BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM MINISTRY OF ENERGY AND MINES GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:2001/2002REPORT #:PAP 01-51NAME:RONALD MACARTHUR

D. TECHNICAL REPORT

- One technical report to be completed for each project area. •
- Refer to Program Regulations 15 to 17, page 6. •

SUMMARY OF RESULTS

istry of Energy and Mines Energy and Minerals Division

 SUMMARY OF RESULTS This summary section must be filled out by all grantees, one for each project area 	Information on this form is confidentia one year and is subject to the provision the Freedom of Information Act.					
Name Ronald Maritethur Referen	ce Number 01/02 P101					
LOCATION/COMMODITIES Project Area (as listed in Part A) <u>BewRen - Heggen</u> MINFILE	093H -136 No. if applicable <u>693H-07</u> Z					
Description of Location and Access <u>BairRow FS. Read provides access</u> <u>Narrow FS. And Haggen Rd provide access to Sou</u>	Long = to North part of a per- ++					
Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Reg	ulation 13, page 6)					
Main Commodities Searched For Pb - ZN - BA-						
Known Mineral Occurrences in Project Area <u>Bow Baute 093h-13</u> wp - Zn 093h -03	72					
WORK PERFORMED 1. Conventional Prospecting (area) 2500 ha 2. Geological Mapping (bectares/scale) 100 1.50 9						

1. Conventional Prospecting (area) 200 ho
2. Geological Mapping (hectares/scale) 100 1 500
3. Geochemical (type and no. of samples) 27 Rx geochem, 5 Assoy, 27 Silt Raccy Soil, 31 Soil
4. Geophysical (type and line km) <u>NA</u>
5. Physical Work (type and amount) Hand There hing 3 day, Theil art 2 days, Cuid with 2 day
6. Drilling (no. holes, size, depth in m, total m)
7. Other (specify)

FEEDBACK: comments and suggestions for Prospector Assistance Program

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beyond.	This type	of funding	s Stimulates	discureries
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Prospectors Assistance Program - Guidebook 2001

EXPLORATION REPORT

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BOWRON RIVER- HAGGEN CREEK AREA

BRITISH COLUMBIA

NTS 93H

DECEMBER 2001

R G MacArthur

BRITISH COLUMBIA PROSPECTORS ASSISTANCE PROGRAM-2001

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INTRODUCTION

This report describes the results of work carried out with the financial assistance of a grant from the British Columbia Prospectors Assistance Program for 2001. The project area is located 80 to 105 km southeast of Prince George BC along the east side of the Bowron River.

The report is divided into three sections:

I) Describing work done on the OLT claims in the south part of the project area The complete assessment report completed for these claims is included for this section of the report.

II) Describing work done on the Apollo Claims near the north end of the project area

III) Describing work done outside the above claim areas this includes staking two additional claim blocks, the El Jefe 1-4 north of the Apollo Claims and the KNA 1-4 claims north of the OLT claims.

A complete description of the work performed is reported in the body of the report

SECTION I OLT PROPERTY

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ASSESSMENT REPORT

OLT 1-13 CLAIMS

CARIBOO MINING DIVISION BC

NTS 093H/ 06W

LAT 59 deg 29 min N LONG 121 deg 28 min W

Ron MacArthur

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December 2001

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1.0 SUMMARY

The OLT 1-5 claims located near Indianpoint Creek in the Cariboo Mining Division were staked by the author on July 25, 1999. An additional 8 units-OLT 6-13 were staked on Oct 31, 2000. Work described here was performed between Aug 30 and September 7, 2001. The program was successful in expanding the geochem anomaly up slope from the area previously tested by drilling. The author concludes that there is a high probability of additional mineralization above the drilled area. An expanded geochem survey and drilling are recommended.

2.0 INTRODUCTION

This report describes the results of work performed on the OLT 1-13 claims between August 30 and September 7, 2001. Some eight days plus travel time were spent on the property

The OLT 1-5 claims were staked by the author on July 25, 1999 to cover an area of anomalous Zn-Pb in soils as previously outlined and partly drill tested by Kennco and Cominco. The OLT 6-13 claims were staked on Oct 31, 2000. All work was performed by the author. The purpose of the work was to relocate the Pb-Zn previously outlined soil anomaly and determine if the Cominco drill holes had sufficiently tested its source. The target is either "sedex" shale hosted Pb-Zn-Ag or carbonate breccia hosted mineralization within the Black Stuart Formation.

3.0 LOCATION AND ACCESS

The property is located on the east side of Indianpoint Creek approximately 105 km southeast of Prince George, in the Cariboo Mining Division.

Access is by way of Highway 16 and the main Bowron and Narrow Forest Service Roads to the east side of Indianpoint Creek and then by a de-commissioned forest service road that runs north along the east side of Indianpoint Creek. Logging access roads on the claims have been de-commissioned and are now impassable.

4.0 CLAIM DATA

The property currently consists of thirteen two-post claims as listed below.

Claim	Tenure #	Record Date	Units
OLT-1	370777	July 25, 1999	1
OLT-2	370778	July 25, 1999	1
OLT-3	370779	July 25, 1999	1
OLT-4	370780	July 25, 1999	1
OLT-5	370781	July 25, 1999	1
OLT-6	382450	October 31, 2000	1
OLT-7	382451	October 31, 2000	1
OLT-8	382452	October 31, 2000	1
OLT-9	382453	October 31, 2000	1
OLT-10	382454	October 31, 2000	1
OLT-11	382455	October 31, 2000	1
OLT-12	382456	October 31, 2000	1
OLT-13	382457	October 31, 2000	1

All claims are 100% owned by the author.



5.0 PHYSIOGRAPHY and VEGETATION

The area lies on the east side of the Cariboo Mountains. The slopes rise moderately from Indianpoint Creek up to the east side of the claims where steeper rocky slopes are formed by resistant carbonate units. Elevations on the claims range from 1000 meters to 1440 meters.

Almost the entire area of the claims was clear cut and burned in the mid 1980's. Replanting of pine and natural regeneration of alder, willow, poplar and cottonwood has produced a thick tree and brush cover with trees up to 20cm dia.

A thick cover of fluvial-glacial deposits covers much of the area. Overburden depths in excess of 30 meters were encountered in previous drill holes in the area. A prominent topographic bench formed by fluvial-glacial material occurs at about 1025 meters elevation. Although this forms a good roadbed it seriously limits the effectiveness of conventional soil geochemistry at that elevation and below.

6.0 REGIONAL GEOLOGY

The property lies within the Cariboo Terrane as described by Struik. The Cariboo Terrane consists of a sequence of sedimentary rocks from Precambrian to Permo-Triassic in age that lie in fault contact with the western margin of the North American Craton. Within the Cariboo Terrane an Ordovician unconformity separates the Cambrian and older sequence from the Ordovician and younger sequence. In the property area the older sequence of rocks belong to the Cariboo Group that in this area includes the Yanks Peak Formation (quartzite), the Midas Formation (shale, slate, quartzite, etc), The Mural Formation (limestone) and the Dome Creek Formation (shale, slate and limestone). The younger sequence is comprised of the Upper Ordovician-Lower Mississippian Black Stuart Group as described by Struik. These rocks are considered to be correlative with similar age basinal sediments that host sedex Zn-Pb-Ag and barite deposits in the Kechika Trough and Selwyn Basin in Northern BC and Yukon.

7.0 PREVIOUS WORK

The first recorded exploration work in the area was by Kennco in 1980-82. They identified a large are of anomalous Zn- Pb in silts and soils. Mapping, a soil sampling survey and four diamond drill holes were completed. In spite of a recommendation for no further work Kennco held the claims until 1988 when Cominco optioned the property. The Kennco work is described in AR# 10607. Cominco re-located and expanded the geochem anomaly and drilled six diamond drill holes. The results of the Cominco work are reported in AR #'s 17766 and 19084.

The author filed an assessment report in 2000 describing a short exploration program conducted in 1999.

8.0 2001 WORK PROGRAM

8.1 Grid Preparation

A total of 1500 meters of baseline and gridline was cut, flagged, hip-chained. Stations at 25 meter intervals were flagged with orange and blue flagging Station co-ordinates were also marked on white tyvek tags at each sample site. The two gridlines where laid out to cover the central part of the Pb-Zn geochem anomaly previously tested by Cominco holes 1 to 4. The base line was run at 330 degrees roughly parallel to the logging road at that location. These lines where selected to provide control in relocating the Cominco holes and the up-slope limits of the geochem anomaly. For sampling and mapping outside this grid area a hip chain and GPS were used. The area was entirely clear-cut in the early 1980's and has now regenerated with thick underbrush and planted pine.

8.2 Geochemical Sampling

A total of 33 soil samples were collected at 25-meter intervals along the two lines, 10,000N and 10,200N as shown in Fig #3. One soil sample #112698 was collected approx 10 meters above the drill site for Cominco hole #1.

Using a long handled round mouth shovel samples were collected from the "B" horizon when possible. Because of poor soil development and talus creep on the steep slopes soil horizons are not well defined in places. At 5 stations two samples were collected from the same hole. The upper sample "a" was collected at 25-35 cm depth, a second deeper sample "b" was collected as deep as possible (usually 50 to 80 cm). This was done to test the author's theory that talus creep and poor soil development along with shallow collection depth by previous samplers may have misled previous explorers as to the true extent of the soil geochem anomaly. In the authors experience this is a common problem with mass production sampling as is typically carried out on large projects. For this reason special care was taken to ensure that samples were properly collected from the appropriate soil horizon. Although this procedure takes considerable more time the results as discussed below make it worthwhile.

Samples were collected in porous "Hubco" sample bags marked with the grid location and were air dried before shipping. All samples were submitted to Acme Analytical Labs in Vancouver BC for 35 element analysis by ICP and Au geochem. A four acid (HCLO4-HNO3-HCL-HF) digestion was employed.. On Fig#3 results for Pb are plotted on the left side of the line with Zn results on the right. Where two samples were collected at the same site results are separated by a coma with the second value representing the deeper sample. The complete results are included as Appendix 3.

Four silt samples were collected. Locations are plotted on Fig#3 and results are included in Appendix 3.

8.3 Geological Mapping

Outcrop exposure within the area concentrated on for this program is very limited. A few new outcrops were mapped and these are plotted on Fig # 3.

As water in the main creek that cuts across the OLT-3 claim was very low a traverse was made to look for outcrop in the creek bed. Only one new outcrop was located, just above the logging road. A number of interesting boulders were located and these are plotted on Fig # 3. One large boulder (< 1meter diameter) of qtz-carbonate breccia was found to carry minor galena and zinc oxides sample # 112657. This creek was also prospected downstream below the logging road, south of OLT-7 claim however no outcrop was located in this area. The creek passing through the OLT-9 claim was also traversed but no out crop was located. A total of 10 rock samples were collected for analysis, four were assayed for Pb –Zn- Ag because they contained significant sulphides or oxides and six were analysed by 35 element ICP. Locations and sample numbers are plotted on Fig#3 and results are included in appendix 3.

Along with geological mapping the sites of Cominco drill holes 1 to 4 were relocated and marked. Although there are no drill collars marked on the ground the three drill sites were successfully located with reasonable certainty (say within 10 to 20 meters) using the features marked on the Cominco plans.

What appears to be small "kill-zone" formed by deposition of secondary Fe-Zn-Pb oxides was located within the area of the central geochem anomaly. (9975N @10150E) Here a swampy area 25-35 meters wide by 75 meters north south has failed to regenerate vegetation as successfully as the surrounding area. A cluster of limonite-smithsonite boulders over a 5 to 10 meter diameter area is poorly exposed through the swampy soil and moss near the upper edge of the zone. This area appears to have been scraped level by a bulldozer either during logging or more likely by Cominco while laying out their drill sites. Although an occurrence of smithsonite is shown on a Cominco drill section it is not discussed in their reports to any extent. Bearing in mind that the entire area was clear-cut logged and burnt by an intense forest fire between 1982 and 1985 it is difficult to determine to what extent material has been transported. One grab sample of classic spongy limonite-smithsonite-hydrozincite #112700 assayed 0.36% Pb, 43.04% Zn, 40.1g/t Ag. Another sample #112701 collected from a hole dug 10 meters above the swamp assayed 0.16%Pb 17.26%Zn, 9.8g/t Ag. This material appeared to be an altered carbonate breccia but was highly weathered and coated with oxides. The source of this zone of secondary "oxide" mineralization was the target of Cominco drill holes 2 and 3. A similar swampy area with very poor regeneration occurs approx 100 meters southeast, No limonite or smithsonite were observed at this second site.

Data was recorded in a notebook and plotted later on a topographic base map prepared from a BC Forest Service "trim map" # 93H043.

8.4 Discussion of Results

The geological mapping provided only limited new information but it appears that the eastern edge of the Black Stuart Group has been fairly well tied down near the end of lines 10,000N and10, 200N @10,525E. In this area the contact between the less resistant shales of the Black Stuart and the very resistant quartz breccia unit forms a small topographic bench with a sharp ridge above where the quartz breccia outcrops

Since the area soil sampled is mostly within the previously outlined geochem anomaly it is no surprise that most samples are anomalous in either Pb or Zn or both. The soil sample results however demonstrate two important things: Firstly, of the 5 sites where two samples were collected at different depths, 4 sites returned significantly higher values in the deeper sample. One of these collected 10 meters up slope from the smithsonite occurrence returned dramatically higher values in the deeper sample for both Pb (67 ppm in upper vs. 19209 ppm in lower) and Zn. (652ppm in upper vs. 99999 ppm in lower). Secondly the geochem results show that the soil anomaly for Pb and Zn extends further upslope than previously indicated by the Cominco sampling. This is a very significant finding as it means that the drill holes 1-4 were not far enough up slope to be above the geochem cut-off. Although these holes did cut some mineralization there must be additional mineralization up hill from the drill holes.

9.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the observations made during the above work and a review of previous results the author concludes that there is a high probability of additional mineralization east and upslope from the Cominco drill holes. The author believes that an expanded carefully conducted geochem survey will define additional drill targets. The area above Cominco drill holes 1 to 4 has not been sufficiently tested and warrants additional drilling.

10.0 REFERENCES

Campbell, R. B. et al 1973 Geology of the McBride Map Area British Columbia. GSC Paper 72-35

Struik, L.C. 1988: Structural Geology of The Cariboo Gold Mining District, East -Central British Columbia. GSC Memoir 421

B. C Ministry of Energy, Mines and Petroleum Resources, Assessment Reports: 10607, 17766, 19084.

<u> </u>	SAMPLE#	PB ZN AG	
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GROUP 1E - 0.25 GM SAMPLE DIGESTED WITH HCLO4-HNO3-HCL-HF TO 10 ML. UPPER LIMITS - AG, AU, W = 200 PPM; MO, CO, CD, SB, BI, TH & U = 4,000 PPM; CU, PB, ZN, NJ, MN, AS, V, LA, CR = 10,000 PPM. DIGESTION IS PARTIAL FOR SOME MINERALS & MAY VOLATIZE SOME ELEMENTS, ANALYSIS BY ICP-ES. - SAMPLE TYPE: ROCK R150 60C <u>Samples beginning 'RE' are Reruns and 'RRE'</u> are <u>Reject Reruns</u>.

JAN 16 2002 DATE REPORT MAILED: Jan 24/02 SIGNED BY. D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS DATE RECEIVED:

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

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GROUP 1E - 0.25 GM SAMPLE DIGESTED WITH HCLO4-HNO3-HCL-HF TO 10 ML. UPPER LIMITS - AG, AU, W = 200 PPM; MO, CO, CD, SB, BI, TH & U = 4,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. DIGESTION IS PARTIAL FOR SOME MINERALS & MAY VOLATIZE SOME ELEMENTS, ANALYSIS BY ICP-ES. - SAMPLE TYPE: SILT SS80 60C Samples beginning (RE' are Reguns and (RRE' are Reject Reguns.

DATE RECEIVED: JAN 16 2002 DATE REPORT MAILED: Jan 24/02 SIGNED BY

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GROUP 1E - 0.25 GM SAMPLE DIGESTED WITH HCLO4-HNO3-HCL-HF TO 10 ML. UPPER LIMITS - AG, AU, W = 200 PPM; MO, CO, CD, SB, BI, TH & U = 4,000 PPM; CU, PB, ZN, N1, MN, AS, V, LA, CR = 10,000 PPM. DIGESTION IS PARTIAL FOR SOME MINERALS & MAY VOLATIZE SOME ELEMENTS, ANALYSIS BY ICP-ES. - SAMPLE TYPE: SOIL SS80 60C <u>Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns</u>.

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SECTION II APOLLO PROPERTY

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1.0 INTRODUCTION

The Apollo 1-4 claims were staked by the author on July 20, 1999 to cover a known occurrence of bedded barite. The Apollo 5 to 10 were staked on September 8, 2001 to cover reported bedded barite to the north of the Apollo 1-4. This report describes the results of work performed by the author on the Apollo 1-10 claims between September 8 and October 11, 2001. The purpose of the work was to evaluate the main barite showing and to explore for further barite horizons. The area was also evaluated for potential "sedex" Zn-Pb-Ag-Ba mineralization **2.0 LOCATION AND ACCESS**

The Apollo property is located on the east side of the Bowron River approx. 80 Km south east of Prince George and 3.5 km north of the junction of Haggen Creek and Bowron River on NTS map sheet 93H12E

Access is by way of Highway 16 east from Prince George and south along the main Bowron Forest Service Road which passes through the west side of the claims. The main barite showing can be reached on foot along Barite Creek approx 500 meters from the Bowron Forest Service Road. The area was logged sometime prior to 1984 and a number of old access roads remain but are clogged with windfall and underbrush.

3.0 CLAIM DATA

The property currently consists of ten "two-post" claims as listed below. The Apollo 5 to 10 claims were staked on Sept 8, 2001 as part of this project.

Claim	Tenure #	Record Date	Units
Apollo-1	370773	July 20, 1999	1
Apollo-2	370774	July 20, 1999	1
Apollo-3	370775	July 20, 1999	1
Apollo-4	370776	July 20, 1999	1
Apollo-5	389914	Sept. 8, 2001	1
Apollo-6	389915	Sept. 8, 2001	1
Apollo-7	389916	Sept. 8, 2001	1
Apollo-8	389917	Sept. 8, 2001	1
Apollo-9	389918	Sept. 8, 2001	1

4.0 PHYSIOGRAPHY

The area lies on the east edge of the main Bowron River Valley a very broad mature river valley. Elevations ASL range from 820 meters to 980 meters on the property. Moving east from the Bowron River Valley the topography rises sharply the first 50 to 100 meters, and then slopes more gently unto a rolling plateau at 980 to 1000meters elv.

The primary old growth forest in the area consists of large mature spruce pine and fir. The steam valleys are choked with alder and devils club. Since most of the area has been logged natural forest is limited to steep slopes and immediately creek banks. The logged areas have been replanted and now have regenerated with a thick cover of pine and deciduous trees generally less than 20cm diameter. Deciduous underbrush, alder and devils club are quite dense in many places.

5.0 PREVIOUS WORK

The first recorded property scale exploration work in the area was conducted by Newmont in 1985-86. They staked the property based on an area high Ba values in stream



sediments outlined in the British Columbia Regional Geochemical Survey released in 1985. Work by Newmont was directed at exploring the area for "sedex" Zn-Pb-Ag-Ba deposits. Their exploration crews discovered float and outcrops of bedded barite along what is here referred to as Barite Creek. (FIG-3). Their work mainly consisted of geochemical sampling and geological mapping. From their reports it appears that the barite mineralization was of little interest to Newmont other than as an indicator of a favourable setting for base metals. As Newmont essentially withdrew from exploration in BC in the late 1980's the property was allowed to lapse. Newmont's work is reported in assessment report #s14999

In 1993 the main barite mineralization was staked by two former Newmont employees who conducted hand trenching and sampling on the barite outcrops on Barite Creek. The results of their work are reported in assessment reports # 23339 and #23887.

The property was examined by the author in 1998. In July 1999 four units (Apollo1-4) were staked to cover the main barite showings on Barite Creek and possible southward extensions. A short sampling and mapping program was conducted by the author in 1999.

6.0 REGIONAL GEOLOGY

The property lies within the Cariboo Terrane as described by Struik. The Cariboo Terrane consists of a sequence of sedimentary rocks from Precambrian to Permo-Triassic in age that lie in fault contact with the western margin of the North American Craton. Within the Cariboo Terrane an Ordovician unconformity separates a Cambrian and older sequence from an Ordovician and younger sequence. In the property area the older sequence of rocks belong to the Cariboo Group which in this area includes the Yanks Peak Formation (quartzite), the Midas Formation (shale, slate, quartzite, etc.), The Mural Formation (limestone) and the Dome Creek Formation (shale, slate and limestone). The younger sequence is comprised of the Upper Ordovician-Lower Mississippian Black Stuart Group as described by Struik (1988). These rocks are considered to be correlative with similar age basinal sediments that host sedex Zn-Pb-Ag and barite deposits in the Kechika Trough and Selwyn Basin in Northern BC and Yukon. Although poorly exposed in the region rocks of the Black Stuart Group have been traced by the author in scattered outcrops as far south as Indianpoint Creek, a distance of more than 25km, where they host significant occurrences of Zn-Pb mineralization.

To the west of the property Mississippian to Permian rocks of the Slide Mountain Group, (Slide Mountain Terrane) consisting of diorite, basalt, chert, cherty argillite, slate, serpentine and mafic schist are thrust eastward over the Black Stuart Group. These rocks of marine rift origin are part of a huge thrust sheet that moved east against and over rocks of the Cariboo Terrane that are of continental shelf origin.

6.1 Property Geology

Most of the property is covered with a veneer of glacial sediments including some clay rich layers. Consequently outcrop is largely restricted to stream cuts, steep slopes and road cuts. The best exposures are along Barite Creek and along the main road.

Based upon the limited exposure available the claim area appears to be entirely underlain by a highly deformed sequence of black carbonaceous sedimentary rocks including graphitic phyllite, black slate, cherty argillite and dark dolomitic limestone and sandstone. Pyrite is a common occurrence in these rocks and the bedded barite within the claim area is a local component. These rocks are most probably part of the Upper Ordovician-Lower Mississippian Black Stuart Group as described by Struik. These rocks are considered to be correlative with similar age basinal sediments that host major sedex Zn-Pb-Ag and barite deposits in the Kechika Trough and Selwyn Basin in Northern BC and Yukon.

A good section of stratigraphy is exposed in the bed of Barite Creek for some 250 -300 meters down stream from the location of the Initial Post for the Apollo 1& 2 claims. In this

section a tightly folded and sheared section of pyritic black phyllite, argillite, siliceous shale and dolomitic sand stone is exposed. Bedding strikes generally 110° to 130° with steep dips both north and south. High amplitude folds with wavelengths of 2-3 meters can be observed. A strong axial plane cleavage often masks the bedding in the more fissile units. It is only in the more massive gritty or dolomitic units that bedding can be measured with confidence. In a few locations where it is possible to measure true bedding the fold axis strike east-southeast and plunge at low angles to the south

Pyrite as nodules to 3cm and dissemination's to 3% is common. Quartz sweats, boudins and discontinuous bedding plane veins up to 10cm are common in some sections. The previously discovered barite outcrops appear to be a conformable part of this sequence.

7.0 WORK PROGRAM 2001

7.1 Barite Showings

The author completed a continuous hand trench of some 12 meters length across the strike of the barite beds. Both the hanging wall and footwall shales were exposed as well as the barite. A continuous thickness of at least 8 to 10 meters of high-grade barite is indicated. The author's interpretation of these barite outcrops indicates a strike of 110 to 130° with steep dips (45 to 70 degrees) to the southwest. Hand trenching done by the previous owners has become very overgrown and covered with collapsed overburden. The author dug out a few of the pits and barite outcrops were exposed in a number of places. A minimum strike length of 35 meters is indicated by the trench and small pits.

At the main trench 10 continuous rock chip samples were collected across the exposed barite. These samples were submitted for 35-element ICP analysis to check for potential contaminants No serious contaminants were noted. None of the samples were assayed for Ba as the author was advised that this is not normally done in the barite industry since Ba analysis only indicates the amount of barium not barite. (the Ba may be in the form of witherite or other minerals) Rather than Ba assays it is common to calculate the specific gravity and analyse for potential contaminants as well as doing some whole rock analysis to determine the amount of silica etc. The pulps were retained for additional study

In addition three samples from the main trench and one from a pit #4 approximately 25 meters east were collected by Highwood Resources during a property visit in October and were tested for bulk density and brightness. Their results are included in the appendix. The specific gravity of four samples ranged from a low of 4.00 to a high of 4.35 with an average of 4.16. Their samples were also analysed by ICP for 30 elements. The sample locations are shown on Fig#7

Five soil samples were collected in the area of the barite showing. Soil sample #112692 collected approximately 25 meters northwest along strike from the main showing is highly anomalous in Ba with 3428 ppm. By comparison a soil sample collected during July, 1999 just above an outcrop of massive barite at Pit#3 (see sample#168710) contained 3247 ppm Ba. This suggests additional 25 meters strike potential to the northwest for the barite beds.

7.2 Additional Sampling and Prospecting

Previous work by Newmont indicates that a small showing of barite was located in the creek bed of the first major creek north from Barite Creek. No base metals were associated so the barite was of no interest to Newmont. The exact location is not indicated on their maps.

The author prospected this creek in detail but failed to relocate the showing. Since the creek bed is choked with large windfall and debris for a few hundred meters in the most likely area, it is probable that a logiam covers the showing.

Five silt samples were collected along approx 500meters of the creek in the hopes of pinning down the location of the barite. All 5 samples are anomalous for Ba with the last sample upstream containing 1490 ppm Ba.

Four rock geochem samples were collected from outcrop in the streambed one sample #112665 is anomalous in Ba at 4259ppm and Cu at 645ppm. This was a chip sample from angular float of pyritic quartz veined black shale with traces of chalcopyrite and a grey metallic mineral. Similar material outcrops in the streambed but only pyrite was observed in the outcrop.

Six silt samples were collected from a number of small creeks draining the west facing slopes along the main road in the area of the claims. All the samples have elevated levels of Ba probably reflecting the high Ba content in the black shales. For these samples the highest value, at 1155 ppm Ba (sample # 112675) is from a small creek approximately 400 meters north of the Apollo 10 claim. Outcrops of Black Stuart Formation shales outcrop in this area. Two rock chip samples collected nearby are not anomalous.

Two silt samples collected approximately 300 meters upstream from the barite showings are both anomalous in Ba. Sample 112727 at 1178ppm Ba is from a small side creek that drains the area on strike from the showings. Sample 112728 at 1648ppm Ba is from the main stream 25 meters above the junction of the side creek. Both these samples suggest additional barite to the east of the main showing.

All the silt and rock geochem samples are plotted on Fig#6. The values for Ba are plotted beside the silt sample numbers.

7.3 Discussion of Results

The results of the hand trenching on the barite main showing are very encouraging. The author interprets the showing as one continuous bedded sequence some 6 to 10 meters true thickness with a dip into the hill at 40 to 60 degrees. In the main trench there are no shale or limestone interbeds and no evidence of faulting or quartz veins. The specific gravity results are within the range for economic grade barite and the ICP analysis indicate no serious contaminants. Pyrite appears to be restricted to the hanging wall and footwall zones. With a known strike of approx 35 meters and a strong soil geochem anomaly along strike to the northwest there is indication of at least 50 meters strike length. The along strike projection to the southeast is covered with heavy overburden beyond pit#4 so there is untested potential in that direction. The two anomalous silt sample silt samples collected more than 300meters east suggest the barite continuous in that direction.

The failure to locate the reported showing in the creek to the north is disappointing. More detailed prospecting at low water and fighting through the log jamed creek should eventually locate the showings.

No significant indications of base metals were noted in this program.

8.0 CONCLUSIONS AND RECCOMENDATIONS

The author concludes that the Apollo Property has good potential for production of significant tonnages of high-grade barite. The results of work to date indicate that the quality of the barite is acceptable for drill fluids. The outcrop thickness and strike length indicated suggest good potential for additional barite along strike from the main showings.

A review of the Western Canadian barite markets and industry cost structures should be completed. Although the property has good local access the distance to railroad is a significant factor. Preliminary cost estimates for transportation from the site to rail loading site should be compiled

If the above review is encouraging then a program of deep soil sampling, hand trenching and detail mapping should be followed by a mechanized trenching program and/or diamond drilling

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GROUP 1E - 0.25 GM SAMPLE DIGESTED WITH HCLO4-HNO3-HCL-HF TO 10 ML. UPPER LIMITS - AG, AU, W = 200 PPM; MO, CO, CD, SB, BI, TH & U = 4,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. DIGESTION IS PARTIAL FOR SOME MINERALS & MAY VOLATIZE SOME ELEMENTS, ANALYSIS BY ICP-ES. - SAMPLE TYPE: ROCK R150 60C <u>Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns</u>.

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

Data 🚺 /

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GROUP 1E - 0.25 GM SAMPLE DIGESTED WITH HCLO4-HNO3-HCL-HF TO 10 ML. UPPER LIMITS - AG, AU, W = 200 PPM; MO, CO, CD, SB, BI, TH & U = 4,000 PPM; CU, PB, ZN, N1, MN, AS, V, LA, CR = 10,000 PPM. DIGESTION IS PARTIAL FOR SOME MINERALS & MAY VOLATIZE SOME ELEMENTS, ANALYSIS BY ICP-ES. - SAMPLE TYPE: SILT SS80 60C <u>Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.</u>

DATE RECEIVED: JAN 16 2002 DATE REPORT MAILED: 1000 24/02

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

Data____



HIGHWOOD RESOURCES LTD.

Canada Talc, Mountain Minerals



QUALITY ASSURANCE DEPARTMENT Ph: (613) 472-2434, Fax: (613) 472-5467 E-mail: sueparks@reach.net

Heather;

Here are the results of the samples you sent so far

		Α	В	G	YI	SG
				¥ 70 Ben	ytter ss	
33124	Apollo	36.4	32.0	35.8	12.29	4.21
33125	Apollo	41.4	36.8	40.8	11.27	4.35
33126	Apollo	67.9	58.2	66.7	14.54	4.00
33127	Apollo	39.5	15.0	35.6	68.82	4.09

The Pulps were sent to IPL on October 26, 2001.

Dingenna Yasha

Suzanne Parks

Appendix Construction 4 Samples Out K1232 Phone deck of 27 2735 are (064 372 7035 a			C	ERTIFI	CAT	E OF ANALYSI	S		0900Z	Vancouve	~ <u>C</u>	
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SECTION III NEW PROPERTIES

TABLE OF CONTENTS

1) EL JEFE CLAIMS 13

2) KNA CLAIM AREA

LIST OF FIGURES

Fig 8 CIAIM MAP EL JEFE CLAIMS

Fig 9 CLAIM SKETCH KNA CLAIMS

Fig 10 KNA CLAIMS GEOLOGY AND SAMPLE LOCATIONS

Appendix Analytical Results

1) EI JEFE CLAIMS

On September 14,2001 four units (El Jefel to 4) were staked along the Bowron River approx 15 km Northwest of the Apollo Property on NTS map sheet 93H12W These claims were staked to cover an area of high Ba in silts and a barite occurrence reported by Newmont. The showings are in the bed of a small creek on the west side of the Bowron River close to the junction with the river. The Barite occurrence was not visited for lack of means to cross the Bowron River. The claim locations are shown on Fig# 8.

The author proposes to examine the claims in 2002 by gaining access from the west side of the Bowron River

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page



2) KNA CLAIM AREA

Four units were staked approximately four km north of the OLT Property. These claims were staked to cover a Pb-Zn-Ba soil geochem anomaly previously outlined by Kennco. The author prospected the area and found extensive outcrops of Quartz-Barite-Breccia. Minor amounts of galena and sphalerite were observed in large boulders in the area. The location of the claims is shown on Fig#9. The claims are on NTS map sheet 93H/06W

Four silt samples and three rock samples were collected for analysis from this area and north of the Haggen Road. Locations are plotted on Fig#10 along with the KNA claims. Silt sample # 112729 is anomalous in Zn (1035 ppm) and Ba (3084 ppm). This is probably reflecting the mineralized Quartz-Barite-Breccia in the area.

Sample # 112731 was a rock chip sample from a large boulder of quartz carbonate breccia that contained patchy galena and sphalerite. Although the assay results indicate only 0.14% Pb and 0.16% Zn, the field estimate was 1 to 2%. This probably reflects the patchy nature of the mineralization and the difficulty to get a representative sample because of the hard nature of the silica breccia.

A rock chip sample # 112730 collected from a quartz-barite breccia outcrop on the claim line between the KNA-1 and KNA-2 claims contained 4697 ppm Ba but is not anomalous for any metals.

Additional work is planed for this area in 2002.

uarana Sasara 11 V I V II KNA-2 Tag 699992 M KNA-1 Tug 6999911 KNA-4 Tig 699994M KN Tag 699993M 3924140 370373 011-1 373574 307377 171621 647371 417 176 1877 4114 171571 hopo દ 200 meters ،دەر ب 500 Scale STAKING-Louction States NTS 093H106W Fig 9 Fact 4/01

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LL Rx Assays	1208 - 13	MacArthur, Ron 28 Homer St., Vancouve	n File # A200136 File BC V68 6A7 Submitted by: Ron MacArthu	KNA CLAIMS
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All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

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GROUP 1E - 0.25 GM SAMPLE DIGESTED WITH HCLO4-HNO3-HCL-HF TO 10 ML. UPPER LIMITS - AG, AU, W = 200 PPM; MO, CO, CD, SB, BJ, TH & U = 4,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. DIGESTION IS PARTIAL FOR SOME MINERALS & MAY VOLATIZE SOME ELEMENTS, ANALYSIS BY ICP-ES. - SAMPLE TYPE: ROCK R150 60C <u>Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns</u>.

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

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SAMPLE#	Mo ppm	Cu ppm	РЬ PPm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm p	U pm j	Au opm (Th ppm p	Sr pm	Cdi ppm p	Sb pmr	Bi opma	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti X	Al %	Na X	K X	w ppm	Zr ppm	Sn ppm (Y ppm ;	Nb ppm p	Be Apm p	Sc. XDM
G-1 112651 0 ⁴⁷ 112652 3 112654 F ¹ 9 ³ 112661	<2 4 3 <2 4	6 37 23 17 29	23 38 42 16 34	49 282 193 428 212	.5 .5 <.5 <.5 <.5	8 50 29 28 40	3 15 12 8 12	808 742 679 529 672	2.32 3.08 3.22 2.65 3.34	9 20 21 12 19	10 11 10 10	<4 <4 <4 <4 <4	97 12 151 14 151	13 91 62 89 82	.7 1.9 1.1 3.3 1.6	<5 <5 <5 <5 <5	<5 7 <5 <5 <5	50 181 86 71 115	2.67 1.08 3.61 3.79 3.75	.099 .194 .118 .177 .137	29 44 57 60 62	14 63 47 47 44	.62 .72 1.30 1.52 1.14	1002 3024 2318 1459 1272	.24 .36 .60 .54 .69	7.94 4.63 4.37 3.84 3.86	2.65 .47 .56 .48 .44	3.07 1.84 1.63 1.51 1.48	4 <4 <4 <4	7 36 37 32 35	<2 2 <2 <2 <2 2 2 2	17 13 10 8 10	23 6 10 11 7	3 2 2 1	6 9 7 6
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112672 A Po ^{1/0} 112673 _{S1} 145 112675 Si	3 5 2 3 <2	50 32 36 47 38	16 18 19 23 14	167 141 102 108 87	<.5 .5 <.5 <.5	53 50 55 58 49	21 21 23 28 22	1338 1215 1334 1427 1223	3.40 3.20 4.13 4.18 3.57	16 + 18 + 13 + 22 + 15 +	10 10 10 10	<4 <4 <4 <4 <4	10 1 8 10 1 12 1 13 1	03 97 48 22 42	1.7 1.6 1.3 .5 .9	13 <5 <5 <5	<5 <5 7 6 <5	209 187 150 150 132	1.27 1.13 1.79 1.05 1.41	.107 .096 .093 .142 .113	30 35 38 41 42	85 83 101 95 83	1.08 .96 1.03 1.04 .98	2424 2671 997 1155 993	.30 .31 .38 .33 .32	5.44 5.02 6.47 5.98 5.66	.67 .69 .91 .87 .93	2.00 1.82 2.06 2.01 1.86	<4 <4 <4 <4	42 31 57 50 44	<2 2 3 2 2 2 3 2 2	16 16 16 17 16	2 4 7 7 7	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	11 10 13 12 11
112679 112690 112691 Af ^{ollo} 112692 Soils 112693 Fig.	2 <2 <2 52 14	35 55 45 99 61	20 28 15 18 17	84 117 106 525 301	<.5 <.5 .7 <.5	43 68 61 136 109	19 26 22 18 22	953 1139 927 513 711	3.40 5.03 4.56 4.73 4.24	15 × 15 × 19 × 57 × 26 ×	10 10 10 10	<4 <4 <4 <4	10 1) 13 1 10 1 11 1 11 1	38 12 92 01 03	.8 .8 .7 6.0 1.6	<5 <5 <5 18 5	<5 <5 <5 <5	123 152 145 178 342	1.14 1.06 .60 .72 .93	.113 .084 .075 .289 .141	40 38 34 31 36	87 116 106 195 117	.90 1.26 1.13 1.23 1.16	768 1135 1195 3428 1237	.36 .33 .31 .34 .34	5.30 7.68 7.19 7.78 6.71	1.03 .58 .58 .57 .86	1.69 2.50 2.55 2.65 2.27	<4 <4 <4 <4	43 64 60 99 52	<2 3 3 2	14 25 18 23 22	6 8 6 39 <2	2 3 4 2	10 19 14 18 14
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GF PF -	ROUP PM; C SAMP	1E - U, P LE T	0.2 B, Z YPE:	5 GM N, N1 Sti1	SAMP I, MN I SSE	PLE D I, AS	IGES , V,	TED 1 LA, Sar	VITH CR =	ICL04- 10,00	HNO3 0 PF	5-HCI 2M. [L-HF Diges	TO 10 TION	D ML. IS P	UPI ART:	PER I	IMIT: FOR S	S - A Ome Mi	G, AU NERAL	, W S &	= 20 May 1	O PPM, Volat:	; MO,	CO, OME	CD, Eleme	SB, B NTS, J	I, TH ANALY	I & U SIS I	= 4 BY 11	,000 CP-ES				

Samples beginning 'RE' are Reruns and 'RRE' are Reject Rerung.

DATE RECEIVED: JAN 16 2002 DATE REPORT MAILED: Jan 24/02

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

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