.95	6.99	49.89	0.96	6.67	49.48	14.69	6.95	48.69
+ 14	4.92	5.05	4.62	54.91	3.89	4.88	54.77	0.97	4.78	54.26	14.65	4.92	53.61
+ 20	8.26	5.67	8.72	63.63	3.99	8.40	63.17	1.00	8.27	62.53	15.12	8.52	62.13
+ 28	7.63	5.55	7.88	71.51	3.95	7.69	70.86	1.01	7.71	70.24	14.76	7.68	69.81
+ 35	6.05	5.34	6.01	77.52	4.00	6.17	77.03	1.05	6.36	76.60	14.88	6.14	75.95
+ 48	4.56	5.09	4.32	81.84	3.67	4.27	81.30	0.92	4.20	80.80	14.62	4.55	80.50
+ 65	4.54	5.07	4.28	86.12	3.72	4.31	85.61	0.97	4.41	85.21	14.78	4.58	85.08
+100	3.72	5.01	3.47	89.59	3.75	3.56	89.17	0.98	3.65	88.86	14.45	3.67	88.75
+150	2.94	4.96	2.71	92.30	3.77	2.83	92.00	0.99	2.91	91.77	14.54	2.92	91.67
+200	2.42	4.99	2.25	94.55	3.80	2.34	94.34	1.01	2.45	94.22	14.79	2.44	94.11
+270	1.05	5.04	0.99	95.54	3.92	1.05	95.39	1.01	1.06	95.28	14.63	1.05	95.16
+325	1.10	4.85	0.99	96.53	3.77	1.06	96.45	0.95	1.05	96.33	13.56	1.02	96.18
-325	3.56	5.23	3.47	100.00	3.91	3.55	100.00	1.03	3.67	100.00	15.74	3.82	100.00
TOTAL	100.00	5.37	100.00		3.92	100.00		1.00	100.00		14.66	100.00	

TABLE NO. 19

BEARCUB BCC #2
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		SiO2			Fe2O3			MgO			L.O.I.		
SCREEN SIZE.#	WT %	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.
+ 8	26.64	74.8	26.76	26.76	0.31	17.96	17.96	0.08	22.86	22.86	0.35	24.13	24.13
+ 10	15.67	74.5	15.67	42.43	0.33	11.25	29.21	0.08	13.45	36.31	0.36	14.60	38.73
+ 12	6.94	74.4	6.93	49.36	0.40	6.04	35.25	0.09	6.70	43.01	0.38	6.83	45.56
+ 14	4.92	74.9	4.95	54.31	0.39	4.17	39.42	0.09	4.75	47.76	0.38	4.84	50.40
+ 20	8.26	73.9	8.20	62.51	0.43	7.72	47.14	0.09	7.97	55.73	0.40	8.55	58.95
+ 28	7.63	74.1	7.59	70.10	0.30	4.98	52.12	0.09	7.37	63.10	0.38	7.51	66.46
+ 35	6.05	73.9	6.00	76.10	0.62	8.16	60.28	0.11	7.14	70.24	0.39	6.11	72.57
+ 48	4.56	74.9	4.59	80.69	0.64	6.35	66.63	0.10	4.89	75.13	0.38	4.49	77.06
+ 65	4.54	74.6	4.55	85.24	0.68	6.71	73.34	0.11	5.36	80.49	0.36	4.23	81.29
+ 100	3.72	74.9	3.74	88.98	0.76	6.15	74.49	0.11	4.39	84.88	0.37	3.56	84.85
+ 150	2.94	74.8	2.95	91.93	0.79	5.05	84.54	0.12	3.78	88.66	0.41	3.12	87.97
+ 200	2.42	74.4	2.42	94.35	0.80	4.21	88.75	0.12	3.11	91.77	0.44	2.76	90.73
+ 270	1.05	74.4	1.05	95.40	0.80	1.83	90.58	0.13	1.46	93.23	0.48	1.31	92.04
+ 325	1.10	75.9	1.12	96.52	0.80	1.91	92.49	0.12	1.42	94.65	0.50	1.42	93.46
- 325	3.56	72.9	3.48	100.00	0.97	7.51	100.00	0.14	5.35	100.00	0.71	6.54	100.00
TOTAL	100.00	74.48	100.00		0.46	100.00		0.09	100.00		0.39		

TABLE No. 20

BEARCUB BCC #3
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

SCREEN SIZE,#	WT %	K20 %	K20 DIST.%	K20 %RET.	Na20 %	Na20 DIST.%	Na20 %RET.	CaO %	CaO DIST.%	CaO %RET.	Al203 %	Al203 DIST.%	Al203 %RET.
+ 8	34.12	4.75	35.12	35.12	3.57	33.41	33.41	0.99	33.00	33.00	14.36	33.50	33.50
+ 10	17.58	4.75	18.10	53.22	3.66	17.65	51.06	1.01	17.35	50.35	14.80	17.79	51.29
+ 12	7.21	4.75	7.42	60.64	3.75	7.42	58.48	1.04	7.33	57.68	15.12	7.45	58.74
+ 14	4.80	4.75	7.94	65.58	3.69	4.86	63.34	1.02	4.78	62.46	14.88	4.88	63.62
+ 20	7.48	4.64	7.52	73.10	3.69	7.57	70.91	1.04	7.60	70.06	15.29	7.82	71.44
+ 28	6.47	4.42	6.20	79.30	3.58	6.35	77.26	1.04	6.57	76.63	14.78	6.54	77.98
+ 35	4.82	4.34	4.54	83.84	3.82	5.05	82.31	1.06	4.99	81.62	14.69	4.84	82.82
+ 48	3.39	4.29	3.15	86.99	3.65	3.40	85.71	1.07	3.54	85.16	14.60	3.38	86.20
+ 65	3.27	4.21	2.98	89.97	3.62	3.25	88.96	1.08	3.45	88.61	14.52	3.25	89.45
+100	2.59	4.05	2.27	92.24	3.56	2.53	91.49	1.02	2.58	91.19	12.97	2.30	91.75
+150	2.03	4.13	1.82	94.06	3.71	2.07	93.56	1.04	2.06	93.25	13.39	1.86	93.61
+200	1.66	4.03	1.45	95.51	3.65	1.66	95.22	1.02	1.66	94.91	11.75	1.33	94.94
+270	0.80	4.23	0.73	96.24	3.79	0.83	96.05	1.12	0.88	95.79	15.12	0.83	95.77
+325	0.76	4.27	0.70	96.94	3.76	0.78	96.83	1.14	0.85	96.64	15.12	0.79	96.56
-325	3.02	4.67	3.06	100.00	3.83	3.17	100.00	1.14	3.36	100.00	16.65	3.44	100.00
TOTAL	100.00	4.61	100.00		3.65			1.02	100.00		14.63	100.00	

TABLE No. 21

BEARCUB BCC #3
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		SiO2			Fe2O3			MgO			L.O.I.		
SCREEN SIZE, #	WT %	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.
+ 8	34.12	75.9	34.33	34.33	0.33	23.02	23.02	0.09	30.53	30.53	0.48	32.24	32.24
+ 10	17.58	75.3	17.55	51.88	0.35	12.58	35.60	0.08	13.98	44.51	0.46	15.92	48.16
+ 12	7.21	74.8	7.15	59.03	0.41	6.04	41.64	0.09	6.45	50.96	0.47	6.67	54.83
+ 14	4.80	75.1	4.78	63.81	0.46	4.51	46.15	0.09	4.29	55.25	0.49	4.63	59.46
+ 20	7.48	74.9	7.37	71.18	0.54	8.26	54.41	0.09	6.69	61.94	0.48	7.07	66.53
+ 28	6.47	75.3	6.46	77.64	0.66	8.73	63.14	0.11	7.08	69.02	0.46	5.86	72.39
+ 35	4.82	75.3	4.81	82.45	0.76	7.49	70.63	0.12	5.75	74.77	0.52	4.93	77.32
+ 48	3.39	75.3	3.38	85.83	0.83	5.75	76.38	0.13	4.38	79.15	0.50	3.34	80.66
+ 65	3.27	75.5	3.27	89.10	0.85	5.68	82.06	0.13	4.23	83.38	0.53	3.41	84.07
+100	2.59	77.4	2.66	91.76	0.77	4.08	86.14	0.15	3.86	87.24	0.55	2.80	86.87
+150	2.03	76.8	2.07	93.83	0.75	3.11	89.25	0.16	3.23	90.47	0.61	2.44	89.31
+200	1.66	78.6	1.73	95.56	0.75	2.54	91.79	0.15	2.48	92.95	0.65	2.12	91.43
+270	0.80	74.7	0.79	96.35	0.79	1.29	93.08	0.15	1.19	94.14	0.68	1.07	92.50
+325	0.76	74.7	0.75	97.10	0.84	1.30	94.38	0.14	1.06	95.20	0.72	1.08	93.58
-325	3.02	72.6	2.90	100.00	0.91	5.62	100.00	0.16	4.80	100.00	1.08	6.42	100.00
TOTAL	100.00	75.44	100.00		0.49	100.00		0.10	100.00		0.51	100.00	

TABLE NO. 22

TABLE No. 23

BEARCUB BCC #4
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		K20			Na20			CaO			Al203		
SCREEN SIZE, M	WT %	%	DIST. %	%RET.	%	DIST. %	%RET.	%	DIST. %	%RET.	%	DIST. %	%RET.
+ 8	29.15	4.80	30.74	30.74	4.09	30.26	30.26	1.27	30.38	30.38	15.22	30.29	30.29
+ 10	16.55	4.56	16.58	47.32	4.02	16.89	47.15	1.24	16.84	47.22	14.65	16.55	46.84
+ 12	7.00	4.80	7.38	54.70	4.02	7.14	54.29	1.24	7.12	54.34	14.94	7.14	53.98
+ 14	4.85	4.55	4.85	59.55	3.89	4.79	59.08	1.21	4.81	59.15	14.86	4.92	58.90
+ 20	8.13	4.47	7.98	67.53	3.81	7.86	66.94	1.19	7.94	67.09	14.33	7.95	66.85
+ 28	7.35	4.31	6.96	74.49	3.72	6.94	73.88	1.17	7.06	74.15	14.22	7.14	73.99
+ 35	5.68	4.15	5.18	79.67	3.67	5.29	79.17	1.15	5.36	79.51	13.86	5.38	79.37
+ 48	4.18	4.17	3.83	83.50	3.69	3.92	83.09	1.16	3.98	83.49	14.04	4.01	83.38
+ 65	4.05	4.19	3.73	87.23	3.77	3.88	86.97	1.16	3.85	87.34	14.50	4.01	87.39
+100	3.19	4.22	2.96	90.19	3.77	3.05	90.02	1.17	3.06	90.40	14.50	3.16	90.55
+150	2.46	4.28	2.31	92.50	3.89	2.43	92.45	1.18	2.38	92.78	14.68	2.47	93.02
+200	2.01	4.39	1.94	94.44	3.95	2.01	94.46	1.20	1.98	94.76	15.12	2.07	95.09
+270	0.92	4.47	0.90	95.34	4.01	0.94	95.40	1.23	0.93	95.69	15.30	0.96	96.05
+325	0.96	4.30	0.90	96.24	3.91	0.95	96.35	1.07	0.84	96.53	13.01	0.85	96.90
-325	3.52	4.86	3.76	100.00	4.08	3.65	100.00	1.20	3.47	100.00	12.89	3.10	100.00
TOTAL	100.00	4.55	100.00		3.94	100.00		1.22	100.00		14.65	100.00	

BEARCUB 8CC #4
HEAD CRUSHED TO -6 MESH, ELEMENT DISTRIBUTION

		SiO2			Fe2O3			MgO			L.O.I.		
SCREEN SIZE,#	WT %	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.	%	DIST.%	%RET.
+ 8	29.15	74.0	28.53	28.53	0.52	27.14	27.14	0.13	31.57	31.57	0.33	27.24	27.24
+ 10	16.55	79.2	17.34	45.87	0.32	9.48	36.62	0.08	11.03	42.60	0.28	13.12	40.36
+ 12	7.00	74.5	6.90	52.77	0.38	4.76	41.38	0.11	6.41	49.01	0.32	6.34	46.70
+ 14	4.85	74.9	4.81	57.58	0.43	3.73	45.11	0.12	4.85	53.86	0.43	5.91	52.61
+ 20	8.13	75.6	8.13	65.71	0.46	6.70	51.81	0.11	7.45	61.31	0.37	8.52	61.13
+ 28	7.35	75.8	7.37	73.08	0.57	7.50	59.31	0.12	7.35	68.66	0.36	7.49	68.62
+ 35	5.68	76.3	5.73	78.81	0.70	7.12	66.43	0.13	6.15	74.81	0.33	5.31	73.93
+ 48	4.18	75.8	4.19	83.00	0.84	6.29	72.72	0.14	4.88	76.69	0.31	3.67	77.60
+ 65	4.05	75.3	4.03	87.03	0.86	6.24	78.96	0.15	5.06	84.75	0.33	3.78	81.38
+100	3.19	75.3	3.18	90.21	0.86	4.91	83.87	0.13	3.45	88.20	0.36	3.25	84.63
+150	2.46	74.8	2.43	92.64	0.88	3.88	87.75	0.14	2.87	91.07	0.39	2.72	87.35
+200	2.01	73.9	1.96	94.60	0.90	3.24	90.99	0.14	2.34	93.41	0.44	2.50	89.85
+270	0.92	74.0	0.90	95.50	0.89	1.47	92.46	0.14	1.07	94.48	0.49	1.28	91.13
+325	0.96	76.6	0.97	96.47	0.87	1.49	93.95	0.14	1.12	95.60	0.51	1.39	92.52
-325	3.52	75.8	3.53	100.00	0.96	6.05	100.00	0.15	4.40	100.00	0.75	7.48	100.00
TOTAL	100.00	75.61	100.00		0.56	100.00		0.12	100.00		0.35	100.00	

TABLE No. 24

FIGURE NO. 1

BEARCUB
FLOWSHEET NO. 1

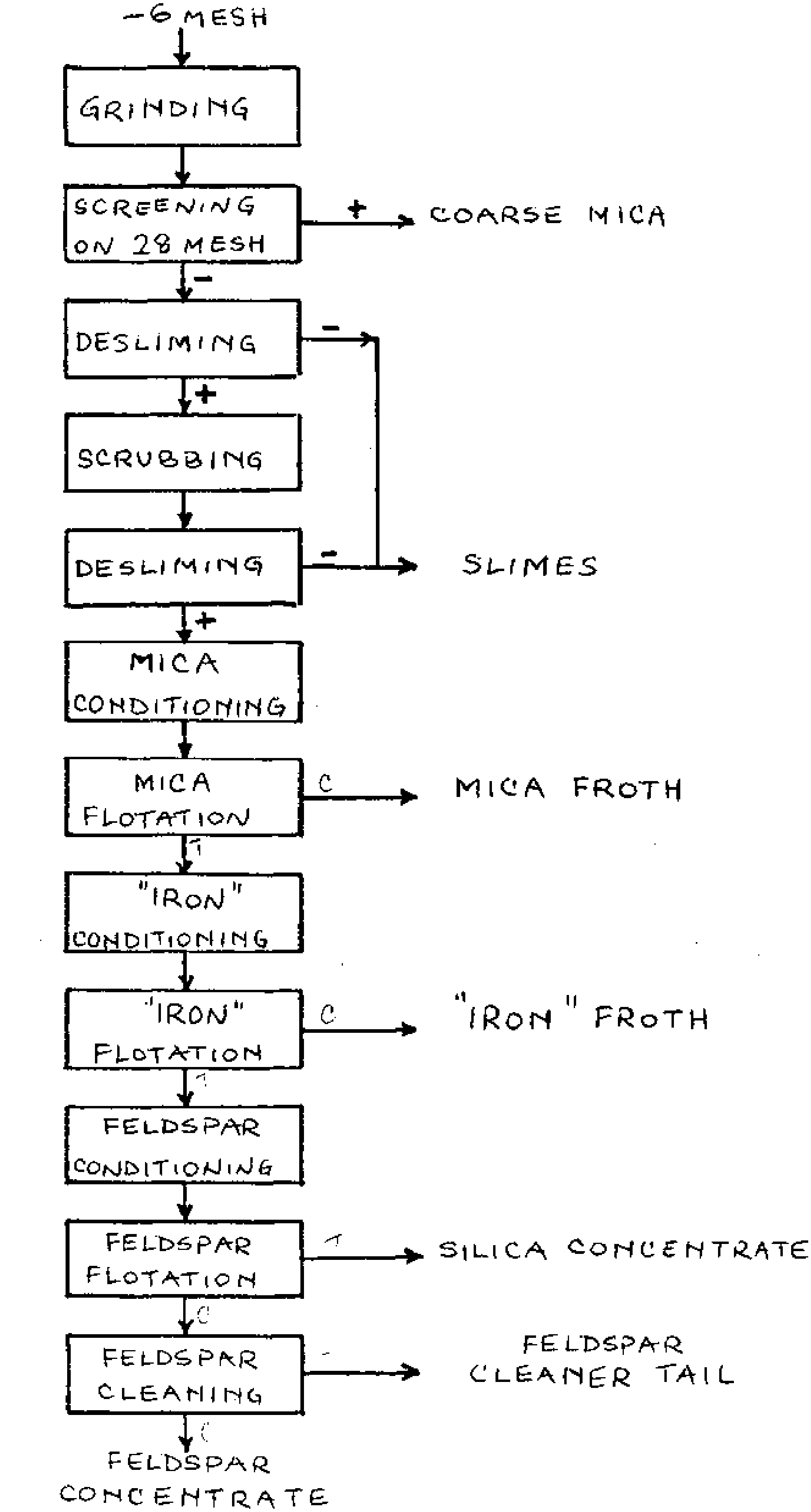


FIGURE NO. 2

BEARCUB
FLOWSHEET NO. 2

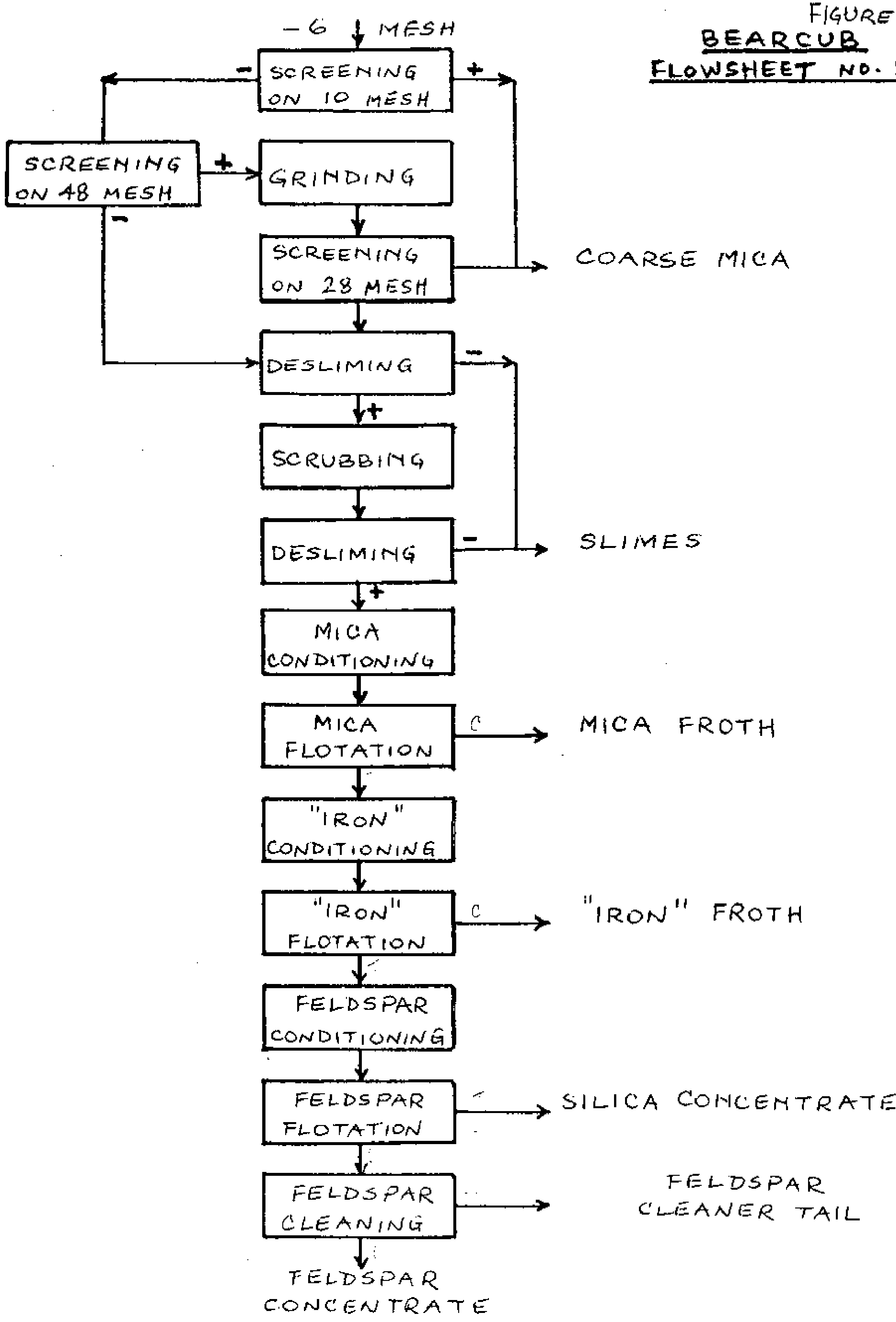


TABLE NO. 25

BEARCUB
FELDSPAR CONCENTRATE

BCC #1

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	4.63	4.63	95.37
+ 48	+297	15.33	19.96	80.04
+ 65	+210	31.52	51.48	48.52
+100	+149	23.97	75.45	24.55
+150	+105	13.19	88.64	11.36
+200	+ 74	7.59	96.23	3.77
+270	+ 53	2.68	98.91	1.09
+325	+ 44	0.93	99.84	0.16
-325	- 44	0.16	100.00	
TOTAL		100.00		

BEARCUB
FELDSPAR CONCENTRATE

BCC #2

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	2.62	2.62	97.38
+ 48	+297	10.86	13.48	86.52
+ 65	+210	27.80	41.28	58.72
+100	+149	27.48	68.76	31.24
+150	+105	15.87	84.63	15.37
+200	+ 74	9.60	94.23	5.77
+270	+ 53	2.40	96.63	3.37
+325	+ 44	2.87	99.50	0.50
-325	- 44	0.50	100.00	
TOTAL		100.00		

BEARCUB
FELDSPAR CONCENTRATE

BCC #3

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	1.91	1.91	98.09
+ 48	+297	10.50	12.41	87.59
+ 65	+210	26.95	39.36	60.64
+100	+149	27.41	66.77	33.23
+150	+105	15.98	82.75	17.25
+200	+ 74	10.09	92.84	7.16
+270	+ 53	3.29	96.13	3.87
+325	+ 44	3.53	99.66	0.34
-325	- 44	0.34	100.00	
TOTAL		100.00		

BEARCUB
FELDSPAR CONCENTRATE

BCC #4

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	3.14	3.14	96.86
+ 48	+297	14.24	17.38	82.62
+ 65	+210	30.16	47.54	52.46
+100	+149	24.82	72.36	27.64
+150	+105	13.86	86.22	13.78
+200	+ 74	7.97	94.19	5.81
+270	+ 53	3.16	97.35	2.65
+325	+ 44	1.93	99.28	0.72
-325	- 44	0.72	100.00	
TOTAL		100.00		

BEARCUB
SILICA CONCENTRATE

BCC #1

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	1.00	1.00	99.00
+ 48	+297	9.13	10.13	89.87
+ 65	+210	27.07	37.20	62.80
+100	+149	27.83	65.03	34.97
+150	+105	17.62	82.65	17.35
+200	+ 74	11.22	93.87	6.13
+270	+ 53	0.07	93.94	6.06
+325	+ 44	5.95	99.89	0.11
-325	- 44	0.11	100.00	
TOTAL		100.00		

BEARCUB
SILICA CONCENTRATE

BCC #2

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	0.63	0.63	99.37
+ 48	+297	5.47	6.10	93.90
+ 65	+210	22.33	28.43	71.57
+100	+149	30.10	58.53	41.47
+150	+105	20.02	78.55	21.45
+200	+ 74	12.71	91.26	8.74
+270	+ 53	4.70	95.96	4.04
+325	+ 44	3.08	99.04	0.96
-325	- 44	0.96	100.00	
TOTAL		100.00		

BEARCUB
SILICA CONCENTRATE

BCC #3

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	0.41	0.41	99.59
+ 48	+297	5.08	5.49	94.51
+ 65	+210	23.34	28.83	71.17
+100	+149	31.10	59.93	40.07
+150	+105	18.33	78.26	21.74
+200	+ 74	12.79	91.05	8.95
+270	+ 53	1.33	92.38	7.62
+325	+ 44	6.45	98.83	1.17
-325	- 44	1.17	100.00	
TOTAL		100.00		

BEARCUB
SILICA CONCENTRATE

BCC #4

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	0.76	0.76	99.24
+ 48	+297	8.39	9.15	90.85
+ 65	+210	28.52	37.67	62.33
+100	+149	28.56	66.23	33.77
+150	+105	15.93	82.16	17.84
+200	+ 74	10.81	92.97	7.03
+270	+ 53	1.80	94.77	5.23
+325	+ 44	4.44	99.21	0.79
-325	- 44	0.79	100.00	
TOTAL		100.00		

BEARCUB
MICA CONCENTRATE

BCC #1

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	1.73	1.73	98.27
+ 48	+297	6.71	8.44	91.56
+ 65	+210	12.86	21.30	78.70
+100	+149	15.20	36.50	63.50
+150	+105	12.28	48.78	51.22
+200	+ 74	12.71	61.49	38.51
+270	+ 53	8.51	70.00	30.00
+325	+ 44	11.58	81.58	18.42
-325	- 44	18.42	100.00	
TOTAL		100.00		

BEARCUB
MICA CONCENTRATE

BCC #2

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	1.76	1.76	98.24
+ 48	+297	6.72	8.48	91.52
+ 65	+210	10.41	18.89	81.11
+100	+149	12.80	31.69	68.31
+150	+105	12.52	44.21	55.79
+200	+ 74	13.13	57.34	42.66
+270	+ 53	10.37	67.71	32.29
+325	+ 44	12.96	80.67	19.33
-325	- 44	19.33	100.00	
TOTAL		100.00		

BEARCUB
MICA CONCENTRATE

BCC #3

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	2.07	2.07	97.93
+ 48	+297	7.04	9.11	90.89
+ 65	+210	11.59	20.70	79.30
+100	+149	14.66	35.36	64.64
+150	+105	12.85	48.21	51.79
+200	+ 74	14.05	62.26	37.74
+270	+ 53	10.25	72.51	27.49
+325	+ 44	11.79	84.30	15.70
-325	- 44	15.70	100.00	
TOTAL		100.00		

BEARCUB
MICA CONCENTRATE

BCC #4

SCREEN SIZE		WEIGHT,	% CUMULATIVE	
MESH	MICRON	%	RET.	PASS.
+ 35	+420	2.33	2.33	97.67
+ 48	+297	6.05	8.38	91.62
+ 65	+210	9.29	17.67	82.33
+100	+149	11.88	29.55	70.45
+150	+105	11.70	41.25	58.75
+200	+ 74	14.71	55.96	44.04
+270	+ 53	13.11	69.07	30.93
+325	+ 44	12.02	81.09	18.91
-325	- 44	18.91	100.00	
TOTAL		100.00		

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - MILL TEST

DATE: JUNE 22, 1988 DATE REC'D: JUNE 8, 1988 FILE:BEARPROD.MIL

SAMPLE	% SiO_2	% Al_2O_3	% Fe_2O_3	% MgO	% CaO	% Na_2O	% K_2O	% MnO	% BaO	LOI	% H_2O
BCC #1											
MICA FROTH	57.4	23.51	3.46	.63	.72	2.93	7.20	.19	<.01	1.86	.02
SILICA CONC	99.7	.14	.02	.03	.04	.03	.03	<.01	<.01	.05	<.01
FELDSPAR CONC	66.6	19.60	.05	.04	1.15	4.53	7.99	<.01	<.01	.31	.03
BCC #4											
MICA FROTH	60.1	23.21	4.17	.62	1.24	4.02	6.63	.04	.01	1.28	.03
SILICA CONC	99.9	.02	.02	.01	.02	.01	.01	<.01	<.01	.06	.01
FELDSPAR CONC	65.5	20.52	.04	.02	1.87	5.88	6.03	<.01	.01	.30	.01
STD 99a		20.90	.06	.01	2.03	6.38	5.21	<.01	.25	-	-

D. Perkins
Chief Chemist

):cs

TABLE NO. 32

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - PRODUCTION

DATE: JUNE 22, 1988 DATE REC'D: JUNE 17, 1988 FILE:BCC2PROD.MIL

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% MnO	% BaO	% LOI	% H2O
BCC#2 PRODUCT.											
FELDSPAR CONC	67.1	19.20	.06	.03	1.38	5.06	7.12	-	-	.34	<.01
SILICA CONC	99.7	.17	.02	.03	<.01	.04	.04	-	-	.09	<.01
MICA CONC	61.5	22.39	3.81	.59	.91	3.49	6.95	-	-	1.61	.04
STD 70a	67.5	18.00	.08	.04	.13	2.49	11.75	-	-	-	-
TRUE VAL	67.1	17.90	.08	-	.11	2.50	11.80	-	-	-	-

D. Perkins
Chief Chemist

cs

TABLE NO. 3

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB - PRODUCTION

DATE: JUNE 22, 1988 DATE REC'D: JUNE 17, 1988 FILE:BCC3PROD.MIL

SAMPLE	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	% Na2O	% K2O	% MnO	% BaO	% LOI	% H2O
BCC#3 PRODUCT.											
FELDSPAR CONC	67.8	19.21	.06	.04	1.53	5.17	6.21	-	-	.39	<.01
SILICA CONC	99.7	.17	.01	.01	<.01	.05	.03	-	-	.08	<.01
MICA CONC	65.9	19.52	3.35	.55	.94	3.05	6.37	-	-	.06	1.79

D. Perkins
Chief Chemist

/: cs

LAB "PRODUCTION" OF MARKETABLE CONCENTRATES

BCC #1

PRODUCT	WEIGHT		ASSAYS, %							DISTRIBUTION, %						
	GR	%	K20	NA20	CAO	AL203	FE203	SIO2	MGO	K20	NA20	CAO	AL203	FE203	SIO2	MGO
FELDSPAR CONCENTRATE	4701	52.92	7.99	4.53	1.15	19.60	0.05	66.6	0.04	72.25	73.17	73.39	68.52	5.30	48.72	21.27
SILICA CONCENTRATE	1457	16.40	0.03	0.03	0.04	0.14	0.02	99.7	0.03	0.08	0.15	0.79	0.15	0.66	22.61	4.94
MICA FLOT. CONCENTRATE	721	8.12	7.20	2.93	0.72	23.51	3.46	57.4	0.63	9.99	7.26	7.05	12.61	56.26	6.44	51.39
COARSE +28 MESH MICA	143	1.61														
FELDSPAR CLEANER TAIL	199	2.24	0.11	0.08	0.02	0.03	0.02	99.7	0.01	0.04	0.05	0.05	0.01	0.09	3.09	0.23
SLIMES	1138	12.81	5.96	3.38	0.82	15.98	1.34	72.3	0.14	13.05	13.22	12.67	13.52	34.38	12.81	18.02
"IRON" FROTH	524	5.90	4.55	3.41	0.85	13.30	0.28	77.5	0.07	4.59	6.15	6.05	5.19	3.31	6.33	4.15
CALCULATED HEAD	8883	100	5.95	3.33	0.84	15.39	0.51	73.51	0.10	100	100	100	100	100	100	100

TABLE NO. 34

LAB "PRODUCTION" OF MARKETABLE CONCENTRATES

BCC #2

PRODUCT	WEIGHT		ASSAYS, %							DISTRIBUTION, %						
	GR	%	K_2O	NA_2O	CAO	AL_2O_3	FE_2O_3	SIO_2	MGO	K_2O	NA_2O	CAO	AL_2O_3	FE_2O_3	SIO_2	MGO
FELDSPAR CONCENTRATE	4495	50.40	7.12	5.06	1.38	19.20	0.06	67.1	0.03	67.93	68.33	69.75	63.18	4.68	46.67	15.71
SILICA CONCENTRATE	1447	16.22	0.04	0.04	0.01	0.17	0.02	99.7	0.03	0.01	0.18	0.16	2.17	0.50	22.32	5.06
MICA FLOT. CONCENTRATE	725	8.13	6.95	3.49	0.91	22.39	3.81	61.5	0.59	10.70	7.61	7.42	11.89	47.95	6.90	49.86
COARSE +28 MESH MICA	152	1.71														
FELDSPAR CLEANER TAIL	160	1.79	0.05	0.06	0.02	0.35	0.03	99.5	0.01	0.02	0.02	0.04	0.04	0.08	2.45	0.19
SLIMES	1340	15.02	5.41	4.01	1.00	16.32	1.77	71.3	0.16	15.39	16.14	15.07	16.01	41.16	14.78	24.98
"IRON" FROTH	600	6.73	4.67	4.28	1.12	15.28	0.54	74.0	0.06	5.95	7.72	7.56	6.71	5.63	6.88	4.20
CALCULATED HEAD	8919	100	5.29	3.74	1.00	15.33	0.65	72.54	0.10	100	100	100	100	100	100	100

TABLE No. 35

LAB "PRODUCTION" OF MARKETABLE CONCENTRATES

BCC #3

PRODUCT	WEIGHT		ASSAYS, %							DISTRIBUTION, %						
	GR	%	K2O	NA2O	CAO	AL2O3	FE2O3	SIO2	MGO	K2O	NA2O	CAO	AL2O3	FE2O3	SIO2	MGO
FELDSPAR CONCENTRATE	4686	48.35	6.21	5.17	1.53	19.21	0.06	67.8	0.04	67.95	72.82	71.59	65.75	4.63	44.27	21.11
SILICA CONCENTRATE	1789	18.46	0.03	0.05	0.01	0.17	0.01	99.7	0.01	0.13	0.27	0.18	0.22	0.29	24.86	2.02
MICA FLOT. CONCENTRATE	735	7.58	6.37	3.05	0.94	19.52	3.35	65.9	0.55	10.99	6.74	6.90	10.48	40.50	6.75	45.53
COARSE +28 MESH MICA	196	2.02														
FELDSPAR CLEANER TAIL	216	2.23	0.09	0.08	0.05	0.34	0.03	99.4	0.01	0.05	0.05	0.11	0.05	0.11	2.99	0.24
SLIMES	1382	14.26	4.80	3.58	1.03	16.70	1.50	71.0	0.16	15.48	14.87	14.21	16.85	34.09	13.67	24.90
"IRON" FROTH	688	7.10	3.40	2.54	1.02	13.23	1.80	77.8	0.08	5.46	5.25	7.01	6.65	20.38	7.46	6.20
CALCULATED HEAD	9692	100	4.51	3.50	1.05	14.42	0.64	75.57	0.09	100	100	100	100	100	100	100

TABLE No. 36

LAB "PRODUCTION" OF MARKETABLE CONCENTRATES
BCC #4

PRODUCT	WEIGHT		ASSAYS, %							DISTRIBUTION, %						
	GR	%	K2O	NA2O	CAO	AL2O3	FE2O3	SIO2	MGO	K2O	NA2O	CAO	AL2O3	FE2O3	SIO2	MGO
FELDSPAR CONCENTRATE	4869	51.72	6.03	5.88	1.87	20.52	0.04	65.5	0.02	71.96	76.04	76.79	71.35	3.80	46.53	13.13
SILICA CONCENTRATE	1978	21.01	0.01	0.01	0.02	0.02	0.02	99.3	0.01	0.05	0.05	0.34	0.03	0.77	28.83	2.67
MICA FLOT. CONCENTRATE	724	7.69	6.63	4.02	1.24	23.21	4.17	60.1	0.62	11.77	7.73	0.57	12.00	58.88	6.35	60.55
COARSE +28 MESH MICA	189	2.01														
FELDSPAR CLEANER TAIL	192	2.04	0.06	0.06	0.05	0.30	0.02	99.5	0.01	0.03	0.03	0.08	0.04	0.07	2.78	0.26
SLIMES	1003	10.65	4.80	4.14	1.25	16.56	1.60	71.4	0.15	11.80	11.03	10.57	11.86	31.28	10.45	20.29
"IRON" FROTH	459	4.88	3.90	4.20	1.20	14.40	0.58	75.5	0.05	4.39	5.12	4.65	4.72	5.20	5.06	3.10
CALCULATED HEAD	9414	100	4.42	4.08	1.29	15.18	0.56	74.30	0.08	100	100	100	100	100	100	100

TABLE No. 37

FELDSPAR CONCENTRATE

%		INDUSTRY SPECS	MIDDLETOWN GLASS GRADE	MIDDLETOWN CERAMIC GRADE	FELDSPAR CORPORATION SPRUCE PINE	FELDSPAR CORPORATION MONTI-CELLO	FELDSPAR CORPORATION SPRUCE PINE	TANCO, MANI-TOBA	PACER, SOUTH DAKOTA	BEAR-CUB, NO. 2	B.C.C. COMPOSITE NO. 1	B.C.C. COMPOSITE NO. 2	B.C.C. COMPOSITE NO. 3	B.C.C. COMPOSITE NO. 4	
Al_2O_3		17.3 - 18.5	18.5	18.5	18.6	18.5	18.8	17.4	16.5	18.9	15.6	19.2	19.2	20.5	
$K_2O + Na_2O$		11.5 - 15.5	11.1	11.1	11.0	15.2	11.0	11.5	11.8	13.1	12.5	12.2	11.4	11.5	
	COLOURED GLASS	0.25 - 0.5													
	FLINT GLASS	0.1 (MAX)	0.1						0.16						
	CERAMIC	0.05 MAX		0.07	0.07	0.08	0.07					0.06	0.06		
	ELECTR. PORCEL.	0.05 MAX						0.04		0.015	0.05			0.04	
CaO			0.90	0.90	1.85	1.00	1.85	0.17	0.07	1.00	1.13	1.38	1.58	1.67	
SiO_2			66.9	66.9	66.4	67.2	68.2	68.0	71.4	69.0	66.6	67.1	67.8	65.5	
MgO			TRACE	TRACE	TRACE	TRACE	TRACE	0.19	0.008	0.07	0.04	0.08	0.04	0.02	
L.O.I.			0.25	0.25	0.13	0.22	0.19	0.70			0.91	0.94	0.89	0.80	
SIZE RANGE	GLASS	95% + 74μ	96.1% + 74μ				98.8% + 74μ			95% + 74μ	96% + 74μ	94% + 74μ	95% + 74μ	94% + 74μ	
	CERAMIC			94.5% - 44μ		95% - 44μ									

TABLE NO. 32

SILICA CONCENTRATE

%		GLASS INDUSTRY SPECS	SPRUCE PINE	KINGS MTN.	BEARCUB NO. 2	B.C.C. COMPOSITE NO. 1	2	3	4
SiO_2 MIN	OPTICAL	99.5				99.7	99.7	99.7	99.9
	DECORATIVE GLASSWARE	99.5		99.3	99.1				
	COLOURLESS CONTAINERS	98.5	92-98						
AL_2O_3		≤0.30	0.4 (0.5-3.0)	0.32	0.07	0.14	0.17	0.17	0.02
FE_2O_3		≤0.03	0.1-0.15	0.02	0.01	0.02	0.02	0.01	0.02
K_2O			0.5-2.0	0.23	0.02	0.03	0.04	0.03	0.01
NA_2O				0.08	0.05	0.03	0.04	0.05	0.01
SIZE RANGE	+30 MESH	<1%				<1%	<1%	<1%	<1%
	+40 MESH	8-10%				9%	5%	4%	8%
	-140 MESH	<5%	100% +200 M	97.5% +200 M	96% +200 M	94% +200 MESH	91% +200 MESH	91% +200 MESH	93% +200 M

TABLE No. 25

BEARCUB
COMPOSITES BCC #1 TO BCC #4

MARKETABLE PRODUCTS

PRODUCT	WT,%	ASSAYS, % K2O	Na2O	CaO	Feld.	Al2O3	SiO2	Fe2O3	MgO
FELDSPAR CONCENTRATE	51	7	5.2	1.5	92.5	19.6	66.8	0.05	0.03
SILICA CONCENTRATE	18	0.028	0.033	0.02	-	0.125	99.75	0.018	0.02
MICA FLOT. CONCENTRATE	8	6.8	3.4	0.95	-	22.2	61.2	3.7	0.6
COARSE MICA +28 MESH	2								
FELDSPAR (1) CLEANER TAIL	2	0.078	0.055	0.038	1.1	0.255	99.53	0.025	0.01
POSSIBLE MARKETABLE PRODUCT (AS CEMENT RAW MATERIAL, OR ...)									
SLIMES (2)	13	5.24	3.78	1.03	-	16.39	71.5	1.55	0.15
WASTE									
IRON-BEARING FROTH	6	4.13	3.61	1.05	-	14.05	76.2	0.80	0.065

(1) IF SILICA CONCENTRATE SPECS ARE NOT TOO STRICT
(2) SIZE OF MATERIAL IS MINUS 325 MESH (44 MICRONS)

FLOTATION LABORATORY TEST REPORT — BREKDA MINES LTD.

TEST NO. 4 | ORE BEARCUB 2 | LOT NO. | DATE JAN. 21, 1988

OBJECT OF TEST: SAME AS TEST NO. 1; F. OIL TESTED AS AUXILIARY COLLECTOR

FLOTATION CELL

GRINDING MILL: 1,000 GRAMS OF -6 MESH ORE. PULP DENSITY 40% SOLIDS

TYPE

CHARGE 12,543 KG.: 1,500 CC. OF FRESH WATER FLOAT PULP DENSITY 36-43% SOLIDS

SIZE 2,3 LIT.

SPEED 1,000 - 1,200 RPM

STAGE	TIME	pH	% SOLIDS CONDITIONS	SPEED RPM	NaOH	H_2SO_4	HF	A-50	XH-100	MIBC	F. OIL
SCRUBBING	10 MIN	11.4	~70	1,200	18 ML						
COND.	5 MIN	2.3	~65	900		20 ML			9 ML	5 DPS	2 DPS
IRON/MICA FLOAT	4 MIN	2.4	43	1,000							
SCRUBBING	10 MIN.	2.0	~70	1,000		15 ML					
COND.	3 MIN.	2.4	~60	1,200			20 ML	3 ML		5 DPS	2 DPS
FELDSPAR FLOAT	3.5 MIN	2.5	~36	1,200							

REAGENTS ml or lb./ton

REMARKS: GRIND 5 MIN. WITH 18 ML NaOH. MICA SCREENED ON 35 MESH. DESLIMING ON 400 MESH BEFORE AND AFTER SCRUBBING, AND AFTER Fe/MICA TAIL SCRUBBING. AIR PRESSURE WAS 50 PSI AND VOLUME LOW; NOT GOOD. TOO MUCH MICA LEFT IN FELDSPAR CONC.

PRODUCT	WT., GR	% WT.	Assay % K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR	Distribution % K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR
COARSE MICA	15.48	1.55																
IRON/MICA CONC.	50.58	5.06																
SCAVENGER Fe/MICA CONC	66.06	6.61																
FELDSPAR CONC.	580.02	58.00																
SLIMES	132.12	13.21																
TAIL	221.80	22.18																
CALCULATED	1,000.00	100.00																

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 5 ORE BEARCUB 2 LOT NO. DATE JAN. 26, 1988

OBJECT OF TEST: SAME AS TEST NO. 1; ARMAC-T TESTED INSTEAD OF E-FLOAT A-50

FLOTATION CELL

GRINDING MILL: 1,000 GRAMS OF -6 MESH ORE. PULP DENSITY 40% SOLIDS

TYPE

CHARGE 12.843 KG.: 1,500 CC. OF FRESH WATER FLOAT PULP DENSITY 33-43% SOLIDS

SIZE 2.3 LIT.
SPEED 1,000, 1,200 RPM

STAGE	TIME	pH	% SOLIDS CONDITIONS	SPEED, RPM	NaOH	H_2SO_4	HF	F. OIL	XH-100	MIBC	ARMAC-T	REMARKS
SCRUBBING	10 MIN.	11.5	~70	1,200	18 ML							GRIND 7.5 MIN. WITH 18 ML NaOH. MICA SCREENED ON 28 MESH.
COND.	5 MIN.	2.5	~65	800		17 ML		3 DPS	9 CC	5 DPS		DESLIMING ON 400 MESH BEFORE SCRUBBING AND
IRON/MICA FLOAT	4 MIN.	3.1	43	1,000						@ 2.5' 4 DPS		AFTER FE/MICA TAIL SCRUBBING.
SCRUBBING	10 MIN.	2.1	~70	1,000		10 ML						
COND.	3 MIN.	6.0 2.5	~60	1,200			17 ML	2 DPS		5 DPS	5 ML	
FELDSPAR FLOAT	3 MIN.	2.7	~30	1,200								

PRODUCT	WT., GR	% WT.	ASSAYS % K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR	DISTRIBUTION % K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR
COARSE MICA	6.50	0.65	MICA ONLY — NOT ANALYZED															
IRON/MICA CONC.	100.14	10.02																
FELDSPAR CONC.	522.12	52.21																
SLIMES	162.82	16.28																
TAIL	208.42	20.84																
CALC. HEAD	1,000.00	100.00																

BRENDA MINES LTD.

TEST No. 1	ORE BEARCUB BCC #1	DATE MAY 11, 1988
OBJECT OF TEST	TO RECOVER FELDSPAR, MICA AND SILICA INTO SEPARATE CONCENTRATES	

GRINDING CHARGE 12,843 KG 1,008 GR. OF -6 MESH ORE 1,008 ML OF FRESH H_2O PRODUCT ___ % - ___ MESH; pH=8.1	FLOTATION AIR AS REQD. CELL SIZE 2,3 LIT. SPEED 1,500 RPM DENSITY	TEST PROCEDURE COARSE MICA SCREENED ON 28 MESH AFTER GRINDING. BEFORE AND AFTER SCRUBBING, DESLIMING WAS DONE ON 200 MESH.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION.	3	65	2.2		10 ML	20 ML			2 DP			
-"- FLOTATION	2	33	2.7	1,500								
FE CONDITION.	5	65	2.9			20 ML	20 ML		2 DP			
-"- FLOTATION	3	31	3.2	1,500								
SPAR CONDITION.	3	65	3.8		20 ML			20 ML	2 DP.			
-"- FLOTATION	2.5	28	4.2	1,500								
-"- CLEANING	2	20	4.1	1,500				5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	8.53	0.87																
MICA FROTH	41.39	4.24	6.84	2.64	0.70	23.19	3.59	62.0	0.69	66.24	4.99	3.29	3.81	6.74	27.78	3.52	36.52	4.19
FE FROTH	62.03	6.34	5.10	3.26	0.80	9.32	0.39	81.0	0.10	61.69	5.56	6.08	6.52	4.05	4.51	6.87	7.92	5.84
SPAR CONC.	460.13	47.11	7.93	4.73	1.04	18.90	0.04	67.3	0.02	92.04	64.23	65.51	62.93	61.00	3.44	42.42	11.76	64.71
-"- Si TAIL	17.51	1.80	0.18	0.13	0.04	0.53	0.03	99.1	0.02	2.36	0.05	0.07	0.09	0.07	0.10	2.39	0.45	0.06
SILICA CONC.	146.06	14.95	0.01	0.04	0.02	0.21	0.01	99.7	0.01	0.50	0.03	0.18	0.38	0.21	0.27	19.94	1.87	0.11
SLIMES	249.70	25.56	5.72	3.31	0.80	15.95	1.37	72.7	0.13	65.78	25.14	24.87	26.27	27.93	63.90	24.86	41.48	25.09
CALC. HEAD *	985.35	100	5.82	3.40	0.78	14.60	0.55	74.74	0.08	67.00	100	100	100	100	100	100	100	100

REMARKS

COARSE MICA NOT ANALYZED AND ITS WEIGHT EXCLUDED.

BRENDA MINES LTD.

TEST No. 2 | ORE BEARCUB BCC #1 | DATE M., 12, 1988

OBJECT OF TEST: SAME AS IN TEST NO. 1

GRINDING: CHARGE 12,843 KG
850 GR. OF -48 MESH ORE
850 ML OF FRESH H_2O
PRODUCT ____ % - ____ MESH; pH=7.6

FLOTATION: AIR AS REQD.
CELL SIZE 2,3 LT.
SPEED 1,500 RPM
DENSITY

TEST PROCEDURE: MICA +10 MESH SCREENED; THEN, +48 MESH GROUND, MICA SCREENED ON 28 MESH BEFORE AND AFTER SCRUBBING, DESLIMING DONE ON 270 MESH.

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.8		10 ML	20 ML			3 DP			
-"- FLOTATION	2	35	3.2	1,500								
Fe CONDITION	5	65	2.7			20 ML	20 ML		3 DP			
-"- FLOTATION	2.5	32	3.1	1,500								
SPAR CONDITION	3	65	2.8		20 ML			20 ML	2 DP			
-"- FLOTATION	3	29	3.6	1,500								
-"- CLEANING	2	22	3.6	1,500				5 ML				

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	13,45	1.33																
MICA FROTH	60.26	6.05	6.87	3.23	0.54	20.45	3.26	64.60	0.53	72.10	7,14	5.86	6.50	8.44	38.78	5.23	44.37	6.56
Fe -"-	67.23	6.74	4.55	3.41	0.85	13.30	0.28	77.47	0.07	59.96	5.27	6.89	7.32	6.11	3.71	6.98	6.53	6.07
SPAR CONC.	486.98	48.86	7.91	4.51	1.03	18.90	0.03	67.60	0.01	90.01	66.35	66.09	64.34	62.99	2.88	44.16	6.76	66.12
-"- CL TAIL	23.42	2,35	0,11	0,08	0,02	0.03	0,02	99.74	0.01	1,33	0,04	0,06	0.06	0.01	0,09	3.13	0.32	0.05
SILICA CONC.	153.59	15.41	0,05	0,05	0,01	0.01	0,01	99.87	0.01	0.77	0.13	0,23	0.20	0.01	0,30	20.59	2,13	0,18
SLIMES	205,23	20,59	5,96	3,38	0.82	15,98	1.34	72.34	0.14	67.89	21,07	20.87	21.58	22.44	54.24	19.92	39.89	21.02
CALC. HEAD	1,010.16	100	5.82	3,33	0,78	14.66	0,51	74.79	0.07	66.51	100	100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.

TEST No	3	ORE	BEARCUB BCC #1	DATE	M__ 13, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1				

GRINDING	CHARGE 12,843 KG	FLOTATION	AIR AS REQD	TEST PROCEDURE	COARSE MICA SCREENED
1,012 GR. OF -6 MESH ORE		CELL SIZE 2.3 LT.		ON 28 MESH. BEFORE AND AFTER SCRUBBING,	
1,012 ML OF FRESH H_2O		SPEED 1,500 RPM		DESLIMING WAS DONE ON 200 MESH. NON-HF PROCEDURE TESTED.	
PRODUCT ___ % - ___ MESH; pH=7.8		DENSITY			

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	ARMAC-T 2,5%	H_2SO_4 2,5%	M-70 2.5%	DUOMAC-T 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION.	3	65	2.6		10 ML	20 ML			3 DP			
—"— FLOTATION	2	32	3.1	1,500								
Fe CONDITION.	5	65	2,9			20 ML	20 ML		3 DP			
—"— FLOTATION	3	29	—	1,500								
SPAR CONDITION.	3	65	2.3			30 ML		20 ML	2 DP			
—"— FLOTATION	3	26	—	1,500								
—"— CLEANING	2	16	3.5			10 ML						

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	11,60	1.18																
MICA FROTH	66.00	6.82	7.03	3.36	0.87	20.48	2.69	64.90	0.48	74.27	8.06	6.84	7.44	9.83	32.99	5.90	44.17	7.51
Fe —"—	63.54	6.60	4.57	3.44	0.87	12.94	0.24	77.90	0.07	60.43	5.07	6.78	7.20	6.01	2.85	6.85	6.23	5.92
SPAR CONC.	342.85	35.42	7.76	4.22	0.98	16.67	0.04	70.30	0.01	86.43	46.21	44.66	43.50	41.56	2.55	33.19	4.78	45.40
—"— CL. TAIL	16.65	1.72	1.87	1.30	0.31	5.06	0.05	91.40	0.01	23.59	0.54	0.67	0.67	0.61	0.15	2.10	0.23	0.60
SILICA CONC.	231.34	23.90	3.70	2.19	0.51	5.71	0.03	54.80	0.01	42.93	14.87	15.64	15.27	14.66	1.29	27.01	3.23	15.22
SLIMES	247.27	25.54	5.88	3.33	0.81	15.20	1.31	73.30	0.12	66.94	25.25	25.41	25.92	27.33	60.17	24.95	41.36	25.35
CALC. HEAD	979.59	100	5.95	3.35	0.80	14.21	0.56	75.03	0.07	67.43	100	100	100	100	100	100	100	100

REMARKS

ENORMOUS AMOUNT OF LARGE FROTH BUBBLES WAS EXPERIENCED IN SPAR ROUGHER AND CLEANER FLOTATION.

BRENDA MINES LTD.

TEST No. 4	ORE BEARCUB BCC # 1	DATE MAY 16, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12.843 KG	FLOTATION	AIR AS REQD.	TEST PROCEDURE
1,036 GR. OF -6 MESH ORE		CELL SIZE	2.3 LIT.	COARSE MICA SCREENED ON 28 MES AFTER GRINDING. BEFORE AND AFTER SCRUBBING, DESLIMING WAS DONE ON 200 MESH. NON-HF PROCEDURE TESTED.
1,036 ML OF FRESH H_2O		SPEED	1,500 RPM	
PRODUCT ___ % - ___ MESH; pH=7.2		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH_{END}	IMP. SPEED, RPM	ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	DUOMAC-T 2.5%	FUEL OIL	D-250		
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.7		10 ML	20 ML				2 DP		
— " — FLOTATION	2	33	3.1	1,500								
Fe CONDITION	5	65	2.4			20 ML	20 ML			2 DP		
— " — FLOTATION	3	30	3.0	1,500								
SPAR CONDITION	3	65	3.1			30 ML		20 ML	11 DP			
— " — FLOTATION	4	27	3.1	1,500								
— " — CLEANING	3	20	3.1			10 ML						

PRODUCT	WEIGHT		ASSAYS, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	15,82	1,56								
MICA FROTH	64.25	6.45	7,20	3,31	0.57	21,00	2,84	64.1	0.50	74,87
Fe — " —	74,47	7,47	4,57	3,46	0.87	12,79	0.30	77,9	0,09	60.60
SPAR CONC.	417,39	41.88	7.59	4.27	0,96	18.21	0.05	68.9	0.02	85,75
— " — CL. TAIL	40.66	4,08	2,78	1.80	0,41	6,96	0.03	85.0	0,01	33.69
SILICA CONC.	160,13	16.06	2,22	1.20	0.26	5,08	0.02	91,2	0,02	24.56
SLIMES	239,78	24,06	5,76	3,26	0,78	15,36	1,35	73.3	0,14	65,49
CALC. HEAD	1,012,5	100	5,84	3.31	0.77	14.73	0,56	74,68	0.08	66.34

PRODUCT	DISTRIBUTION, %							
	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA								
MICA FROTH	7,95	6.45	7,29	9.19	32.96	5,54	38.10	7.28
Fe — " —	5.85	7.81	8.45	6.48	4.03	7,79	7,94	6.82
SPAR CONC.	54.43	54.01	52,26	51,77	3.77	38.64	9.90	54.13
— " — CL. TAIL	1.94	2.22	2,17	1.93	0,22	4,81	0,48	2,07
SILICA CONC.	6.10	5.82	5.43	5.54	0.58	19.61	3.79	5.95
SLIMES	23,73	23,69	24,40	25.09	58.44	23,61	39,79	23.76
CALC. HEAD	100	100	100	100	100	100	100	100

REMARKS

STILL A LOT OF LARGE BUBBLES INSUFFICIENTLY LOADED.

BRENDA MINES LTD.

TEST No. 5	ORE BEARCUB BCC #1	DATE May 25, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12.843 Kg.	FLOTATION	AIR AS REQD.	TEST PROCEDURE
1,018 GR. OF -6 MESH ORE		CELL SIZE 2,3 LIT.		COARSE MICA SCREENED ON 28 MESH AFTER GRINDING, BEFORE AND AFTER SCRUBBING, DESLIMING DONE ON 325 MESH. NON-HF FLOAT TESTED.
1,018 ML OF FRESH H_2O (3)		SPEED 1,500 RPM		
PRODUCT ___ % - ___ MESH; pH=6.3		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	ARMAC T 2.5%	H_2SO_4 2.5%	M-70 2.5%	DUOMAC T 2.5%	D-250	FUEL OIL		
SCRUBBING	10	70		1,600								
MICA/Fe CONDIT.	5	65	2.4		10 ML	30 ML	20 ML		4 DP			
-"- FLOTATION	4	36	3.1	1,500					2 DP			
SPAR CONDITION	4.5	65	2.6			30 ML	20 ML	20 ML	2 DP	11 DP		
-"- FLOTATION	2.5	34	3.4	1,500								
-"- CLEANING	2	13	3.3			20 ML			2 DP			

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	17,20	1.75																
MICA/Fe FROTH	49.40	5.12	NOT ASSAYED															
SPAR CONC	249.22	25.81	8.27	4.43	0.96	19.08	0.29	66.9	0.07	91.12								
-"- CL. TAIL	53.57	5.55	7.32	4.34	0.99	17.67	0.23	69.5	0.03	84.83								
SILICA CONC.	475.43	49.25	4.34	2.73	0.67	10.77	0.13	81.3	0.01	52.07								
SLIMES	137.75	14.27	5.97	3.48	0.98	16.96	1.52	70.9	0.14	69.59								
CALC. HEAD	982.57	100																

REMARKS

BRENDA MINES LTD.

TEST No. 1	ORE BEARCUB BCC # 2	DATE May 17, 1988
OBJECT OF TEST	To recover feldspar, mica and silica into separate concentrates	

GRINDING — CHARGE 12,843 KG
1,017 GR. OF -6 MESH ORE
1,017 ML OF FRESH H_2O
PRODUCT ____ % - ____ MESH; pH=6.9

FLOTATION — AIR AS REQD.
CELL SIZE 2.3 LIT.
SPEED 1,500 RPM
DENSITY

TEST PROCEDURE — Coarse mica screened on 28 mesh. Before and after scrubbing, desliming was done on 200 mesh.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH_{END}	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.1		10 ML	20 ML			2 DP			
-"- FLOTATION	2	32	3.2	1,500								
FE CONDITION	5	65	2.8			20 ML	20 ML		2 DP			
-"- FLOTATION	3	29	3.4	1,500								
SPAR CONDITION	3	65	3.0		20 ML			20 ML	2 DP			
-"- FLOTATION	2.5	24	4.0	1,500								
-"- CLEANING	2	18	3.8					5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	9.23	0.93																
MICA FROTH	66.14	6.71	6.88	3.09	0.95	21.34	3.56	62.7	0.51	71.52	9.34	5.73	6.62	10.02	33.86	5.59	40.90	7.43
Fe -"-	107.53	10.90	4.38	4.33	1.13	14.80	0.29	75.0	0.05	68.12	9.66	13.04	12.79	11.29	4.48	10.85	6.51	11.49
SPAR CONC.	401.70	40.73	6.53	4.87	1.27	18.59	0.05	68.7	0.01	86.09	53.81	54.80	53.72	52.97	2.89	37.15	4.87	54.27
-"- CL. TAIL	13.66	1.38	0.11	0.08	0.03	0.33	0.03	99.4	0.01	1.48	0.03	0.03	0.04	0.03	0.06	1.82	0.17	0.03
SILICA CONC.	145.34	14.74	0.03	0.02	0.02	0.15	0.02	99.8	0.01	0.45	0.09	0.08	0.31	0.16	0.42	19.53	1.76	0.10
SLIMES	251.93	25.54	5.24	3.73	1.00	14.29	1.61	73.9	0.15	67.49	27.07	26.32	26.52	25.53	58.29	25.06	45.79	26.68
CALC HEAD	995.53	100	4.94	3.62	0.96	14.29	0.71	75.32	0.08	64.58	100	100	100	100	100	100	100	100

REMARKS

Large amount of stained 'yellow' spar and quartz floating in iron flotation stage.

BRENDA MINES LTD.

TEST No. 2	ORE BEARCUB BCC # 2	DATE M 18, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12,843 KG	FLOTATION / AIR AS REQD	TEST PROCEDURE: MICA +10 MESH SCREENED; THEN, +48 MESH GROUND, MICA SCREENED ON 28 MESH. BEFORE AND AFTER SCRUBBING, DESLIMING DONE ON 270 MESH.
810 GR. OF -48 MESH ORE		CELL SIZE 2.3 LIT.	
810 ML OF FRESH H_2O		SPEED 1,500 RPM	
PRODUCT ___ %- ___ MESH; pH=7.4		DENSITY	

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.5		10 ML	20 ML			2 DP			
— " — FLOTATION	3	35	3.2	1,500								
FE CONDITION	5	65	2.8			20 ML	20 ML		2 DP			
— " — FLOTATION	3	33	3.4	1,500								
SPAR CONDITION	3	65	3.3		20 ML			20 ML	2 DP			
— " — FLOTATION	3	29	3.5	1,500								
— " — CLEANING	2	22	4.0					5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	8.75	0.87								
MICA FROTH	54.05	5.42	6.46	3.36	0.90	22.22	5.07	60.9	0.63	71.07
Fe — " —	85.94	8.62	4.67	4.28	1.12	15.28	0.54	74.0	0.06	69.37
SPAR CONC.	487.59	48.92	7.42	5.16	1.31	19.50	0.05	66.5	0.02	94.01
— " — CL. TAIL	17.90	1.80	0.05	0.06	0.02	0.35	0.03	99.5	0.01	0.90
SILICA CONC	168.82	16.94	0.03	0.01	0.01	0.15	0.01	99.8	0.01	0.37
SLIMES	182.34	18.30	5.41	4.01	1.00	16.32	1.77	71.3	0.16	70.86
CALC. HEAD	1,005.35	100	5.38	3.81	0.97	15.08	0.67	73.96	0.08	68.84

PRODUCT	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA								
MICA FROTH	6.51	4.78	5.02	7.99	40.90	4.46	42.55	5.59
Fe — " —	7.48	9.65	9.94	8.73	6.93	8.63	6.44	8.68
SPAR CONC.	67.49	66.22	65.98	63.26	3.64	43.99	12.19	66.78
— " — CL. TAIL	0.02	0.03	0.04	0.04	0.08	2.42	0.23	0.03
SILICA CONC	0.09	0.04	0.18	0.17	0.25	22.86	2.11	0.09
SLIMES	18.41	19.25	18.84	19.81	48.20	17.64	36.48	18.83
CALC. HEAD	100	100	100	100	100	100	100	100

REMARKS

STAINED SPAR AND SILICA IN IRON FLOTATION.

BRENDA MINES LTD.

TEST No. 3	ORE BEARCUB BCC # 2	DATE M[illegible] 19, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12,843 KG	FLOTATION AIR AS REQD.
1,043 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.
1,043 ML OF FRESH H_2O		SPEED 1,500 RPM
PRODUCT ___ % - ___ MESH; pH=7.0		DENSITY

TEST PROCEDURE: COARSE MICA SCREENED ON 28 MESH. BEFORE AND AFTER SCRUBBING, DESLIMING DONE ON 200 MESH - NCN - HF PROCEDURE TESTED.

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH_{END}	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	DUOMAC-T 2.5	FUEL OIL	D-250		
SCRUBBING	10	70		2,000								
MICA CONDITION.	3	65	2.5		10 ML	20 ML				2 DP		
-"- FLOTATION	3	35	3.2	1,500								
FE CONDITION.	5	65	2.9			20 ML	20 ML			2 DP		
-"- FLOTATION	3	33	3.2	1,500								
SPAR CONDITION.	3	65	2.3			30 ML		20 ML	11 DP			
-"- FLOTATION	4	29	3.0	1,500								
-"- CLEANING	3	20	4.0			10 ML						

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	18.44																	
MICA FROTH	45.90	4.61	6.61	2.87	0.75	21.90	5.33	61.4	0.70	67.07	5.75	3.44	3.47	6.66	37.42	3.83	39.71	4.49
FE -"-	87.73	8.80	4.61	4.35	1.09	15.48	0.81	73.6	0.07	69.46	7.65	9.94	9.63	8.98	10.86	8.76	7.58	8.88
SPAR CONC.	408.22	40.96	6.77	4.99	1.30	18.47	0.06	68.4	0.02	88.68	52.30	53.09	53.47	49.87	3.74	37.90	10.08	52.76
-"- CL. TAIL	48.65	4.88	3.07	2.50	0.66	9.89	0.04	83.8	0.01	42.57	2.83	3.17	3.24	3.15	0.30	5.53	0.60	3.02
SILICA CONC	221.06	22.18	3.01	2.03	0.51	7.70	0.03	86.7	0.02	37.19	12.59	11.69	11.36	11.26	1.01	26.02	5.46	12.08
SLIMES	185.13	18.57	5.39	3.87	1.01	16.38	1.65	71.5	0.16	69.61	18.88	18.67	18.83	20.05	46.67	17.96	36.57	18.77
CALC. HEAD	1,015.13	100	5.30	3.85	1.00	15.17	0.66	73.92	0.08	68.86	100	100	100	100	100	100	100	100

REMARKS

STAINED SPAR AND SILICA IN IRON FLOTATION.

BRENDA MINES LTD.

TEST No. 4	ORE BEARCUB BCC # 2		DATE May 30, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1		

GRINDING	CHARGE 12,843 KG	FLOTATION	AIR AS REQD.	TEST PROCEDURE
1,010 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.		COARSE MICA SCREENED ON 28 MESH. DESLIMING DONE AS BEFORE ON 325 MESH. M.I.B.C. INSTEAD OF D-250 TESTED.
1,010 ML OF FRESH H_2O		SPEED 1,200 RPM		
PRODUCT ___%- ___ MESH		DENSITY		

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	MIBC
SCRUBBING	10	70	7.3	1,600					
MICA CONDITION	3	65	2.3		10 ML	20 ML			3 DP
-"- FLOTATION	3	37	5.2(?)	1,300					
FE CONDITION.	5	65	—			20 ML	20 ML		3 DP
-"- FLOTATION	3	35.5	—	1,300					
SPAR CONDITION	3	65	—		20 ML			20 ML	3 DP
-"- FLOTATION	3	34	—	1,300					
-"- CLEANING	2	26	—	1,300				5 ML	

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	22.26	2.25																
MICA FROTH	33.23	3.43	7.20	2.18	0.53	28.40	6.00	54.3	1.06	63.63	4.67	1.98	1.93	6.05	32.76	2.55	45.62	3.21
FE -"-	38.80	4.00	4.58	3.89	1.01	16.61	3.82	69.6	0.24	64.99	3.46	4.12	4.30	4.13	24.32	3.82	12.40	3.83
SPAR CONC.	567.09	58.51	7.17	5.26	1.30	21.25	0.08	64.9	0.02	93.33	79.32	81.39	80.88	77.27	7.45	52.09	15.11	80.40
-"- CL. TAIL	24.90	2.57	0.11	0.10	0.06	0.41	0.07	98.2	0.07	1.79	0.05	0.07	0.16	0.07	0.29	3.46	2.32	0.07
SILICA CONC.	186.96	19.29	0.03	0.03	0.02	0.13	0.02	98.8	0.01	0.53	0.11	0.15	0.41	0.16	0.61	26.13	2.49	0.15
SLIMES	118.20	12.20	5.37	3.81	0.95	16.25	1.78	71.7	0.14	68.68	12.39	12.29	12.32	12.32	34.57	11.99	22.06	12.34
CALC HEAD	991.44	100	5.29	3.78	0.94	16.13	0.63	72.95	0.08	67.91	100	100	100	100	100	100	100	100

REMARKS

AGAIN, STAINED SPAR AND SILICA IN IRON FLOTATION.

BRENDA MINES LTD.

TEST No. 1	ORE BEARCUB BCC # 3	DATE May 20, 1988
OBJECT OF TEST	TO RECOVER FELDSPAR, MICA AND SILICA INTO SEPARATE CONCENTRATES	

GRINDING	CHARGE 12.843 KG	FLOTATION	AIR AS REQD.	TEST PROCEDURE
1,037 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.		COARSE MICA SCREENED ON 28 MESH. BEFORE AND AFTER SCRUBBING, DESLIMING WAS DONE ON 200 MESH.
1,037 ML OF FRESH H_2O		SPEED 1,500 RPM		
PRODUCT ___ % - ___ MESH; pH=7.2		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	ARMAC T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.2		10 ML	20 ML			2 DP			
-"- FLOTATION	3	35	3.2	1,500								
Fe CONDITION.	5	65	2.5			20 ML	20 ML		2 DP			
-"- FLOTATION	3	33	3.4	1,500								
SPAR CONDITION.	3	65	3.0		20 ML			20 ML	2 DP			
-"- FLOTATION	2.5	29	4.0									
-"- CLEANING	1.5	20	3.9					5 ML				

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	19.40	1.92																
MICA FROTH	62.64	6.31	6.32	2.35	0.91	21.11	4.63	63.5	0.72	61.66	8.60	4.13	5.61	8.99	42.73	5.33	48.07	6.19
Fe -"-	83.38	8.40	3.61	3.27	1.21	13.49	0.84	77.5	0.08	54.95	6.54	7.65	9.94	7.64	10.32	8.67	7.11	7.35
SPAR CONC.	448.95	45.26	6.72	5.53	1.48	20.41	0.08	65.8	0.02	93.84	65.60	69.73	65.49	62.31	5.30	39.64	9.58	67.59
-"- CL. TAIL	20.98	2.11	0.30	0.21	0.07	0.92	0.03	98.5	0.01	3.90	0.14	0.12	0.14	0.13	0.09	2.77	0.22	0.13
SILICA CONC.	194.50	19.61	0.04	0.02	0.02	0.18	0.03	99.7	0.01	0.50	0.17	0.11	0.38	0.24	0.86	26.02	2.08	0.16
SLIMES	181.61	18.31	4.80	3.58	1.03	16.75	1.52	72.1	0.17	63.77	18.95	18.26	18.44	20.69	40.70	17.57	32.94	18.58
CALC. HEAD	1,011.45	100	4.64	3.59	1.02	14.82	0.68	75.13	0.09	62.79	100	100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.

TEST No. 2	ORE BEARCUB BCC #3	DATE MAY 21, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12.843 KG.	FLOTATION	AIR AS REQD.	TEST PROCEDURE
841 GR. OF -48 MESH ORE		CELL SIZE 2,3 LIT.		MICA +10 MESH SCREENED; THEN, +48 MESH GROUND AND MICA SCREENED ON 28 MESH BEFORE AND AFTER SCRUBBING, DESLIMING DONE ON 270 MESH.
841 ML OF FRESH H_2O		SPEED 1,500 RPM		
PRODUCT ___ % - ___ MESH; pH=7.1		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.5		10 ML	20 ML			2 DP			
-"- FLOTATION	3		—	1,500								
Fe CONDITION.	5	65	2,5			20 ML	20 ML		2 DP			
-"- FLOTATION	3		3.6	1,500								
SPAR CONDITION.	3	65	3.3		20 ML			20 ML	2 DP			
-"- FLOTATION	3		3.6	1,500								
-"- CLEANING	2		3.5					5 ML				

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	15.39	1.53																
MICA FROTH	63.60	6.41	6.53	2,10	0.86	21.37	4.57	63.4	0.77	60.53	8.28	3.76	5.25	9.24	43.85	5.45	54.46	5.94
Fe -"-	45.68	4.60	3.40	2.54	1.02	13.23	1.80	77.8	0.09	46.60	3.09	3.27	4.46	4.11	12.39	4.80	4.57	3.28
SPAR CONC.	496.90	50.07	6.50	5.43	1.52	20.02	0.08	66.4	0.02	91.89	64.36	75.99	72.38	67.59	6.00	44.55	11.05	70.40
-"- CL. TAIL	23.21	2.34	0.09	0.08	0.05	0.34	0.03	99.4	0.01	1.46	0.04	0.05	0.11	0.05	0.11	3.12	0.26	0.05
SILICA CONC.	198.38	19.99	0.08	0.05	0.04	0.27	0.03	99.5	0.01	1.09	0.32	0.28	0.76	0.36	0.90	26.65	2.20	0.33
SLIMES	164.60	16.59	7.29	3.59	1.08	16.67	1.48	69.4	0.15	78.81	23.91	16.65	17.04	18.65	36.75	15.43	27.46	20.00
CALC. HEAD	1,007.76	100	5.06	3.58	1.05	14.83	0.67	74.62	0.09	65.33	100	100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.

TEST No 3 | ORE BEARCUB BCC #3 | DATE [illegible] 21, 1988

OBJECT OF TEST: SAME AS IN TEST NO. 1

GRINDING	CHARGE 12.843 KG.	FLOTATION	AIR AS REQ'D.	TEST PROCEDURE
1,010 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.		MICA SCREENED ON 28 MESH AFTER GRINDING. DESLIMING DONE AS BEFORE ON 200 MESH.
1,010 ML OF FRESH H_2O	(?)	SPEED 1,500 RPM		
PRODUCT ____ % - ____ MESH, pH=6.5		DENSITY		

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE							
	TIME, MIN.	% SOLIDS	pH, END	IMP. SPEED, RPM	ARMAC-T 2.5%	H_2SO_4 2.5%	ML-70 2.5%	DUOMAC-T 2.5%	~~FUEL OIL~~	D-250		
SCRUBBING	10	70		2,000								
MICA CONDITION	3	65	2.3		10 ML	20 ML				2 DP		
— " — FLOTATION	2.5		3.5	1,500								
Fe CONDITION	5	65	2.8			20 ML	20 ML			2 DP		
— " — FLOTATION	3		3.7	1,500								
SPAR CONDITION	3	65	2.9			30 ML		20 ML	11 DP			
— " — FLOTATION	4		3.2	1,500								
— " — CLEANING	3		3.2	1,500		10 ML						

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	19.01	1.92																
MICA FROTH	65.92	6.80	6.53	2.24	0.87	20.58	4.29	64.4	0.70	61.77	8.66	4.24	5.49	9.59	42.54	5.85	52.98	6.46
Fe — " —	86.26	8.90	3.47	3.34	1.22	12.86	0.77	78.2	0.06	54.77	6.03	8.27	10.07	7.85	10.00	9.30	5.94	7.50
SPAR CONC.	441.43	45.53	5.85	4.86	1.40	17.64	0.06	70.2	0.01	80.44	51.98	61.57	59.11	55.06	3.98	42.72	5.05	56.32
— " — CL. TAIL	40.72	4.20	1.33	1.35	0.43	4.71	0.02	92.2	0.01	21.41	1.09	1.58	1.67	1.36	0.12	5.17	0.47	1.38
SILICA CONC.	137.92	14.22	1.23	1.03	0.32	3.71	0.03	93.7	0.01	17.57	3.41	4.07	4.22	3.62	0.62	17.81	1.58	3.84
SLIMES	197.37	20.35	7.26	3.58	1.03	16.14	1.44	70.4	0.15	78.30	28.83	20.27	19.44	22.52	42.74	19.15	33.98	24.50
CALC. HEAD	988.63	100	5.12	3.59	1.08	14.59	0.69	74.82	0.09	65.92	100	100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.

TEST No. 1	ORE BEARCUB BCC #4	DATE Mar. 23, 1988
OBJECT OF TEST	TO RECOVER FELDSPAR, MICA AND SILICA INTO SEPARATE CONCENTRATES	

GRINDING		FLOTATION	TEST PROCEDURE
1,001 GR. OF -6 MESH ORE	CHARGE 12,843 KG	AIR AS REQD.	MICA SCREENED ON 28 MESH, DESLIMING DONE ON 200 MESH BEFORE AND AFTER SCRUBBING
1,001 ML OF FRESH H_2O		CELL SIZE 2.3 LIT.	
PRODUCT ___ % - ___ MESH; pH=7.2		SPEED 1,500 RPM	
		DENSITY	

STAGE	CONDITIONS				REAGENTS ML OR GR/TONNE				
	TIME, MIN.	% SOLIDS	pH_{END}	IMP. SPEED, RPM	ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250
SCRUBBING	10	70		2,000					
MICA CONDITION	3	65	2.5		10 ML	20 ML			2 DP
-"- FLOTATION	3	33.5	4.0(?)	1,500					
Fe CONDITION.	5	65	3.1			20 ML	20 ML		2 DP
-"- FLOTATION	3	31	3.5	1,500					
SPAR CONDITION.	3	65	3.3		20 ML			20 ML	2 DP
-"- FLOTATION	2	28	3.9(?)	1,500					
-"- CLEANING	2	20	3.6					5 ML	

PRODUCT	WEIGHT		ASSAYS, %								DISTRIBUTION, %							
	GR.	%	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	16.97	1.74																
MICA FROTH	55.68	5.81	6.06	3.47	1.15	24.27	6.20	57.3	0.78	70.98	8.01	5.01	5.38	9.22	49.45	4.49	51.36	6.22
Fe -"-	61.24	6.39	3.76	3.99	1.11	13.80	0.52	76.8	0.04	61.48	5.46	6.34	5.71	5.77	4.56	6.62	2.90	5.93
SPAR CONC.	450.44	46.99	6.11	5.84	1.82	20.66	0.04	65.5	0.01	94.55	65.28	68.18	63.84	63.50	2.55	41.50	5.33	67.09
-"- CL. TAIL	17.15	1.79	0.06	0.05	0.05	0.30	0.02	99.5	0.01	1.03	0.02	0.02	0.07	0.04	0.05	2.40	0.20	0.03
SILICA CONC.	184.85	19.28	0.01	0.02	0.04	0.11	0.01	99.8	0.01	0.49	0.04	0.10	0.62	0.14	0.27	25.94	2.18	0.14
SLIMES	189.19	19.74	4.72	4.15	1.22	16.52	1.59	71.6	0.17	69.06	21.19	20.35	19.38	21.33	43.09	19.05	38.03	20.59
CALC. HEAD	975.52	100	4.40	4.02	1.24	15.29	0.73	74.17	0.09	66.17	100	100	100	100	100	100	100	100

REMARKS

BRENDA MI ES LTD.

TEST No. 2	ORE BEARCUB BCC #4	DATE MAY 24, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12,843 KG	FLOTATION	AIR AS REQD.	TEST PROCEDURE	MICA +10 MESH SCREENED; THEN, +48 MESH GROUND AND MICA SCREENED ON 28 MESH. DESLIMING DONE ON 270 MESH, BEFORE AND AFTER SCRUBBING.
856 GR. OF -48 MESH ORE		CELL SIZE 2.3 LIT.			
856 ML OF FRESH H_2O		SPEED 1,500 RPM			
PRODUCT ___ % - ___ MESH; pH=6.8		DENSITY			

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH_{END}	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	HF 2.5%	D-250			
SCRUBBING	10	70		2,000								
MICA CONDITION.	3	65	2.7		10 ML	20 ML			2 DP			
-"- FLOTATION	2.5	36.5	3.4	1,500								
Fe CONDITION.	5	65	2.6			20 ML	20 ML		2 DP			
-"- FLOTATION	3	34	2.9	1,500								
SPAR CONDITION.	3	65	3.0		20 ML			20 ML	2 DP			
-"- FLOTATION	2.5	31	—	1,500								
-"- CLEANING	2	22	3.6					5 ML				

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	DISTRIBUTION, % K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	16.21	1.60																
MICA FROTH	60.66	6.07	6.56	3.58	1.14	25.16	5.54	56.5	0.82	74.71	8.82	5.44	5.68	10.32	51.14	4.59	59.86	6.82
Fe -"-	70.58	7.07	4.11	4.39	1.30	15.04	0.67	74.4	0.06	67.88	6.43	7.77	7.55	7.19	7.20	7.05	5.10	7.21
SPAR CONC.	486.34	48.61	6.26	5.78	1.75	19.66	0.03	66.5	0.01	94.58	67.36	70.34	70.33	64.59	2.22	43.30	5.85	69.10
-"- CL. TAIL	23.27	2.33	0.06	0.07	0.04	0.33	0.02	99.5	0.01	1.15	0.03	0.04	0.08	0.05	0.07	3.10	0.28	0.04
SILICA CONC.	201.60	20.19	0.02	0.03	0.02	0.15	0.02	99.7	0.01	0.47	0.09	0.15	0.33	0.20	0.61	26.96	2.43	0.14
SLIMES	157.03	15.73	4.96	4.13	1.28	16.60	1.62	71.2	0.14	70.60	17.27	16.26	16.53	17.65	38.75	15.00	26.48	16.69
CALC. HEAD	1,014.69	100	4.52	3.99	1.22	14.80	0.66	74.66	0.08	66.54	100	100	100	100	100	100	100	100

REMARKS

BRENDA MINES LTD.

TEST NO. 3	ORE BEARCUB BCC #4	DATE [illegible] 25, 1988
OBJECT OF TEST	SAME AS IN TEST NO. 1	

GRINDING	CHARGE 12,843 KG.	FLOTATION	AIR AS REQD.	TEST PROCEDURE	MICA SCREENED ON
1,035 GR. OF -6 MESH ORE		CELL SIZE 2.3 LIT.		28 MESH: DESLIMING DONE ON 200 MESH,	
1,035 ML OF FRESH H_2O (?)		SPEED 1,500 LIT.		BEFORE AND AFTER SCRUBBING.	
PRODUCT ___ % - ___ MESH; pH 6.4		DENSITY			

STAGE	CONDITIONS: TIME, MIN.	% SOLIDS	pH_{END}	IMP. SPEED, RPM	REAGENTS ML OR GR/TONNE: ARMAC-T 2.5%	H_2SO_4 2.5%	M-70 2.5%	DUOMAC-T 2.5%	FUEL OIL	D-250		
SCRUBBING	10	70		2,000								
MICA CONDITION.	3	65			10 ML	20 ML				2 DP		
-"- FLOTATION	3	34.5	2.8	1,500								
Fe CONDITION.	5	65	2.7			20 ML	20 ML			2 DP		
-"- FLOTATION	3	32		1,500								
SPAR CONDITION	3	65	2.9			30 ML		20 ML	11 DP			
-"- FLOTATION	4	30		1,500								
-"- CLEANING	3	22.5	3.1			10 ML						

PRODUCT	WEIGHT GR.	WEIGHT %	ASSAYS, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR	DISTRIBUTION, %: K_2O	Na_2O	CaO	Al_2O_3	Fe_2O_3	SiO_2	MgO	SPAR
COARSE MICA	15.00	1.53																
MICA FROTH	48.22	4.99	6.82	2.87	0.92	25.70	6.62	55.3	1.05	69.15	7.65	3.61	3.63	8.55	60.36	3.70	55.62	5.22
Fe -"-	58.10	6.02	4.00	4.28	1.31	15.61	1.95	72.5	0.12	66.35	5.41	6.50	6.24	6.27	21.45	5.85	7.67	6.04
SPAR CONC.	437.00	45.27	5.76	5.25	1.70	19.01	0.05	68.2	0.01	86.89	58.58	59.97	60.90	57.38	4.14	41.38	4.81	59.54
-"- CL. TAIL	85.00	8.81	2.16	2.26	0.68	7.39	0.03	87.5	0.02	35.26	4.28	5.02	4.74	4.34	0.48	10.33	1.87	4.70
SILICA CONC.	166.00	17.20	1.29	1.34	0.45	4.61	0.02	92.3	0.01	21.19	4.98	5.82	6.13	5.29	0.63	21.27	1.83	5.51
SLIMES	170.97	17.71	4.80	4.27	1.31	15.39	0.40	73.6	0.15	70.99	19.10	19.08	18.36	18.17	12.94	17.47	28.20	19.02
CALC HEAD	980.29	100	4.45	3.96	1.26	15.00	0.55	74.62	0.09	66.10	100	100	100	100	100	100	100	100

REMARKS

APPENDIX 9
RPT. MARCH 24, 1998

Ore Sorters (North America)
Irongate 1, Suite 203
777 South Wadsworth Blvd.
Lakewood, Colorado 80226
Telephone (303) 985-0238
TWX 910-937-0374
Telefax (303) 989-1327

March 29, 1988

Mr. J. W. Austin
General Project Manager
Brenda Mines Ltd.
Process Technology Division
2263 Leckie Road
Kelowna, B.C. V1X 6Y5
CANADA

Dear Mr. Austin:

Ore Sorters (North America) Inc. has completed our preliminary studies on samples of pegmatite from the Bear Cub deposit. The samples studied during the work represented material taken from two surface outcrops of a large pegmatite occurrence. The object of the work was to evaluate the material, through conventional froth flotation techniques, as to its potential for production of mica, feldspar, and quartz. The primary objective was to produce a feldspar concentrate suitable for the glass and/or ceramics markets from the Bear Cub deposit samples. During the studies a sample of Brenda Mines copper concentrator tailings were collected and also subjected to froth flotation to determine the potential for recovery of feldspar and quartz.

The scope of the studies involved treating two samples of material by rod mill grinding, sizing, attrition scrubbing, conditioning, and froth flotation of mica, iron minerals and finally feldspar. Training of the laboratory personnel at Brenda Mines as to the special procedures required to recovery high quality feldspar product was also desired. In the future the personnel at Brenda Mines would conduct the evaluation of subsequent samples and their training would be beneficial to the overall project.

During the study, Edwin H. Bentzen III visited the milling operations of Brenda Mines Ltd., near Kelowna, B.C., and demonstrated the flotation techniques necessary for the separation and recovery of feldspar by the HF-standard method. During the laboratory work at Brenda Mines portions of the products generated were submitted for chemical analysis by Brenda Mines analytical services by conventional wet chemical techniques.

During the studies at Brenda Mines, the only method for pulverizing the flotation test products involved grinding in a unit made of iron. This method of pulverizing increased the iron content of the final products. Therefore, portions of selected final products were brought to the USA and submitted for pulverizing in an iron free unit and analysis by X-Ray Fluorescence techniques. The X-Ray Fluorescence was conducted by 'The Mineral Lab'. The differences in values determined were slight for all elements, with the exception of iron. The iron values determined in products pulverized in an iron free unit were approximately 0.10% to 0.20% Fe_2O_3 lower than the same material ground in an iron unit.

SUMMARY AND CONCLUSIONS

Based on the studies conducted on the material available from the Bear Cub deposit, the following results were obtained.

1. Chemical analysis of portions of the two feed samples by separate laboratories determined the following.

Sample	Laboratory	Na_2O %	K_2O %	CaO %	Al_2O_3 %	SiO_2 %	Fe_2O_3 %	L.O.I. %
Bear Cub #1	Brenda	3.01	8.17	0.49	14.08	74.30	1.00	--
Bear Cub #1	Mineral lab	2.70	8.45	0.54	15.10	70.30	0.21	0.26
(calc head based on assays by Mineral lab)		2.54	8.40	--	14.7	--	0.44	--
Bear Cub #2	Brenda	3.09	5.54	0.92	12.10	--	0.56	--
Bear Cub #2	Mineral lab	3.16	5.91	1.08	14.80	74.7	0.43	0.35
(calc head based on assays by Brenda)		3.41	5.58	--	14.6	--	0.73	--
Typical Spruce Pine, North Carolina, U.S.A.		5.1	3.4	0.9	15.4	74.4	0.4	0.4

2. Based on chemical analysis of two samples of Bear Cub material, the calculated mineralogy was,

Sample Identification	K-Spar %	Na-Spar %	Ca Spar %	Mica %	Quartz %	Other %
Bear Cub #1	51	23	3	<1	20	3
Bear Cub #2	34	27	5	2	31	1
Typical Spruce Pine, N.C.	15	43	6	8	28	<1

3. Although the majority of the flotation tests were conducted on Bear Cub Sample #2, (5 tests), the one test on Bear Cub Sample #1 produced similar yields of products to those tests on Bear Cub Sample #2. The following table summarizes the results of the flotation studies.

			Final Feldspar Concentrate			
Test No.	Feed Sample	Mesh Size	Wt %	Al_2O_3 %	Na_2O+K_2O %	Fe_2O_3 %
3	BC #2	28X140	44.1	18.5	12.39	<0.01
4	BC #2	28X200	47.5	18.8	12.61	<0.01
5	BC #2	28X400	51.7	18.0	12.07	<0.01
6	BC #1	28X200	53.8	17.7	13.82	<0.01
Typical Spruce Pine, N.C.						
Glass Spar		+200	50	19.0	10.90	0.07
Pottery Spar		-200	--	18.8	11.2	0.07
Typical Kings Mt., N.C.						
Glass Spar		+200	--	18.3	13.9	0.07
Pottery Spar		-200	--	18.3	13.9	0.07

4. The final quartz product, (feldspar rougher flotation tailing) was very clean in appearance and had the following chemical analysis.

Test No.	Feed Sample	Mesh Size	Wt %	Final Quartz Concentrate Al_2O_3 %	Fe_2O_3 %	SiO_2(direct) %
3	BC #2	28X140	19.6	0.65	<0.01	97.3
4	BC #2	28X200	19.9	0.07	<0.01	99.1
5	BC #2	28X400	21.6	0.19	<0.01	90.6
6	BC #1	28X200	12.7	0.25	<0.01	98.0
Typical Spruce Pine, N.C. Quartz Sand		+200	19	0.4	0.10 - 0.15	92 - 98
Typical Kings Mt., N.C. Quartz Sand		+200	---	0.3	0.02	99

5. Mica recovery in the grinding oversize, as well as in the mica froth flotation concentrate contained appreciable quantities of quartz and feldspar. No evaluation of a potential mica product can be presented at this time. In those flotation tests in which all the products were chemically analyzed, the recovery of iron was greatest in the mica froth, not in the iron mineral froth. The weathered nature of the samples tends to activate the iron minerals and they float in the first stage of separation, the mica froth.

6. The iron mineral flotation stage removed 4 to 7 weight percent of the feed as waste, which could be considered high. Visual examination as well as calculated mineralogical composition of the iron mineral froth fraction determined it was composed primarily of stained feldspar and quartz.

7. Sizing the Bear Cub Sample 2 material at progressively finer sizes, from 140 mesh to 400 mesh resulted in increasing yields of both feldspar and quartz. However the best balance between yield and grade appears to be at 200 mesh deslime.

8. Comparison of the recovery of Al_2O_3 values between samples analyzed by Brenda Mines, and The Mineral Lab are due mainly to the values employed as the analyzed head. The higher the Al_2O_3 value employed, the lower the recovery calculated. The best values to employ for calculations are those determined by analyzing all the flotation test products, and calculating a head. Employing this method the recover of Al_2O_3 from the two Bear Cub samples was 64.6% from Sample 1, and 63.8% from Sample 2.

Based on the limited studies conducted on the samples identified as Bear Cub, the feldspar product recovered by froth flotation, employing a convention HF-Amine reagent combination, is comparable in both yield and chemical quality to material produced from the Spruce Pine, North Carolina deposits.

The variation in K_2O contents in the final feldspar concentrates is related to the K_2O content in the Bear Cub Sample 1 and 2 feed materials. Variations in the CaO and K_2O contents of the feed, and the feldspar concentrate, effect the Al_2O_3 content of the final feldspar concentrate. A higher Ca-Spar contents will result in higher Al_2O_3 contents, while a higher K-Spar contents will results in a lower final Al_2O_3. Close control of the feed to the flotation concentrator will be required to insure a product consistent in Al_2O_3, K_2O, Na_2O, CaO and Fe_2O_3.

The quartz product resulting after feldspar flotation appears to meet the basic chemical specifications for amber, flint, or float glass manufacture. Additional investigations of the refractory heavy mineral contents and trace element content will be necessary before marketing studies are undertaken.

Mica recovery in the grinding oversize, as well as in the mica froth flotation concentrate contained appreciable quantities of quartz and feldspar. Additionally, the Bear Cub samples studied represented surface material and were subjected to weathering that can effect the recovery during froth flotation. Insufficient mica froth flotation concentrate was produced in the laboratory tests to allow cleaning flotation stages. Predicting the mica quantity in final product, on the bases of laboratory bench tests or chemical analysis, is difficult and frequently misleading. During pilot plant operations the quality and quantity of recoverable mica can be determined to a greater certainty.

The preliminary results of studies conducted on the Brenda Mines copper concentrator were not encouraging. Recovery of feldspar, mica and quartz by conventional froth flotation will require considerable laboratory studies to perfect the separation.

Details of the froth flotation tests conducted at the Brenda Mines Ltd. laboratory, along with the chemical analysis are presented in Exhibit 1. An additional listing of the completed chemical analysis of selected flotation test products conducted by The Mineral Lab are presented in Exhibit 2. Calculations of mineralogical composition of the products analyzed by The Mineral Lab are presented in Exhibit 3.

RECOMMENDATIONS

All the preliminary studies of the Bear Cub deposit have been conducted on a limited number of samples (2). Additionally the samples represented material collected near the surface. To better evaluate the occurrence as a minable deposit considerably more samples will have to be tested in the laboratory. Core drill samples from areas suitable for initial mining should be collected first, with expansion of the drilling pattern being undertaken after conformation of laboratory flotation results on the deeper samples.

A dedicated laboratory should be established to process the core drilling samples. Although the present staff at Brenda Mines is capable of preforming the flotation evaluation and analysis of the core samples, a large amount of drill core samples may necessitate the dedication of staff to process and analyze the material in an expeditious manner. As an alternative Brenda Mines Ltd. may wish to contract the studies to one of the various research laboratories for routine flotation and chemical analysis of the core and flotation products. At least preliminary studies should also be undertaken to evaluate froth flotation procedures that do not employ the environmentally hazardous hydrofluoric acid. A list of laboratories that can undertake these investigations be provided on request.

After the initial mining area has been delineated, a bulk samples should be collected for pilot plant studies. Operations in a pilot plant will generate sufficient material for marketing studies as well as engineering data necessary for the design and feasibility study of the project. If a large pilot plant is constructed at the Bear Cub deposit, training of the future operators will be a secondary benefit to the studies.

Overall, the work on the first two samples from the Bear Cub deposit is encouraging. Specifically, the response of both samples to conventional froth flotation to recover feldspar was almost identical to reported results from treatment of pegmatite material from the Spruce Pine, North Carolina area. The location of the deposit on the western side of the Rocky Mountains will aid in marketing the feldspar to West Coast consumers as well as other consumers in the Pacific Rim. The biggest problem in evaluating the deposit for development, at this time, is the limited number of samples that have been tested. Before total commitment to development is undertaken considerable expense will have to be committed to geological, metallurgical, engineering, environmental and marketing research.

Thank you for allowing Ore Sorters (North America) Inc. to be of service to you in this interesting investigation. Should you have any questions concerning the studies conducted, or the studies that should be undertaken in the future, please call.

Sincerely,

Edwin H. Bentzen III
Manager Process Services

cc: Steelhead Resources.

APPENDIX B
RPT. JAN 19, 19[illegible]

MEMORANDUM

TO: J.W. Austin

FROM: B.M. Nikodijevic

DATE: January 19, 1988

SUBJECT: Preliminary Metallurgical Testing Of Bearcub Pegmatite - Progress Report No. 1

I INTRODUCTION

This report summarizes the results of metallurgical testing of Bearcub pegmatite with the objective of producing a saleable Feldspar concentrate by removing Mica and iron-containing minerals.

The report covers the sample preparation, size and element analysis, grinding tests and preliminary flotation testwork.

II SUMMARY AND CONCLUSIONS

1. Two Bearcub samples were received for testing in the first half of November. Flotation testwork was delayed because necessary reagents were not received until December 29.

2. Only sample No. 2 which represented fresh ore was tested. The head assay was as follows:

K_2O,%	Na_2O,%	CaO,%	Al_2O_3,%	Fe_2O_3,%	SiO_2,%
5.54	3.09	0.92	12.1	0.56	64

3. For initial testing, standard pegmatite treatment was adopted: cationic flotation of Mica, removal of "heavy" iron-bearing minerals together with remaining Mica by anionic flotation, and finally cationic flotation of Feldspar leaving Quartz in the tail.

4. To economically mine the deposit, saleable material must be produced out of most of ore body.

5. After three preliminary tests, the best Feldspar concentrate was obtained in test No. 3:

Recovery,%	Concentrate Grade,%			
	K_2O+Na_2O	Feldspar	Al_2O_3	Fe_2O_3
81	12	89	15.5	0.09

6. It is not known how large are the "books" of Mica in pegmatite; in the sample crushed to - 3/4 inch there were quite a

few Mica sheets size of 1 sq in. Both "coarse" (+28 mesh) Mica after grinding and flotation Mica concentrate can be produced. Higher Fe and Mg show that there is both Biotite and Phlogopite besides Muscovite Mica in the ore.

7. Further cleaning of the tail assaying max. 98.7% SiO_2 is necessary to produce a marketable product.

8. From the limited testwork conducted, it appears that the upgrading of Bearcub material to a saleable Feldspar product, and probably Mica and Silica concentrates as well, should not be difficult.

III SUMMARY OF TESTWORK

A. SAMPLE IDENTIFICATION

Brenda metallurgical lab received on November 10, 1987 one plastic bucket of Bearcub 1 sample, weighing 18.62 kg net, consisting of big lumps of ore.

Bearcub 2 sample weighing about 230 kg has been received on November 12, also in the form of big lumps.

The samples were supplied by Brenda Mine engineering. The first sample was being picked up on the surface; it was not fresh and probably oxidized. The second sample was obtained by blasting to a depth of 3'-4' and represents a fresh ore. It was therefore decided to use second sample only for testing.

It is not known whether the samples received are representative of a deposit.

The available information shows that the ore is a granitic pegmatite, containing Feldspar, Mica and rare earths in Monazite/ Xenotime minerals. According to the head assays, Feldspar minerals are a mix of Microcline, Orthoclase and Albite with some Anorthite.

Although it can be helpful for laboratory investigation (and very important in the latter advanced stage of testing for flowsheet development), the detailed information on location and size of the deposit, type of mineralization, quality of water, environmental problems, etc. was beyond the scope of this report.

Mineralogical examination including studies of minerals present in the ore, their degree of interlocking, alteration and/or oxidation of mineral surfaces, size distribution of economic minerals, etc. would have been very useful.

B. SAMPLE PREPARATION AND DESCRIPTION

Both samples were crushed in a jaw crusher to - 3/4 inch. Sample No. 1 was further crushed in a cone crusher to - 6 mesh, head sample was removed, and the remainder riffled into 2 kg lots and sealed in plastic bags. Sample No. 2 crushed to - 3/4 inch was sealed in plastic bags. About 1/4 of total amount was then reduced in size to - 6 mesh and sealed in plastic bags with the sample being taken for head analysis. Enough - 6 mesh was then riffled into 1 kg lots for the initial grinding and flotation testing. Sample No. 1 contained 0.04% H2O only.

Natural pH of sample No. 2 was 6.7 (pulped with fresh water, PH=7), and the specific gravity was 2.60.

Examining the samples crushed to - 3/4 inch, it appears that sample No. 2 contains much more Mica (even large 1 sq. in. sheets) than sample No. 1, roughly about 10-15% of total. On the other hand, particularly under microscope, it looks like that sample No. 1 contains more Quartz than the sample No. 2.

C. HEAD ANALYSIS

The assay results pertaining to grab samples taken at the Bearcub property and done by Chemex Labs Ltd. from Vancouver averaged as follows, in %:

SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	BaO	L.o.i.
72.87	15.30	0.40	0.09	0.95	2.90	7.76	0.04	0.18	0.03	0.02	0.41

The assays of sample No. 1, head size fractions and grinding size fractions done by Brenda Assay Lab are given in Table No. 1. The bulk head and average head from size fractions as well as calculated from grinding size fractions were the following, in %:

	SiO2	Al2O3	Fe2O3	K2O	Na2O	CaO
Bulk head, assayed	74.30	14.08	1.00	8.17	3.01	0.49
Head, calculated from size fractions	70.52	12.46	0.48	8.14	2.93	0.46
Head, calculated from grinding size fractions	71.17	15.04	0.65	8.72	2.96	0.53

The bulk head and head back-calculated from the flotation products of sample No. 2 are in %:

	SiO2	Al2O3	Fe2O3	K2O	Na2O	MgO	CaO
Bulk head, assayed		12.10	0.56	5.54	3.09	0.08	0.92
Head, calculated from flotation products	74.62	13.38	0.90	6.54	3.57	0.10	0.98

The total Feldspar content can be calculated using the stoichiometric formula:

$$\text{total Feldspar, \%} = \left(\frac{K2O}{16.92} + \frac{Na2O}{11.82} + \frac{CaO}{20.16}\right) 100$$

Then, the total Feldspar in the Bearcub sample No. 1 is as follows:

assayed bulk head	76.18%
head, calculated from size fractions	75.18%
head, calculated from grinding size fractions	79.21%

The total Feldspar in sample No. 2 is:

assayed bulk head	63.45%
head, calculated from flot. products	64.74%

It appears that sample No. 2 contains about 10% less Feldspar, basically in the form of potash Feldspar, about 2% less alumina and less iron.

If further drilling of the deposit is undertaken and samples are going to be sent to a specialized laboratory (like Chemex Labs), it is suggested to assay the Bearcub on Li, Ta, Eu, B and Be, unless it is already known that those elements i.e. the corresponding minerals are not present in the deposit.

D. SIZE ANALYSIS AND ELEMENT DISTRIBUTION PER SIZE FRACTIONS

Size distribution of both head samples and distribution of elements, considered important for testing, per size fractions is shown in Tables No. 2, 5 and 11 and Graphs No. 1 and 2. Also, Feldspar distribution per size fractions for sample No. 1 head and 5 - 20 min. grinds is summarized in Table No. 10.

E. GRINDING TESTS

The purpose of grinding tests was to determine the size of mineral liberation necessary to provide the separation of Feldspar from Mica and Quartz, and at the same time avoid overgrinding and creation of harmful fines.

Grinding tests on sample No. 1 were done using 2 kg sample lots in a lab rod mill, using full 20.853 kg rod charge at 67% solids for 5, 10, 15 and 20 minutes. Size analysis and element distribution per size fractions are shown in Tables No. 3, 4, 6, 7, 8 and 9 grinding curves on Graph No. 1.

Grinding tests on sample No. 2 are incomplete yet. Sample of 0.5 kg was ground for 5 minutes, at 40% solids in a lab rod mill using larger rods only and weighing 12.843 kg. Sample of 1 kg was ground for 10 minutes under the same conditions. Size analysis is shown in Table No. 12.

Size fractions of 5 min. grind of sample No. 1 were briefly examined under the metallurgical microscope in reflected light. Almost all of the grains were free in the class + 28 mesh, but Mica represented only about 10-15% of the total. Some Feldspar grains had yellowish/brownish stains. Classes + 35 mesh and finer were basically Feldspar, with about 20% Quartz and up to say 5% Mica. Size fractions of grinding products for 10, 15 and 20 min. grind were not saved for examination, but 5 min. grind already shows more than adequate mineral liberation.

Examination of size fractions of sample No. 2 ground for 5 min. contains free grains, almost all of it is Mica, with a few grains of Feldspar; class + 35 mesh consists of over 90% Mica, with a few grains of Quartz also; class + 48 mesh. Mica and Feldspar are about evenly distributed, with some Quartz; finer classes contain between 7 and 15% of Mica. As in the case of sample No. 1, liberation is already achieved with a 5 min. grind.

As already mentioned, it is obvious that sample No. 2 contains much more Mica than sample No.1.

F. <u>FLOTATION TESTWORK</u>

Test reports including the details of procedures, conditions and metallurgical results are appended.

Flotation testing was delayed due to the fact that the necessary reagents were not received until December 29, 1987.

Three flotation tests were conducted on sample No. 2 to investigate the effect of basic combination of reagents and flowsheets used to recover Mica and Feldspar from N. Carolina and Arizona pegmatites.

1. <u>TEST NO.1</u>

This preliminary test was undertaken to get a feeling for the flotation behaviour of the material. Three stages were planned: Mica, iron and Feldspar flotation. Two stages of desliming and screening on 400 mesh and one stage of scrubbing with caustic soda were applied after grinding 0.5 kg of sample, at 40% solids for 5 minutes. After conditioning with sulphuric acid, tallow amine acetate and polyglycol ether frother in a lab flotation cell of 1.5 litre, Mica flotation was attempted. Due to the strong frother creating tight, persistent heavily loaded froth, somewhat higher collector dose and relatively small flotation cell, at the start of Mica float almost half of the material overflowed into the concentrate pan. The test was aborted after the first flotation stage. Brief mineralogical examination of the concentrate showed that it consists mainly of fine Feldspar grains, with both coarse and fine Mica, and some Quartz.

2. <u>TEST NO. 2</u>

The whole procedure was the same as in test No. 1, but the dosage of collector and frother was lower. Also, coarse Mica was screened on 28 mesh screen after grinding. Mica tail, before iron flotation conditioning, was again scrubbed, deslimed and screened on 400 mesh. The test proceeded better, but the froth at the start of Mica flotation was still heavily loaded rerouting part of the Feldspar to Mica concentrate.

3. TEST NO. 3

The following flowsheet was used: screening of coarse Mica, after grinding 1 kg of ore for 10 minutes at 40% solids, on 28 mesh, two stages of desliming and screening on 400 mesh and one stage of scrubbing, flotation of iron and remaining Mica, and finally flotation of Feldspar leaving Quartz in the tail. As well, M.I.B.C. frother was used instead of polyglycol ether. Visually, the results were much better.

Microscopic examination showed the following:

Feldspar concentrate - fine grained Feldspar, with some Quartz and a few coarser flakes of Mica;

Iron/Mica concentrate - plenty of both coarse and fine Mica, with some small grains of Xenotime, Garnet, Biotite, Ilmenite, and also some very fine grains of Feldspar and Quartz;

Tail - mainly medium to fine sized Quartz with some Feldspar, and very few flakes of Mica.

IV RESULTS AND DISCUSSION

In the communication between J. Currie and J. Austin on November 4, 1987, the primary goal of the testwork was established as a production of marketable Feldspar concentrate by removing any Mica, Quartz and Garnet, and reduction of iron content to about 0.07% Fe_2O_3.

Since it appears that Muscovite Mica along with Biotite and/or Phlogopite is quite well represented (very rough estimate is about 10-15% in Bearcub sample No. 2), it should be recovered for its commercial value. It is not known how large are the "books" of Mica in pegmatite itself, but in the sample crushed to - 3/4 inch there were quite a few Mica sheets size of about 1 sq. in. Even if sold as a scrap Mica, that would help to offset the overall recovery costs, since "these types of deposits cannot be economically mined without producing saleable material out of most of the orebody" (J.T. Tanner).

The requirements of commercial Feldspars are as follows:

	Category of Feldspar	
Chemical Composition	Glass Grade	Ceramic Grade
Alumina (Al_2O_3)	18.5 ± 0.6%	18% (min.)
Alkalis (K_2O + Na_2O)	12.5 ± 1.0%	13% (min.)
Iron Oxide (Fe_2O_3)		
	- coloured glass 0.25 - 0.3%	0.08% (max.)
	- flint glass 0.1% Max.	(Electrical porcelain 0.05%)

Size Range	95% - 420 +74 um	100% - 74 um (95% - 45 um for porcelain)

Our feeling is that the upgrading of Bearcub material to those specifications is not going to be an insurmountable task, starting with 12-13% Al_2O_3, 8.5 - 10% K_2O - Na_2O (or 64 - 65% total Feldspar in the head) and 0.5 - 0.9% Fe_2O_3. As a pre-beneficiation step, if size - 325 mesh (2.8% wt.) is rejected before grinding, further processing might be easier. About 2.7% of Feldspar would be lost, but the slime discarded would contain 6% of total iron assaying 1.06% Fe_2O_3.

Also, the analysis of grinding products shows that iron-bearing minerals are softer and go more to fines. That will help in removal of some iron during desliming stages. On the other hand, Al_2O_3 and SiO_2 are more represented in coarser classes.

More systematic grinding testing, coupled with the succeeding flotation stages, will be undertaken in trying as coarse grind as possible for the best metallurgical results, also allowing coarse Mica to be screened out before being pulverized.

The ideas and treatment methods used by successful plants that treat pegmatite material had to be borrowed, but adapted to our material of course since each ore is a different case.

According to the industry's standard treatment, to produce a high-grade Feldspar concentrate both Mica and iron-containing minerals (iron oxides, Garnet, Ilmenite, Tourmaline) have to be removed. The usual procedure is to remove Mica first by cationic flotation (if present in commercial quantity), then to float "heavy" iron-bearing minerals together with remaining Mica by anionic flotation, and finally to make Feldspar concentrate using cationic flotation and leaving mainly Quartz in the tail.

That approach was adopted for the initial testing, with the addition of coarse Mica screening step after grinding.

Only the concentration of Feldspar and Mica into separate concentrates by removing iron-bearing minerals and Quartz was tested. Nothing was done regarding the recovery of rare earths. Also, the cleaning of Mica and Feldspar concentrates has not been attempted yet.

For best metallurgical results and economic use of reagents, very thorough desliming vital to amine flotation circuits and also attrition scrubbing with caustic soda to cleanse away Feldspar surfaces from alteration products was practiced during testing.

The problem was experienced in flotation tests No. 1 and 2 using polyglycol ether frother which produced tight, persistent froth carrying heavy mineral loading. Concentrates produced were of a lower grade, entraining the impurities in them. In test No.

3, M.I.B.C. frother was used and also with a slightly different flowsheet, much better results were achieved.

Water quality is important in Feldspar flotation. Higher reagent consumption and lower separation selectivity occur when hard water is used. It is recommended to use the local water (in the area of the ore deposit i.e. treatment plant) during final testing.

The results of the preliminary testing were the following:

Feldspar Concentrate

Test No.	Conc.Wt.,%	Recovery,%	Concentrate Grade, %			
			Feldspar	K2O+Na2O	Al2O3	Fe2O3
1	54	71	85	14.09	17.4	0.67
2	36	40	77	10.41	12.8	0.16
3	59	81	89	11.97	15.5	0.09

The concentrate in test No. 1 was a bulk Mica-Feldspar product. As already mentioned, problems with the frother caused lower Feldspar grade and recovery in the first two tests.

Further testing will be aimed at lowering of iron and silica content and an increase of alumina. Silica content in three Feldspar concentrates was: 66.8%, 81.1% and 68.5% SiO_2.

The following Mica concentrates were produced:

Test No.	Conc. Wt.,%	Recovered Feldspar,%	Fe_2O_3,%
2	42	54	0.90
3 (1)	0.5	0.65	3.72
3 (2)	17	18	2.64

(1) Coarse Mica, screened on 28 mesh.
(2) Iron-Mica flotation concentrate.

The cleaning of Mica concentrate has to be tried, but high iron and magnezium content shows that there is Biotite and/or Phlogopite Mica in Bearcub besides Muscovite.

Feldspar flotation tails contained 95.4%, 98.7% and 96.5% SiO_2 in three tests performed. To produce a marketable silica product further cleaning of tails is necessary, probably by acid leaching. Iron in the tails was 0.33%, 0.27% and 0.14% and it must be lowered to less than 0.1%.

On the basis of the initial results, several flowsheets will be tested, test conditions will be varied as well as different reagent combinations and addition rates tried.

If the removal of iron impurities by flotation method to produce higher grade of Feldspar is not successful, magnetic separation or sulphuric acid leach can be tried.

As well, lowering the Quartz content of Feldspar concentrate (if necessary) can be attempted by electrostatic separators. Microcline Feldspar is electrostatically inert while Quartz has a negative charge.

Depending on the quality and amount, the Feldspar flotation tail can be marketed as a silica product.

Another flowsheet will be studied, eliminating the hydrofluoric acid (as an expensive reagent and a possible source of pollution) and tallow amine acetate in favour of sulphuric acid and diamine dioleate as a Feldspar collector.

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Branko Nikodijevic
Project Metallurgist

BN/sch

cc. J. Currie

TABLE N.

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: December 9, 1987 FILE NAME: BEARCUB1.LAB

SAMPLE	%MOISTURE	LOSS DURING IGNITION	SiO2	Al2O3	MgO	CaO	FE2O3	NA2O	K2O
SY3 Certified Value			59.68	11.80	2.67	8.26	6.42	4.15	4.20
SY3			59.3	11.90	2.55	8.21	6.29	4.21	4.30
HEAD	.04	.06	74.3	14.08	.05	.49	1.00	3.01	8.17
No Grind									
Mesh -									
- 6+8	.04	.13	69.3	9.45	.03	.42	.30	2.88	8.25
+10	.03	.08	70.2	12.66	.05	.43	.36	3.05	8.79
+12	.04	.15	71.7	13.22	.05	.49	.40	2.88	8.43
+14	.01	.16	72.8	10.01	.03	.45	.40	2.70	7.83
+20	<.01	.22	70.7	14.74	.03	.42	.44	2.94	8.19
+28	<.01	.18	71.6	14.55	.05	.43	.51	2.83	7.83
+35	<.01	.24	70.3	13.22	.05	.45	.63	2.90	7.71
+48	<.01	.25	68.3	14.55	.05	.56	.74	2.99	7.75
+65	<.01	.28	68.3	14.36	.07	.56	.81	2.87	7.77
+100	<.01	.38	75.0	14.64	.07	.52	.84	2.87	7.59
+150	<.01	.31	69.3	14.36	.05	.59	.87	3.01	7.52
+200	.04	.48	71.9	14.36	.07	.59	.89	3.19	7.52
+270	.05	.50	73.2	14.55	.08	.61	.97	3.11	7.46
+325	<.01	.36	79.0	13.79	.13	.70	.71	3.26	7.52
-325	<.01	1.19	74.7	13.79	.15	.70	1.06	3.17	7.46
5 min. Grind									
+28	.03	.58	66.0	17.38	.05	.45	.41	3.13	10.96
+35	<.01	.28	65.5	15.49	.03	.46	.37	2.99	9.58
+48	<.01	.18	70.2	15.12	.03	.48	.37	2.93	8.55
+65	<.01	.23	62.2	14.74	.05	.50	.46	2.94	8.37
+100	<.01	.28	73.3	14.93	.05	.53	.51	2.91	8.07
+150	<.01	.33	74.4	14.36	.06	.52	.56	3.02	8.07
+200	.01	.37	72.1	13.79	.05	.53	.57	3.06	7.83
+270	.01	.41	66.1	13.98	.05	.55	.63	3.11	7.99
+325	.02	.31	69.9	15.31	.05	.71	.59	3.28	7.47
-325	.04	.63	65.5	16.8	.05	.63	1.02	3.26	8.31

D. Perkins
Chief Chemist

DP:cs

TABLE

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB SAMPLES

DATE: December 10, 1987 FILE NAME: BEARCUB1.LAB

SAMPLE	%MOISTURE	LOSS DURING IGNITION	SiO2	Al2O3	MgO	CaO	FE2O3	NA2O	K2O
10 Min. Grind									
+48	.10	.74	69.5	15.97	.05	.46	.67	2.86	10.42
+65	.05	.31	70.8	14.36	.03	.48	.44	2.90	9.82
+100	.02	.25	73.8	14.36	.05	.49	.37	2.84	9.22
+150	.02	.30	73.3	14.45	.05	.51	.43	2.83	8.55
+200	.10	.26	72.3	15.21	.05	.53	.51	2.87	8.49
+270	.05	.39	72.7	15.21	.07	.53	.54	2.96	8.61
+325	.03	.22	73.2	15.68	.08	.56	.50	3.04	8.67
-325	.03	.41	70.1	16.25	.08	.60	1.11	3.08	9.03
15 Min. Grind									
+65	.11	1.01	70.5	15.87	.07	.38	1.00	2.76	9.46
+100	.03	.36	72.4	16.34	.03	.49	.50	3.01	9.76
+150	.03	.22	73.4	15.59	.03	.48	.38	2.99	8.97
+200	.03	.26	73.6	15.40	.05	.49	.39	2.98	8.55
+270	.02	.27	74.1	15.31	.05	.50	.47	2.97	8.67
+325	<.01	.19	72.4	14.55	.05	.56	.41	3.13	8.49
-325	.08	.23	70.0	13.42	.07	.52	1.07	3.09	8.73
20 Min. Grind									
+100	.13	.65	70.1	15.31	.10	.48	1.59	2.66	8.55
+150	.05	.24	74.8	15.31	.05	.55	.53	2.87	8.79
+200	.05	.23	72.8	15.12	.03	.55	.43	2.72	8.49
+270	.04	.25	71.0	14.83	.03	.55	.44	2.93	8.43
+325	.01	.20	72.1	15.12	.04	.57	.37	2.87	8.43
-325	.03	.24	71.9	15.12	.05	.57	1.12	2.91	8.55
Certified Value			60.10	12.12	2.70	7.98	6.28	4.34	4.48
SY-2 Assay			60.07	12.28	2.57	7.42	6.15	4.79	4.76
Certified Value			59.68	11.80	2.67	8.26	6.42	4.15	4.20
SY-3 Assay			59.28	12.09	2.53	8.01	6.29	4.29	4.34

D. Perkins
Chief Chemist

DP:cs

TABLE NO. 2

BEAR CUB I – SIZE DISTRIBUTION

HEAD

SCREEN SIZE, #	WT. GR.	WT. %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+8	499.8	24.99	24.99	75.01
+10	357.2	17.86	42.85	57.15
+12	156.4	7.82	50.67	49.33
+14	119.2	5.96	56.63	43.37
+20	211.8	10.59	67.22	32.78
+28	137.4	6.87	74.09	25.91
+35	125.0	6.25	80.34	19.66
+48	91.8	4.59	84.93	15.07
+65	72.8	3.64	88.57	11.43
+100	56.8	2.84	91.41	8.59
+150	50.0	2.50	93.91	6.09
+200	34.2	1.71	95.62	4.38
+270	25.0	1.25	96.87	3.13
+325	7.2	0.36	97.23	2.77
-325	55.4	2.77	100.00	
TOTAL	2,000.0	100.00		

[illegible]

TABLE NO. 3

5 MIN. GRIND

SCREEN SIZE, #	WT. GR	WT. %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	65.2	3.26	3.26	96.74
+35	266.6	13.33	16.59	83.41
+48	400.8	20.04	36.63	63.37
+65	290.8	14.54	51.17	48.83
+100	235.0	11.75	62.92	37.08
+150	189.4	9.47	72.39	27.61
+200	142.2	7.11	79.50	20.50
+270	97.0	4.85	84.35	15.65
+325	29.6	1.48	85.83	14.17
-325	283.4	14.17	100.00	
TOTAL	2,000.0	100.00		

10 MIN. GRIND

SCREEN SIZE, #	WT. GR	WT. %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+48	50.6	2.53	2.53	97.47
+65	210.6	10.53	13.06	86.94
+100	419.0	20.95	34.01	65.99
+150	346.4	17.32	51.33	48.67
+200	248.8	12.44	63.77	36.23
+270	166.0	8.30	72.07	27.93
+325	51.8	2.59	74.66	25.34
-325	506.8	25.34	100.00	
TOTAL	2,000.0	100.00		

15 MIN. GRIND

SCREEN SIZE, #	WT. GR.	WT. %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+65	26.8	1.34	1.34	98.66
+100	155.6	7.78	9.12	90.88
+150	426.2	21.31	30.43	69.57
+200	358.8	17.94	48.37	51.63
+270	230.4	11.52	59.89	40.11
+325	72.6	3.63	63.52	36.48
-325	729.6	36.48	100.00	
TOTAL	2,000.0	100.00		

20 MIN. GRIND

SCREEN SIZE, #	WT. GR	WT. %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+65	6.2	0.31	0.31	99.69
+100	25.0	1.25	1.56	98.44
+150	191.6	9.58	11.14	88.86
+200	425.6	21.28	32.42	67.58
+270	306.0	15.30	47.72	52.28
+325	95.2	4.76	52.48	47.52
-325	950.4	47.52	100.00	
TOTAL	2,000.0	100.00		

GRAPH NO. 1

Form No. L-5
Please mention above when ordering

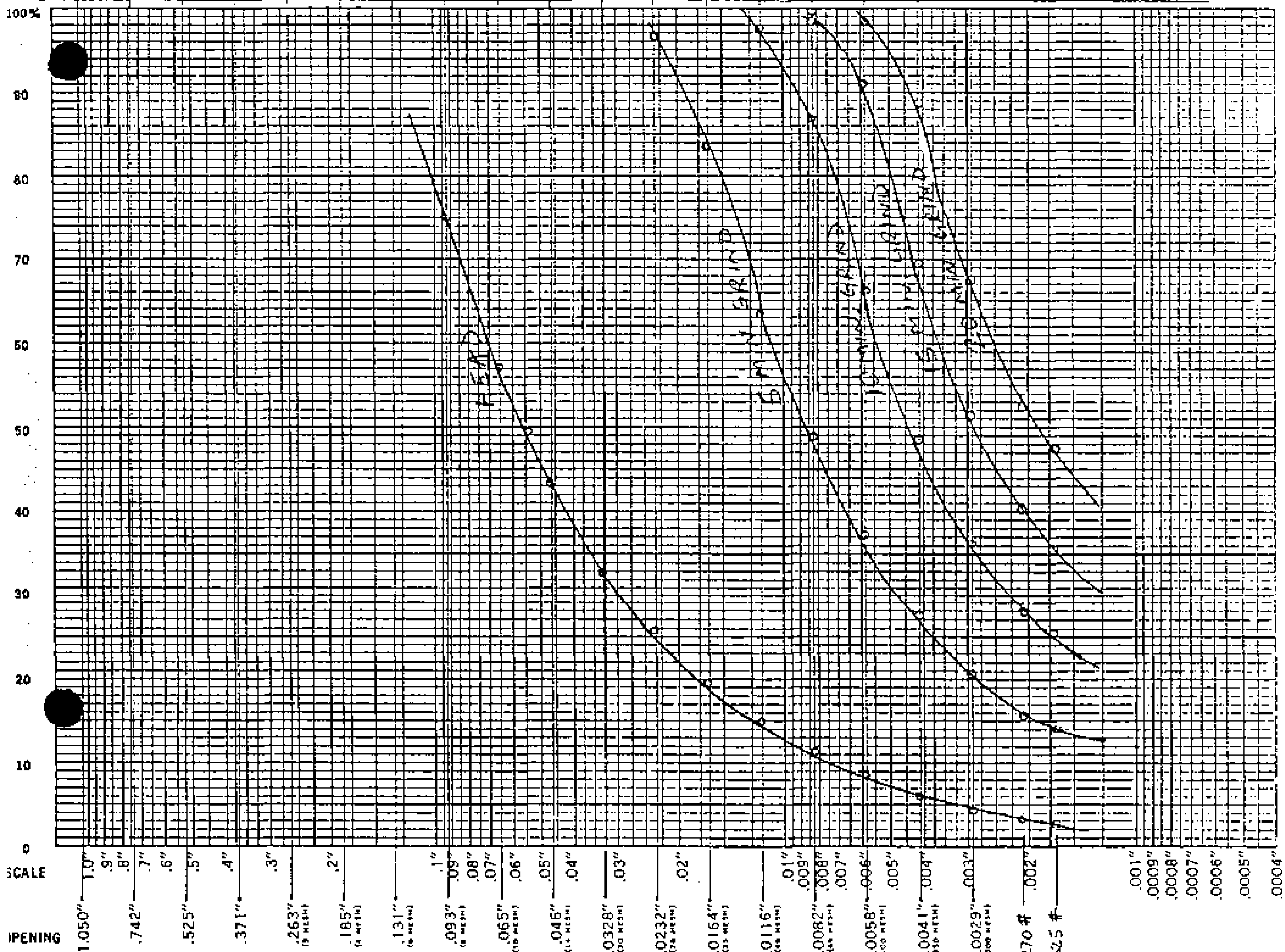
The Tyler Standard Screen Scale

Cumulative Logarithmic Diagram of Screen Analysis on Sample of BEAR CUB 1

L-5

Name

Date



SCREEN SCALE RATIO 1.414												
Openings Inches	Openings Millimeters	Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67											
.742	18.85											
.525	13.33											
.371	9.423											
.263	6.680	3										
.185	4.699	4	4									
.131	3.327	6	6									
.093	2.362	8	8									
.065	1.651	10	12									
.046	1.168	14	16									
.0328	.833	20	20									
.0232	.589	28	30									
.0164	.417	35	40									
.0116	.295	48	50									
.0082	.208	65	70									
.0058	.147	100	100									
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200									
			Totals									

BEAR CUB 1 HEAD - ELEMENT DISTRIBUTION
CRUSHED TO -6 MESH

SCREEN SIZE, #	WT. %	K_2O				Na_2O				Al_2O_3			
		%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.
+8	24.99	8.25	206.1675	25.32	25.32	2.88	71.9712	24.57	24.57	9.45	236.1555	18.95	18.95
+10	17.86	8.79	156.9894	19.28	44.60	3.05	54.4730	18.60	43.17	12.66	226.1076	18.14	37.09
+12	7.82	8.43	65.9226	8.09	52.69	2.88	22.5216	7.69	50.86	13.22	103.3804	8.29	45.38
+14	5.96	7.83	46.6668	5.73	58.42	2.70	16.0920	5.49	56.35	10.01	59.6596	4.79	50.17
+20	10.59	8.19	86.7321	10.65	69.07	2.94	31.1346	10.63	66.98	14.74	156.0966	12.52	62.69
+28	6.87	7.83	53.7921	6.61	75.68	2.83	19.4421	6.64	73.62	14.55	99.9585	8.02	70.71
+35	6.25	7.71	48.1875	5.92	81.60	2.90	18.1250	6.19	79.81	13.22	82.6250	6.63	77.34
+48	4.59	7.75	35.5725	4.37	85.97	2.99	13.7241	4.68	84.49	14.55	66.7845	5.36	82.70
+65	3.64	7.77	28.2828	3.47	89.44	2.87	10.4468	3.57	88.06	14.36	52.2704	4.19	86.89
+100	2.84	7.59	21.5556	2.65	92.09	2.87	8.1508	2.78	90.84	14.64	41.5776	3.34	90.23
+150	2.50	7.52	18.8000	2.31	94.40	3.01	7.5250	2.57	93.41	14.36	35.9000	2.88	93.11
+200	1.71	7.52	12.8592	1.58	95.98	3.19	5.4549	1.86	95.27	14.36	24.5556	1.97	95.08
+270	1.25	7.46	9.3250	1.15	97.13	3.11	3.8875	1.33	96.60	14.55	18.1875	1.46	96.54
+325	0.36	7.52	2.7072	0.33	97.46	3.26	1.1736	0.40	97.00	13.79	4.9644	0.40	96.94
-325	2.77	7.46	20.6642	2.54	100.00	3.17	8.7809	3.00	100.00	13.79	38.1983	3.06	100.00
TOTAL	100.00	8.14	814.2245	100.00		2.93	292.9031	100.00		12.46	1246.4215	100.00	
ASSAYED (BULK)		8.17				3.01				14.08			

BEAR CUB HEAD – ELEMENT DISTRIBUTION
CRUSHED TO -6 MESH

SCREEN SIZE, #	WT. %	Fe_2O_3 %	Fe_2O_3 CONTENT	Fe_2O_3 DIST. %	Fe_2O_3 % RET.	SiO_2 %	SiO_2 CONTENT	SiO_2 DIST. %	SiO_2 % RET.	CaO %	CaO CONTENT	CaO DIST. %	CaO % RET.
+8	24.99	0.30	7.4970	15.50	15.50	69.03	1725.0597	24.46	24.46	0.42	10.4958	22.61	22.61
+10	17.86	0.36	6.4296	13.29	28.79	70.20	1253.7720	17.78	42.24	0.43	7.6798	16.54	39.15
+12	7.82	0.40	3.1280	6.47	35.26	71.70	560.6940	7.95	50.19	0.49	3.8318	8.25	47.40
+14	5.96	0.40	2.3840	4.93	40.19	72.80	433.8880	6.15	56.34	0.45	2.6820	5.78	53.18
+20	10.59	0.44	4.6596	9.63	49.82	70.70	748.7130	10.62	66.96	0.42	4.4478	9.58	62.76
+28	6.87	0.51	3.5037	7.24	57.06	71.60	491.8920	6.93	73.94	0.43	2.9541	6.36	69.12
+35	6.25	0.63	3.9375	8.14	65.20	70.30	439.3750	6.23	80.17	0.45	2.8125	6.06	75.18
+48	4.59	0.74	3.3966	7.02	72.22	68.30	313.4970	4.45	84.62	0.56	2.5704	5.54	80.72
+65	3.64	0.81	2.9484	6.09	78.31	68.30	248.6120	3.53	88.15	0.56	2.0384	4.39	85.11
+100	2.84	0.84	2.3856	4.93	83.24	75.00	213.0000	3.02	91.17	0.52	1.4768	3.18	88.29
+150	2.50	0.87	2.1750	4.50	87.74	69.30	173.2500	2.46	93.63	0.59	1.4750	3.18	91.47
+200	1.71	0.89	1.5219	3.15	90.89	71.90	122.9490	1.74	95.37	0.59	1.0089	2.17	93.64
+270	1.25	0.97	1.2125	2.51	93.40	73.20	91.5000	1.30	96.67	0.61	0.7625	1.64	95.28
+325	0.36	0.71	0.2556	0.53	93.93	79.00	28.4400	0.40	97.07	0.70	0.2520	0.54	95.82
-325	2.77	1.06	2.9362	6.07	100.00	74.70	206.9190	2.93	100.00	0.70	1.9390	4.18	100.00
TOTAL	100.00	0.48	48.3712	100.00		70.52	7051.5607	100.00		0.46	46.1268	100.00	
ASSAYED (BULK)		1.00				74.30				0.49			

BEAR CUB I - ELEMENT DISTRIBUTION

5 MIN. GRIND

SCREEN SIZE, #	WT. %	K_2O				Na_2O				Al_2O_3			
		%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.
+28	3.26	10.96	35.7296	4.20	4.20	3.13	10.2038	3.38	3.38	17.38	56.6588	3.73	3.73
+35	13.33	9.58	127.7014	15.01	19.21	2.99	39.8567	13.19	16.57	15.49	206.4817	13.60	17.33
+48	20.04	8.55	171.3420	20.14	39.35	2.93	58.7172	19.43	36.00	15.12	303.0048	19.95	37.28
+65	14.54	8.37	121.6998	14.30	53.65	2.94	42.7476	14.15	50.15	14.74	214.3196	14.11	51.39
+100	11.75	8.07	94.8225	11.14	64.79	2.91	34.1925	11.31	61.46	14.93	175.4275	11.55	62.94
+150	9.47	8.07	76.4229	8.98	73.77	3.02	28.5994	9.46	70.92	14.36	135.9892	8.96	71.90
+200	7.11	7.83	55.6713	6.54	80.31	3.06	21.7566	7.20	78.12	13.79	98.0469	6.46	78.36
+270	4.85	7.99	38.7515	4.55	84.86	3.11	15.0835	4.99	83.11	13.98	67.8030	4.47	82.83
+325	1.48	7.47	11.0556	1.30	86.16	3.28	4.8544	1.61	84.72	15.31	22.6588	1.49	84.32
-325	14.17	8.31	117.7527	13.84	100.00	3.26	46.1942	15.28	100.00	16.80	238.0560	15.68	100.00
TOTAL	100.00	8.51	850.9193	100.00		3.02	302.2059	100.00		15.18	1518.4463	100.00	
BULK ASSAY		8.17				3.01				14.08			

SCREEN SIZE, #	WT. %	Fe_2O_3				SiO_2				CaO			
		%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.
+28	3.26	0.41	1.3366	2.47	2.47	66.00	215.1600	3.15	3.15	0.45	1.4670	2.81	2.81
+35	13.33	0.37	4.9321	9.12	11.59	65.50	873.1150	12.78	15.93	0.46	6.1318	11.76	14.57
+48	20.04	0.37	7.4148	13.71	25.30	70.20	1406.8080	20.60	36.53	0.48	9.6192	18.45	33.02
+65	14.54	0.46	6.6884	12.36	37.66	62.20	904.3880	13.24	49.77	0.50	7.2700	13.95	46.97
+100	11.75	0.51	5.9925	11.08	48.74	73.30	861.2750	12.61	62.38	0.53	6.2275	11.95	58.92
+150	9.47	0.56	5.3032	9.80	58.54	74.40	704.5680	10.32	72.70	0.52	4.9244	9.45	68.37
+200	7.11	0.57	4.0527	7.49	66.03	72.10	512.6310	7.51	80.21	0.53	3.7683	7.23	75.60
+270	4.85	0.63	3.0555	5.65	71.68	66.10	320.5850	4.69	84.90	0.55	2.6675	5.12	80.72
+325	1.48	0.59	0.8732	1.61	73.29	69.90	103.4520	1.51	86.41	0.76	1.1248	2.16	82.88
-325	14.17	1.02	14.4534	26.71	100.00	65.50	928.1350	13.59	100.00	0.63	8.9271	17.12	100.00
TOTAL	100.00	0.54	54.1024	100.00		68.30	6830.1170	100.00		0.52	52.1276	100.00	
BULK ASSAY		1.00				74.30				0.49			

BEAR CUB I - ELEMENT DISTRIBUTION

10 MIN. GRIND

SCREEN SIZE, #	WT. %	K_2O				Na_2O				Al_2O_3			
		%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.
+48	2,53	10,42	26.3626	2,93	2,93	2.86	7.2358	2,47	2,47	15,97	40,4041	2,67	2.67
+65	10,53	9.82	103.4016	11,50	14.43	2,90	30,5370	10,44	12,91	14.36	151.2108	10,01	12,68
+100	20,95	9,22	193.1590	24,48	38,91	2,84	59.4980	20,34	33,25	14.36	300.8420	19,91	32,59
+150	17,32	8,55	148,0860	16,46	55,37	2,83	49,0156	16.76	50.01	14,45	250,2740	16,57	49,16
+200	12,44	8,49	105,6156	11.74	67,11	2,87	35.7028	12,21	62.22	15,21	189.2124	12,53	61.69
+270	8,30	8.61	71,4630	7,95	75,06	2.96	24.5680	8.40	70.62	15,21	126.2430	8.36	70.05
+325	2,59	8.67	22,4553	2,50	77.56	3,04	7.8736	2,69	73.31	15.68	40,6112	2,69	72.74
-325	25.34	9,03	228.8202	25.44		3.08	78.0472	26.69	100.00	16.25	411.7750	27,26	100.00
TOTAL	100.00	8,99	899.3663	100.00		2.92	292.4780	100.00		15,11	1510.5725	100.00	
BULK ASSAY		8.17				3,01				14.08			

SCREEN SIZE, #	WT. %	Fe_2O_3				SiO_2				CaO			
		%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.	%	CONTENT	DIST. %	% RET.
+48	2,53	0.67	1,6951	2,74	2,74	69.50	175,8350	2,44	2.44	0.46	1.1638	2,20	2.20
+65	10,53	0,44	4.6332	7,48	10.22	70.80	745.5240	10.35	12,79	0,48	5.0544	9,54	11,74
+100	20,95	0,37	7.7515	12,51	22,73	73,80	1546,1100	21.46	34.25	0,49	10,2655	19,38	31,12
+150	17,32	0,44	7.6208	12,30	35,03	73,30	1269.5560	17.62	51.87	0,51	8.8332	16,68	47,80
+200	12,44	0,51	6.3444	10,24	45,27	72,30	899.4120	12,48	64.35	0,53	6,5932	12,45	60.25
+270	8,30	0,54	4.4820	7,24	52,51	72,70	603.4100	8.37	72.72	0,53	4,3990	8.31	68.56
+325	2,59	0,50	1,2950	2,09	54.60	73.20	189.5880	2,63	75,35	0,56	1,4504	2,74	71,30
-325	25.34	1.11	28.1274	45.40	100.00	70.10	1776.3340	24.65	100.00	0,60	15.2040	28.70	100.00
TOTAL	100.00	0.62	61.9494	100.00		72.06	7205.7690	100.00		0,53	52,9635	100.00	
BULK ASSAY		1.00				74.30				0.49			

BEAR CUB I - ELEMENT DISTRIBUTION
15 MIN. GRIND

SCREEN SIZE, #	WT. %	K_2O %	K_2O CONTENT	K_2O DIST. %	K_2O % RET.	Na_2O %	Na_2O CONTENT	Na_2O DIST. %	Na_2O % RET.	Al_2O_3 %	Al_2O_3 CONTENT	Al_2O_3 DIST. %	Al_2O_3 % RET.
+65	1.34	9.46	12.6764	1.44	1.44	2.76	3.6984	1.22	1.22	15.87	21.2658	1.44	1.44
+100	7.78	9.76	75.9328	8.61	10.05	3.01	23.4178	7.74	8.96	16.34	127.1252	8.61	10.05
+150	21.31	8.97	191.1507	21.66	31.71	2.99	63.7169	21.06	30.02	15.59	332.2229	22.52	32.57
+200	17.94	8.55	153.3870	17.38	49.09	2.98	53.4612	17.67	47.69	15.40	276.2760	18.72	51.29
+270	11.52	8.67	99.8784	11.32	60.41	2.97	34.2144	11.31	59.00	15.31	176.3712	11.95	63.24
+325	3.63	8.49	30.8187	3.49	63.90	3.13	11.3619	3.75	62.75	14.55	52.8165	3.58	66.82
-325	36.48	8.73	318.4704	36.10	100.00	3.09	112.7232	37.25	100.00	13.42	489.5616	33.18	100.00
TOTAL	100.00	8.82	882.3144	100.00		3.03	302.5938	100.00		14.76	1475.6392	100.00	
BULK ASSAY		8.17				3.01				14.08			

SCREEN SIZE, #	WT. %	Fe_2O_3 %	Fe_2O_3 CONTENT	Fe_2O_3 DIST. %	Fe_2O_3 % RET.	SiO_2 %	SiO_2 CONTENT	SiO_2 DIST. %	SiO_2 % RET.	CaO %	CaO CONTENT	CaO DIST. %	CaO % RET.
+65	1.34	1.00	1.3400	2.02	2.02	70.50	94.4700	1.31	1.31	0.38	0.5092	1.02	1.02
+100	7.78	0.50	3.8900	5.87	7.87	72.40	563.2720	7.81	9.12	0.49	3.8122	7.61	8.63
+150	21.31	0.38	8.0978	12.22	20.11	73.40	1564.154	21.69	30.81	0.48	10.2288	20.41	29.04
+200	17.94	0.39	6.9966	10.56	30.67	73.60	1320.3840	18.31	49.12	0.49	8.7906	17.54	46.58
+270	11.52	0.47	5.4144	8.17	38.84	74.10	853.6320	11.83	60.95	0.50	5.7600	11.50	58.08
+325	3.63	0.41	1.4883	2.25	41.09	72.40	262.8120	3.64	64.59	0.56	2.0328	4.06	62.14
-325	36.48	1.07	39.0336	58.91	100.00	70.00	2553.6000	35.41	100.00	0.52	18.9696	37.86	100.00
TOTAL		0.66	66.2607	100.00		72.12	7212.3140	100.00		0.50	50.1032	100.00	
BULK ASSAY		1.00				74.30				0.49			

TABLE 8

BEAR CUB I - ELEMENT DISTRIBUTION
20 MIN. GRIND

SCREEN SIZE, #	WT. %	K_2O %	K_2O CONTENT	K_2O DIST. %	K_2O % RET.	Na_2O %	Na_2O CONTENT	Na_2O DIST. %	Na_2O % RET.	Al_2O_3 %	Al_2O_3 CONTENT	Al_2O_3 DIST. %	Al_2O_3 % RET.
+100	1.56	8.55	13.3380	1.56	1.56	2.66	4.1496	1.45	1.45	15.31	23.8836	1.58	1.58
+150	9.58	8.79	84.2082	9.86	11.42	2.87	27.4946	9.60	11.05	15.31	146.6698	9.72	11.30
+200	21.28	8.49	180.6672	21.17	32.59	2.72	57.8816	20.22	31.27	15.12	321.7536	21.31	32.61
+270	15.30	8.43	128.9790	15.11	47.70	2.93	44.8290	15.66	46.93	14.83	226.8990	15.03	47.64
+325	4.76	8.43	40.1268	4.70	52.40	2.87	13.6612	4.77	51.70	15.12	71.9712	4.77	52.41
-325	47.52	8.55	406.2960	47.60	100.00	2.91	138.2832	48.30	100.00	15.12	718.5024	47.59	100.00
TOTAL	100.00	8.54	853.6152	100.00		2.86	286.2992	100.00		15.10	1509.6796	100.00	
BULK ASSAYS		8.17				3.01				14.08			

SCREEN SIZE, #	WT. %	Fe_2O_3 %	Fe_2O_3 CONTENT	Fe_2O_3 DIST. %	Fe_2O_3 % RET.	SiO_2 %	SiO_2 CONTENT	SiO_2 DIST. %	SiO_2 % RET.	CaO %	CaO CONTENT	CaO DIST. %	CaO % RET.
+100	1.56	1.59	2.4804	3.16	3.16	70.10	109.3560	1.52	1.52	0.48	0.7488	1.34	1.34
+150	9.58	0.53	5.0774	6.47	9.63	74.80	716.5840	9.92	11.44	0.55	5.2690	9.42	10.76
+200	21.28	0.43	9.1504	11.67	21.30	72.80	1549.1840	21.45	32.89	0.55	11.7040	20.92	31.68
+270	15.30	0.44	6.7320	8.58	29.88	71.00	1086.3000	15.04	47.93	0.55	8.4150	15.05	46.73
+325	4.76	0.37	1.7612	2.25	32.13	72.10	343.1960	4.75	52.68	0.57	2.7132	4.85	51.58
-325	47.52	1.12	53.2224	67.87	100.00	71.90	3416.6880	47.32	100.00	0.57	27.0864	48.42	100.00
TOTAL		0.78	78.4238	100.00		72.21	7221.3080	100.00		0.56	55.9364	100.00	
BULK ASSAY		1.00				74.30				0.49			

TABLE NO. 5

BEAR CUB 1
FELDSPAR DISTRIBUTION

SIZE, #	HEAD				5 MIN. GRIND				10 MIN. GRIND				15 MIN. GRIND				20 MIN. GRIND			
	WT.	FELDSPAR			WT.	FELDSPAR			WT.	FELDSPAR			WT.	FELDSPAR			WT.	FELDSPAR		
	%	%	DIST.	% RET.	%	%	DIST.	% RET.	%	%	DIST.	% RET.	%	%	DIST.	% RET.	%	%	DIST.	% RET.
+8	24.99	75.21	25.01	25.01																
+10	17.86	79.63	18.92	43.93																
+12	7.82	76.62	7.97	51.90																
+14	5.96	71.35	5.66	57.56																
+20	10.59	75.36	10.62	68.18																
+28	6.87	72.35	6.61	74.79	3.26	93.49	3.89	3.89												
+35	6.25	72.33	6.02	80.81	13.33	84.20	14.31	18.20												
+48	4.59	73.88	4.51	85.32	20.04	77.70	19.85	38.05	2.53	88.06	2.77	2.77								
+65	3.64	72.98	3.54	88.86	14.54	76.82	14.24	52.29	10.53	84.95	11.11	13.88	1.34	81.15	1.36	1.36				
+100	2.84	71.72	2.71	91.57	11.75	74.94	11.22	63.51	20.95	80.95	21.06	34.94	7.78	85.58	8.30	9.66	1.56	75.42	1.52	1.52
+150	2.50	72.84	2.42	93.99	9.47	75.82	9.15	72.66	17.32	77.00	16.56	51.50	21.31	80.69	21.43	31.09	9.58	78.96	9.77	11.29
+200	1.71	74.36	1.69	95.68	7.11	74.79	6.78	79.44	12.44	77.09	11.91	63.41	17.94	78.17	17.48	48.57	21.28	75.92	20.86	32.15
+270	1.25	73.43	1.22	96.90	4.85	76.26	4.71	84.15	8.30	78.56	8.10	71.51	11.52	78.85	11.32	59.89	15.30	77.34	15.28	47.43
+325	0.36	75.50	0.36	97.26	1.48	75.67	1.43	85.58	2.59	79.74	2.56	74.07	3.63	79.44	3.59	63.48	4.76	76.93	4.73	52.16
-325	2.77	74.38	2.74	100	14.17	79.82	14.42	100	25.34	82.40	25.93	100	36.48	80.32	36.52	100	47.52	77.98	47.84	100
TOTAL	100.00	75.16	100		100.00	78.44	100		100.00	80.52	100		100.00	80.23	100		100.00	77.45	100	

BEAR CUB 2
10 MIN. GRIND

SCREEN SIZE, #	WT. GR.	WT. %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	2.28	0.23	0.23	99.77
+35	2.58	0.26	0.49	99.51
+48	8.75	0.88	1.37	98.63
+65	26.04	2.60	3.97	96.03
+100	108.00	10.80	14.77	85.23
+150	156.57	15.66	30.43	69.57
+200	119.15	11.91	42.34	57.66
+270	58.26	5.83	48.17	51.83
+325	32.22	3.22	51.39	48.61
-325	486.15	48.61	100.00	
TOTAL	1,000.00	100.00		

TABLE NO. 13

BEAR CUB 2 - TEST 3
FELDSPAR CONCENTRATE

SCREEN SIZE, MESH	SCREEN SIZE, MICRONS	WEIGHT GR.	WEIGHT %	% CUMULATIVE RET.	% CUMULATIVE PASS.
+28	+595				
+35	+420	0.24	0.07	0.07	99.93
+48	+297	4.18	1.16	1.23	98.77
+65	+210	16.20	4.52	5.75	94.25
+100	+149	67.72	18.87	24.62	75.38
+150	+105	103.02	28.71	53.33	46.67
+200	+74	76.77	21.40	74.73	25.27
+270	+53	31.85	8.88	83.61	16.39
+325	+44	20.95	5.84	89.45	10.55
-325	-44	37.87	10.55	100.00	
TOTAL		358.80	100.00		

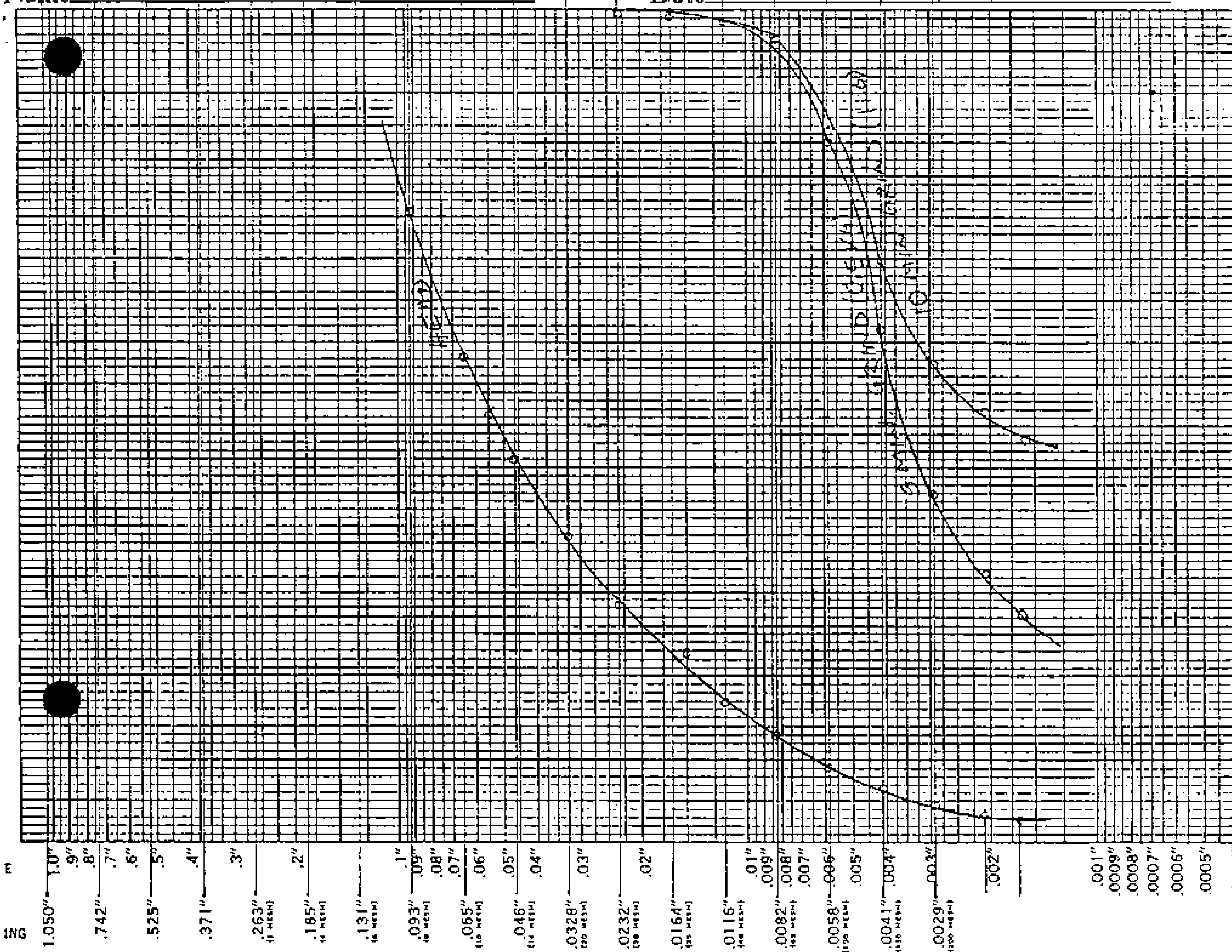
GRAPH NO. 2

Form No. L-5
Please mention above when ordering

The Tyler Standard Screen Scale

Cumulative Logarithmic Diagram of Screen Analysis on Sample of BEAR CUB 2 L-5

Name________________ Date________________



SCREEN SCALE RATIO 1.414														
Openings		Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights		
Inches	Millimeters													
1.050	26:67													
.742	18.86													
.525	13.33													
.371	9.423													
.263	6.680	3												
.185	4.699	4	4											
.131	3.327	6	6											
.093	2.362	8	8											
.065	1.651	10	12											
.046	1.168	14	16											
.0328	.833	20	20											
.0232	.589	28	30											
[illegible]64	.417	35	40											
[illegible]16	.295	48	50											
.0082	.208	65	70											
.0058	.147	100	100											
.0041	.104	150	140											
.0029	.074	200	200											
.0029	.074	200	200											
			Totals											

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 1	ORE BEARCUB 2	LOT NO.	DATE JAN. 5, 1988
OBJECT OF TEST	TO RECOVER FELDSPAR AND MICA INTO SEPARATE CONCENTRATES		FLOTATION CELL
GRINDING MILL	500 GRAMS OF -6 MESH ORE.	PULP DENSITY 40% SOLIDS	TYPE
CHARGE 12,843 KG.	750 CC. OF FRESH WATER	FLOAT PULP DENSITY 27% SOLIDS	SIZE 1.5 LIT. SPEED 1,200 RPM

STAGE	CONDITIONS				REAGENTS ml or lb./ton						REMARKS
	TIME	pH	% SOLIDS	SPEED, RPM	NaOH, 2.5%	H_2SO_4, 2.5%	F.F.A-50, 5%	E.F. 925, 5%	E.F. XH-40, 5%		MICA, IRON AND FELDSPAR FLOATS WERE PLANNED. DUE TO PER-
GRIND	5 MIN	11.2	40		9 ML						SISTENT FROTHER, AT THE START OF MICA FLOAT HALF
SCRUBBING	10 MIN.		~70	1,200	9 ML						OF MATERIAL WENT TO CONCENTRATE PAN. TEST
CONDITIONING	1 MIN	2.9	~50	1,200		13.5 ML	1 ML	1 ML			ABORTED AFTER FIRST FLOAT STAGE. DESLIMING BEFORE
FLOAT	4 MIN	2.8	27	1,200							AND AFTER SCRUBBING AND SCREENING ON 400 MESH.

PRODUCT	WT., GR	% WT.	ASSAYS, %								DISTRIBUTION, %							
			K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR	K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR
CONC.	270.06	54.01	9.28	4.81	1.23	0.13	0.67	18.70	66.8	85.06	76.67	72.78	67.91	71.33	39.44	70.05	48.35	70.97
TAIL	126.88	25.38	1.51	1.19	0.36	0.03	0.33	4.44	95.4	20.78	5.86	8.46	9.34	7.73	9.13	8.42	32.45	8.15
SLIMES	103.06	20.61	5.54	3.25	1.08	0.10	2.29	13.98	69.5	65.60	17.47	18.76	22.75	20.94	51.43	21.53	19.20	20.88
CALC. HEAD	500.00	100.00	6.54	3.57	0.98	0.10	0.92	13.38	74.62	64.74	100	100	100	100	100	100	100	100

FLOTATION LABORATORY TEST REPORT — BRENDA MINES LTD.

TEST NO. 2	ORE BEARCUB 2	LOT NO.	DATE JAN. 8, 1988
OBJECT OF TEST	SAME AS TEST NO. 1		FLOTATION CELL
GRINDING MILL	500 GRAMS OF -6 MESH ORE.	PULP DENSITY 40 % SOLIDS	TYPE
CHARGE 12.843 KG	750 CC. OF FRESH WATER	FLOAT PULP DENSITY 33-60% SOLIDS	SIZE 1.5 LIT. SPEED 800, 900, 1200 RPM

STAGE	TIME	pH	% SOLIDS CONDITIONS	SPEED, RPM	NaOH	H_2SO_4	A-50	925	XH-100	HT 2.5%
COND.	1 MIN.	2.8	~50	1,200		13.5 ML	0.5 ML	0.25 ML		
MICA FLOAT	3 MIN.	2.7	33	1,200						
COND.	5 MIN.	2.4	~60	800		15 ML		0.25 ML	6 ML	
IRON FLOAT	5 MIN.	2.3	~20	900				@ 3 MIN. 0.5 ML		
COND.	1 MIN.	2.5	~14	1,200			1.25 ML	0.5 ML		16 ML
FELDSPAR FLOAT	5 MIN.	2.5	~14	1,200				@ 3 MIN. 1.25 ML		

REAGENTS ml or lb./ton

REMARKS: AFTER GRINDING, MICA SCREENED ON 28 MESH. NaOH ADDED TO BOTH GRINDING AND SCRUBBING (9 ML). DESLIMING BEFORE AND AFTER SCRUBBING AND SCREENING ON 400 MESH. MICA TAIL SCRUBBED WITH 15 ML H_2SO_4, DESLIMED AND SCREENED ON 400 MESH. THICK, LOADED FROTH AGAIN AT START OF MICA FLOAT (SOME FELDSPAR LOST THERE). GRIND WAS 5 MIN.

PRODUCT	WT., GR	% WT.	Assays % K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR	Distribution % K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR
OVERALL MICA CONC.	171.22	42.17	9.88	4.76	1.20	0.20	0.90	18.23	66.7	89.33	60.69	55.17	53.06	87.02	63.82	58.15	35.92	54.09
IRON CONC.	41.33	10.19	3.31	2.06	0.61	0.03	1.24	8.79	93.5	40.02	4.91	5.77	6.52	3.15	21.25	6.77	12.17	5.86
FELDSPAR CONC.	147.19	36.26	6.50	3.91	1.06	0.02	0.16	12.75	81.1	76.75	34.33	38.97	40.30	7.48	9.76	34.97	37.56	39.96
TAIL	46.20	11.38	0.04	0.03	0.01	0.02	0.27	0.13	98.7	0.54	0.07	0.09	0.12	2.35	5.17	0.11	14.35	0.09
CALC. DESLIMED HEAD	405.94	100.00	6.87	3.64	0.95	0.10	0.59	13.22	78.29	69.64	100	100	100	100	100	100	100	100

FLOTATION LABORATORY TEST REPORT — **BREIDA MINES LTD.**

TEST NO. 3	ORE BEARCUB 2	LOT NO.	DATE JAN. 11, 1988
OBJECT OF TEST	SAME AS TEST NO. 1		FLOTATION CELL
GRINDING MILL	1,000 GRAMS OF -6 MESH ORE.	PULP DENSITY 43% SOLIDS	TYPE
CHARGE 12,843 KG.	1,333 CC. OF FRESH WATER	FLOAT PULP DENSITY 40-43 % SOLIDS	SIZE 2.3 LIT. SPEED 800, 900, 1200 RPM

STAGE	TIME	pH	% SOLIDS CONDITIONS	SPEED RPM	REAGENTS ml or lb./ton: NaOH	H_2SO_4	A-50	XH-100	MIBC	HF	REMARKS
GRIND	10 MIN	11.3	43		18 ML						AFTER GRINDING, COARSE MICA
SCRUBBING	10 MIN		~70	1,200	18 ML						SCREENED ON 28 MESH. TWO STA-
COND.	5 MIN.	2.3	~65	800		30 ML		12 ML	5 DPS		GES OF DESLIMING WITH SCRE-
IRON/MICA FLOAT	5 MIN	2.6	43	900					@ 3 MIN. 4 DPS		ENING ON 400 MESH, BEFORE
COND.	1 MIN	2.7	40	1,200			3 ML		6 DPS	32 ML	AND AFTER SCRUBBING.
FELDSPAR FLOAT	4.5 MIN	2.6	29	1,200			@ 3 MIN. 0.5 ML		@ 3 MIN 4 DPS		

PRODUCT	WT., GR	% WT.	ASSAYS %: K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR	DISTRIBUTION %: K_2O	Na_2O	CaO	MgO	Fe_2O_3	Al_2O_3	SiO_2	FELDSPAR
COARSE MICA	5.06	0.61	9.82	1.01	0.26	1.41	3.72	30.99	49.6	67.87	1.08	0.19	0.16	8.54	3.56	1.52	0.41	0.65
IRON/MICA CONC.	169.64	20.63	5.30	2.60	0.82	0.38	2.64	15.02	64.8	57.39	19.80	16.59	17.58	77.80	83.98	24.92	18.27	18.28
OVERALL Fe/MICA CONC.	174.70	21.64	5.43	2.55	0.80	0.41	2.67	15.49	63.17	57.70	20.88	16.78	17.74	86.34	87.54	26.44	18.68	18.93
FELDSPAR CONC.	484.42	58.92	7.41	4.56	1.34	0.02	0.09	15.49	68.5	89.02	79.05	83.10	82.05	11.69	8.18	73.40	55.16	80.97
TAIL	163.09	19.84	0.02	0.02	0.01	0.01	0.14	0.10	96.5	0.34	0.07	0.12	0.21	1.97	4.28	0.16	26.16	0.10
CALC. DESLIMED HEAD	822.21	100.00	5.52	3.23	0.96	0.10	0.65	12.43	73.18	64.78	100	100	100	100	100	100	100	100

Dobie No. 14

BRENDA MINES LTD.,

ASSAY LAB REPORT

BEARCUB2 - MILL FLOTATION TESTS #1 - #3

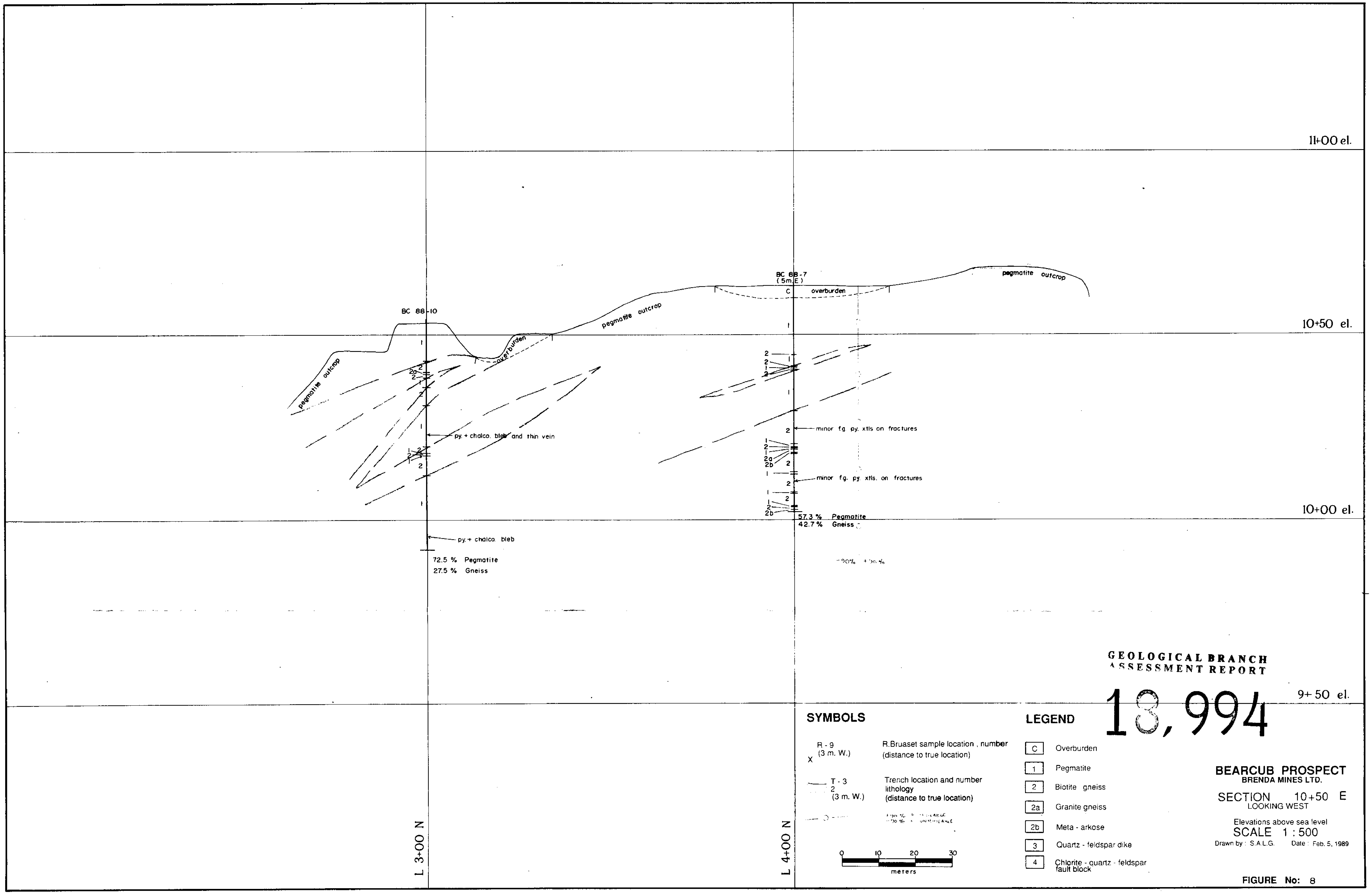
DATE: JANUARY 20, 1987 FILE NAME: BEARCUB2.LAB

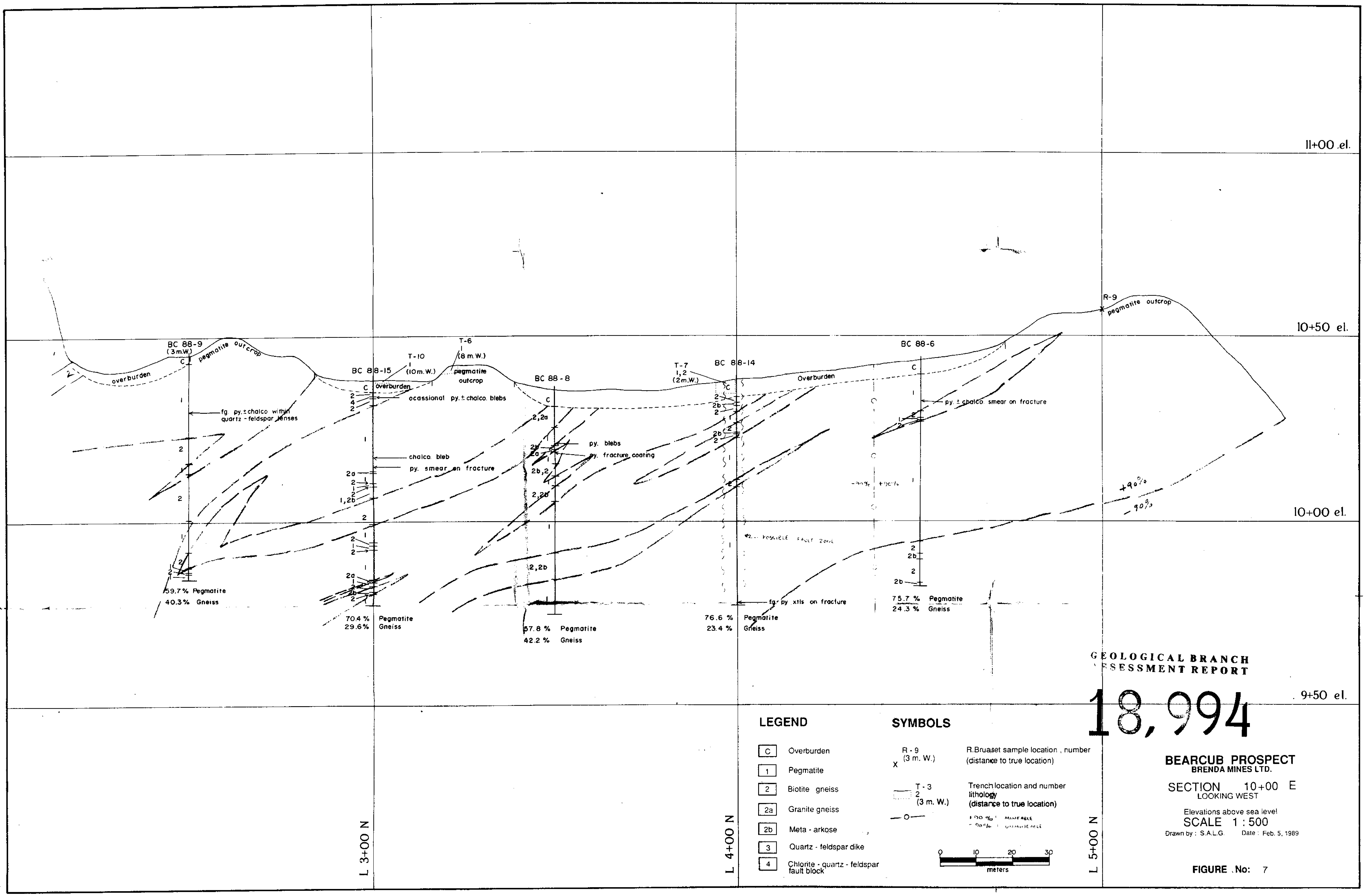
SAMPLE DATE	SAMPLE	%K2O	%Na2O	%FE2O3	%CaO	%MgO	%Al2O3	%SiO2	L.O.I	% Calc. Feldspar
05/01/88	Test #1									
	Conc.	9.28	4.81	.67	1.23	.13	18.7	66.8		85.06
	Slimes	5.54	3.25	2.29	1.08	0.10	14.0	69.5		65.60
	Tail	1.51	1.19	.33	.36	.03	4.4	95.4		20.79
08/01/88	Test #2									
	Mica Cnc	9.88	4.76	.90	1.20	.20	18.2	66.7		89.33
	Iron	3.31	2.06	1.24	.61	.03	8.8	93.5		40.02
	Feldspar	6.50	3.91	.16	1.06	.02	12.8	81.1		76.75
	Tail	.04	.03	.27	.01	.02	.13	98.7		.54
	Test #3 Coarse									
	Mica Cnc	9.82	1.01	3.72	.26	1.41	31.0	49.6		67.87
	Iron Mica Cnc	5.30	2.60	2.64	.82	.38	15.0	64.8		57.39
	Feldspar Conc.	7.41	4.56	.09	1.34	.02	15.5	68.5		89.02
	Tail	.02	.02	.14	.01	<.01	.10	96.5		.34
	SY2 Std	4.76	4.79	6.28	7.98	2.70	12.3	60.10		
	Assay V.	4.58	4.48	6.15	7.77	2.61	12.6	59.6		
	SY2 Std	5.12	4.81	6.29	7.94	2.61	11.9	60.4		
	Assay V.	4.20	4.15	6.42	8.26	2.67	11.8	59.8		
	Head	5.54	3.09	.56	.92	.08	12.1			

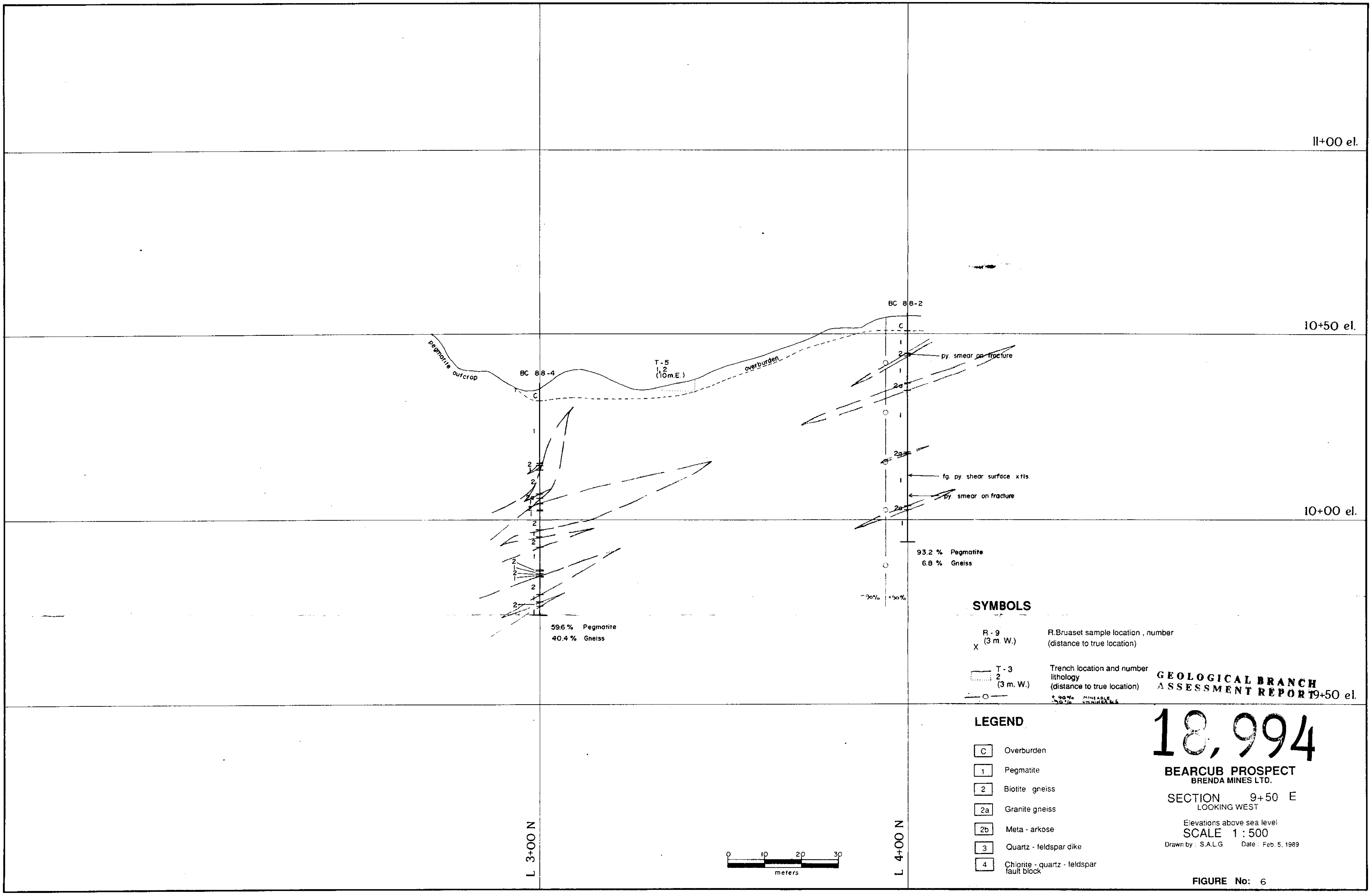
D. Perkins
Assay Lab

DP:cs

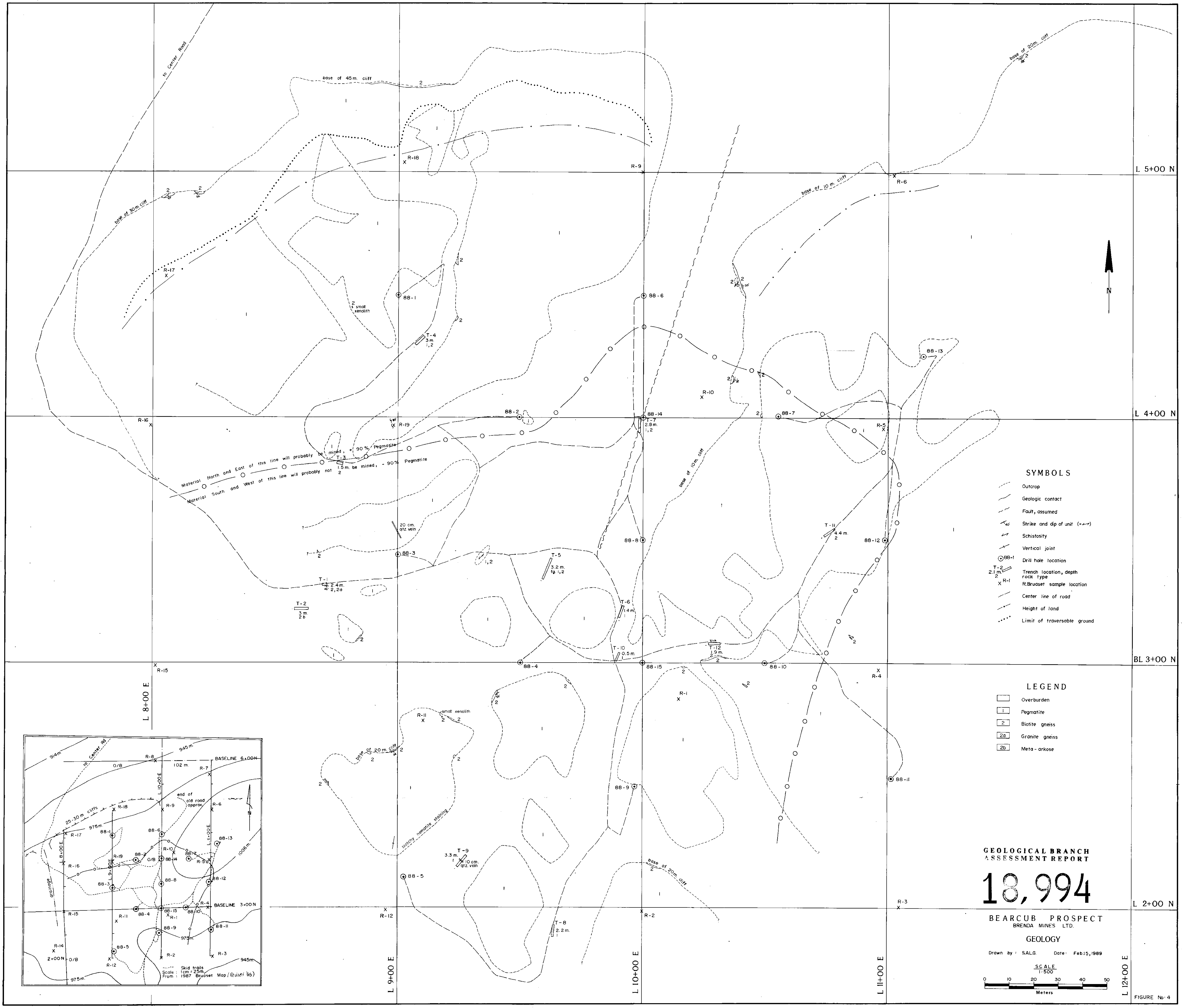
11+00 el.
10+50 el.
10+00 el.
9+50 el.
pegmatite outcrop
R-6 (2m.E.)
BC 88-13 (14.5 m.E.)
R-5 (2 m.W.)
pegmatite outcrop
overburden
BC 88-12
R-4 (4.m.W.)
outcrop
pegmatite
BC 88-11 (1.7m.E.)
chalco. bleb
f.g. py ± chalco. blebs
py. smear on shear
qtz. vein
py. smear on fracture
93.95 % Pegmatite
6.05 % Gneiss
85.5 % Pegmatite
14.5 % Gneiss
100 % Pegmatite
LEGEND
C Overburden
1 Pegmatite
2 Biotite gneiss
2a Granite gneiss
2b Meta - arkose
3 Quartz - feldspar dike
4 Chlorite - quartz - feldspar fault block
SYMBOLS
R - 9 (3 m. W.) R.Bruaset sample location , number (distance to true location)
T - 3 2 (3 m. W.) Trench location and number lithology (distance to true location)
0 10 20 30
meters
GEOLOGICAL BRANCH
ASSESSMENT REPORT
18,994
BEARCUB PROSPECT
BRENDA MINES LTD.
SECTION 11+00 E
LOOKING WEST
Elevations above sea level
SCALE 1 : 500
Drawn by : S.A.L.G.
Date : Feb. 5, 1989
FIGURE No: 9
L 2+00 N
L 3+00 N
L 4+00 N
L 5+00 N


11+00 el.
10+50 el.
10+00 el.
9+ 50 el.
BC 88-10
pegmatite outcrop
overburden
pegmatite outcrop
py. + chalco. bleb and thin vein
py. + chalco. bleb
72.5 % Pegmatite
27.5 % Gneiss
BC 88-7
(5m E)
C
overburden
pegmatite outcrop
minor f.g. py. xtls on fractures
minor f.g. py. xtls. on fractures
57.3 % Pegmatite
42.7 % Gneiss
L 3+00 N
L 4+00 N
GEOLOGICAL BRANCH
ASSESSMENT REPORT
18,994
SYMBOLS
R - 9
(3 m. W.)
X
R.Bruaset sample location , number
(distance to true location)
T - 3
2
(3 m. W.)
Trench location and number
lithology
(distance to true location)
0
10
20
30
meters
LEGEND
C Overburden
1 Pegmatite
2 Biotite gneiss
2a Granite gneiss
2b Meta - arkose
3 Quartz - feldspar dike
4 Chlorite - quartz - feldspar fault block
BEARCUB PROSPECT
BRENDA MINES LTD.
SECTION 10+50 E
LOOKING WEST
Elevations above sea level
SCALE 1 : 500
Drawn by : S.A.L.G.
Date : Feb. 5, 1989
FIGURE No: 8


11+00 el.
10+50 el.
10+00 el.
9+50 el.
L 3+00 N
L 4+00 N
L 5+00 N
BC 88-9
(3m.W.)
pegmatite outcrop
overburden
fg py.±chalco within quartz - feldspar lenses
59.7% Pegmatite
40.3% Gneiss
BC 88-15
T-10
(10m.W.)
T-6
(8 m.W.)
pegmatite outcrop
overburden
ocassional py.± chalco. blebs
chalco. bleb
py. smear on fracture
70.4 % Pegmatite
29.6% Gneiss
BC 88-8
py. blebs
py. fracture coating
57.8 % Pegmatite
42.2 % Gneiss
T-7
1,2
(2m.W.)
BC 88-14
Overburden
possible fault zone
fg py xtls on fracture
76.6 % Pegmatite
23.4 % Gneiss
BC 88-6
py. ± chalco smear on fracture
75.7 % Pegmatite
24.3 % Gneiss
R-9
pegmatite outcrop
+90%
-90%
GEOLOGICAL BRANCH
ASSESSMENT REPORT
18,994
LEGEND
C Overburden
1 Pegmatite
2 Biotite gneiss
2a Granite gneiss
2b Meta - arkose
3 Quartz - feldspar dike
4 Chlorite - quartz - feldspar fault block
SYMBOLS
R-9 (3 m. W.) x R.Bruaset sample location , number (distance to true location)
T-3 2 (3 m. W.) Trench location and number lithology (distance to true location)
0 10 20 30
meters
BEARCUB PROSPECT
BRENDA MINES LTD.
SECTION 10+00 E
LOOKING WEST
Elevations above sea level
SCALE 1 : 500
Drawn by : S.A.L.G. Date : Feb. 5, 1989
FIGURE . No: 7


11+00 el.
10+50 el.
10+00 el.
9+50 el.
BC 88-2
BC 88-4
pegmatite outcrop
T-5
1, 2
(10m E.)
overburden
py. smear on fracture
fg. py. shear surface xtls.
py. smear on fracture
93.2 % Pegmatite
6.8 % Gneiss
59.6 % Pegmatite
40.4 % Gneiss
L 3+00 N
L 4+00 N
0 10 20 30
meters
SYMBOLS
R-9 (3 m. W.)
R.Bruaset sample location, number (distance to true location)
T-3 2 (3 m. W.)
Trench location and number lithology (distance to true location)
LEGEND
C Overburden
1 Pegmatite
2 Biotite gneiss
2a Granite gneiss
2b Meta - arkose
3 Quartz - feldspar dike
4 Chlorite - quartz - feldspar fault block
GEOLOGICAL BRANCH
ASSESSMENT REPORT
18,994
BEARCUB PROSPECT
BRENDA MINES LTD.
SECTION 9+50 E
LOOKING WEST
Elevations above sea level
SCALE 1 : 500
Drawn by: S.A.L.G.
Date: Feb. 5, 1989
FIGURE No: 6


11+00 el.
10+50 el.
10+00 el.
9+50 el.
R-12
(5m.W.)
BC 88-5
(2.9 m.E.)
overburden
pegmatite outcrop
biotite gneiss
R-11
(10 m.E)
fg. py. bleb along fracture
py. smear on fracture
fg. py. blebs
py. smear on fracture
py. smear on shear
quartz vein
68.9 % Pegmatite
31.1 % Gneiss
overburden
BC 88-3
pegmatite outcrop
overburden
fg. py. blebs
65.3% Pegmatite
34.7% Gneiss
R-19
(2m.W)
pegmatite outcrop
T-4
1, 2
(8 m.E.)
overburden
BC 88-1
pegmatite
outcrop
overburden
R-18
(2 m.E.)
pegmatite outcrop
biotite gneiss
+90%
-90%
py. smear on shear surface
97 % Pegmatite
3 % Gneiss
-90% +90%
GEOLOGICAL BRANCH
ASSESSMENT REPORT
18,994
LEGEND
C Overburden
1 Pegmatite
2 Biotite gneiss
2a Granite gneiss
2b Meta - arkose
3 Quartz - feldspar dike
4 Chlorite - quartz - feldspar fault block
SYMBOLS
R - 9 (3 m. W.) R.Bruaset sample location, number (distance to true location)
T - 3 2 (3 m. W.) Trench location and number lithology (distance to true location)
+ 90% = MINEABLE
- 90% = UNMINEABLE
0 10 20 30
meters
L 2+00 N
L 3+00 N
L 4+00 N
L 5+00 N
BEARCUB PROSPECT
BRENDA MINES LTD.
SECTION 9+00 E
LOOKING WEST
Elevations above sea level
SCALE 1 : 500
Drawn by : S.A.L.G. Date : Feb. 5, 1989
FIGURE No: 5



GEOLOGICAL BRANCH
ASSESSMENT REPORT
18,994
BEARCUB PROSPECT
BRENDA MINES LTD.
GEOLOGY
Drawn by: S.A.L.G.
Date: Feb 15, 1989
SCALE 1:500
0 10 20 30 40 50
Meters
FIGURE No. 4
SYMBOLS
Outcrop
Geologic contact
Fault, assumed
Strike and dip of unit
Schistosity
Vertical joint
Drill hole location
Trench location, depth rock type
R.Bruaset sample location
Center line of road
Height of land
Limit of traversable ground
LEGEND
Overburden
1 Pegmatite
2 Biotite gneiss
2a Granite gneiss
2b Meta-arkose
L 5+00 N
L 4+00 N
BL 3+00 N
L 2+00 N
L 8+00 E
L 9+00 E
L 10+00 E
L 11+00 E
L 12+00 E
to Center Road
base of 45m. cliff
base of 30m cliff
base of 20m. cliff
base of 10m. cliff
Material North and East of this line will probably be mined, - 90% Pegmatite
Material South and West of this line will probably not be mined, - 90% Pegmatite
2 small xenolith
small xenolith
20 cm. qtz. vein
10 cm. qtz. vein
patchy hematite staining
T-1 2.4m. 2, 2a
T-2 3m. 2b
T-3 1.5m.
T-4 3m 1, 2
T-5 3.2 m. fg. 1, 2
T-6 1.4m.
T-7 2.8m. 1, 2
T-8 2.2m.
T-9 3.3m.
T-10 0.5m.
T-11 4.4m. 2
T-12 1.9m. 2
88-1
88-2
88-3
88-4
88-5
88-6
88-7
88-8
88-9
88-10
88-11
88-12
88-13
88-14
88-15
R-1
R-2
R-3
R-4
R-5
R-6
R-9
R-10
R-11
R-12
R-15
R-16
R-17
R-18
R-19
BASELINE 6+00N
BASELINE 3+00N
945m.
914m
975m
975m.
1006m.
102 m.
25-30m cliffs
end of old road approx.
drainage
O/B
2+00N
Skid trails
Scale: 1cm/25m
From: 1987 Bruaset Map

Chemex Labs Ltd.

CERTIFICATE OF ANALYSIS A8813981

SAMPLE DESCRIPTION	PREP CODE	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	BaO %	LOI %	TOTAL %
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Chemex Labs Ltd.

CERTIFICATE OF ANALYSIS A8721298

SAMPLE DESCRIPTION	PREP CODE		K2O %	Na2O %	SiO2 % fusion
BC RUB 8701	248	--	9.81	2.19	70.70
BC RUB 8703	248	--	6.14	3.54	71.10
BC RUB 8708	248	--	3.03	4.75	72.50
BC RUB 8710	248	--	10.00	2.19	71.20
BC RUB 8712	248	--	6.53	3.49	71.10
BC RUB 8714	248	--	3.12	3.54	76.50
BC RUB 8716	248	--	6.55	2.84	73.50
BC RUB 8725	248	--	8.92	2.79	70.70
BC RUB 8730	248	--	8.72	2.87	70.70
BC RUB 8733	248	--	2.77	4.43	76.00
BC RUB 8734	248	--	11.10	3.04	67.40
BC RUB 8736	248	--	9.95	2.17	71.10
BC RUB 8737	248	--	10.70	1.95	69.80
BC RUB 8738	248	--	3.11	4.30	74.80
BC RUB 8740	248	--	5.61	3.65	72.60
BC RUB 8753	248	--	0.35	2.59	76.50
BC RUB 8757	248	--	10.30	2.15	71.70
BC RUB 8759	248	--	9.02	2.06	72.40
BC RUB 8782	248	--	6.37	3.19	72.00
BC RUB 8785	248	--	6.18	3.25	72.70
BC RUB 8791	248	--	8.47	2.82	70.60
BC RUB 8793	248	--	9.85	2.30	70.60
BC RUB 8796	248	--	11.20	1.87	69.90
BC RUB 87101	248	--	10.50	1.89	71.90
BC RUB 87104	248	--	10.40	1.97	71.80
BC RUB 87105	248	--	5.97	3.70	71.80
BC RUB 87110	248	--	4.09	3.82	74.40
BC RUB 87114	248	--	10.30	2.07	70.20
BC RUB 87115	248	--	2.74	4.74	73.70
BC RUB 87117	248	--	9.72	2.32	70.10
BC RUB 87129	248	--	9.91	2.39	69.80
BC RUB 87133	248	--	11.20	2.14	69.60
BC RUB 87143	248	--	3.71	2.59	76.80

Chain and compasstie line

S ← Mainly sediments

Ref. Appendix 2 Sample Description (1987 Report) (K_2O, Na_2O)

1987 △ 9.81, 2.19 (pegmatite chip sample)

1988 ⊙ (1-40) Blast pit pegmatite sample; accept 8, 10, 40 (pegmatite chip samples). Full sample designation: B.C. 8801 to 40. A second sample with postscript B obtained from each station except 40.

O/B Drift covered

1988 ⓧ Diamond drill hole location. Full designation: BC 88-10

Proposed Mining Zone, +90 % Pegmatite - outlined by 1988 drilling program

SLG5 X Rock sample locations, 1988

REVISIONS APRIL 1988 to Aug. 1987 Plan

1 - Add Land Lots 4695, A
2 - Bearcub claim line and post 35
3 - Stations R-8735, 36, 37, G8767
4 - Add stations G 8750, 51, 54
5 - Grid and sundry references
6 - Change name of main road from BLUE SPRINGS CREEK ROAD to BEAR VALLEY ROAD
7 - Add certificate of Analysis A8813981
8 - Revise centre road to conform with 1988 tie-ins at ~ end of grid

(COMPARE WITH ORIGINAL PLOT)

REVISIONS JULY 1989 to AUG. 1987 Plan

1 - Add Proposed Mining Zone
2 - Add 1988 Brenda development road
3 - Add 1988 Rock sample locations
4 - Add diamond drill hole locations

SCALE 1:2,500

Metres 50 25 0 50 100 150 Metres

1981 Maddox reference: Survey Plan of Block A, D.L. 4695 Scale 1:2500; File R 3205

REVISED
APRIL 1988 R.U.B.
JULY 1989 S.L.G.

BRENDA MINES LTD.

BEARCUB FELDSPAR PROSPECT REVISED ROCK GEOCHEMICAL PLAN

PROJ. No. 109
N.T.S. 82L/2, L/7
DWG. No. 3

SURVEY BY: R.U. Bruaset DATE: August 1987
DRAWN BY: J. Serwin SCALE: 1:2,500

NORANDA EXPLORATION

OFFICE: VANCOUVER