BRITISH COLUMBIA

PROSPECTORS ASSISTANCE PROGRAM

MINISTRY OF ENERGY AND MINES

GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:	2000/2001
REPORT #:	PAP 00-49
NAME:	BERNIE AUGSTEN

D. TECHNICAL REPORT

- One technical report to be completed for each project area.
- **Refer to Program Regulations 15 to 17, pages 6 and 7.**

BRITISH COLUMBIA
Ministry of Energy and Mines
Energy and Minerals Division

Information on this form is confidential subject to the provisions of the *Freedom of Information Act.*

SUMMARY OF RESULTS

- This summary section must be filled out by all grantees, one for each project area

Name Bernie Augsten Reference Number 00/01-P110

LOCATION/COMMODITIES

Project Area (as listed in Part A) Heckman Creek MINFILE No. if applicable N/A.

Location of Project Area NTS 82L/2 Lat 50° 09' N Long 118° 36' W

Description of Location and Access Heckman Creek is located approx. 35Km east of Lumby, BC off Hwy #6. Access is via Heckman Creek forest service road, and numerous branch roads.

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)
KEN MURRAY - Professional Prospector - discovered Katie copper/gold deposit
Mike Hudock - Prospector for 18 years - staked & sold numerous properties

Main Commodities Searched For GOLD

Known Mineral Occurrences in Project Area NONE (other than placer gold at the mouth of Heckman Creek.

WORK PERFORMED

1. Conventional Prospecting (area) ~ 20 km^2
2. Geological Mapping (hectares/scale)
3. Geochemical (type and no. of samples) 27 pan concentrates, 21 rock samples, 1 moss mat,
4. Geophysical (type and line km) NONE
5. Physical Work (type and amount)
6. Drilling (no. holes, size, depth in m, total m) NONE
7. Other (specify)

Best Discovery

Project/Claim Name Upper Big Goat Commodities Pb, Ag, Bi, Au

Location (show on map) Lat. 50° 7.5' Long 118° 34' Elevation

Best assay/sample type 1802 ppm Pb, 34.1 ppm Ag, 65.1 ppm Bi, 71.00 ppb Au in rock. 132 gm/t Au in pan concentrate

Description of mineralization, host rocks, anomalies 20cm wide quartz vein hosted by argillaceous metasediments of the Thompson Assemblage. Veins are somewhat dirty and vuggy with leached cavities. Veins contain minor pyrite and trace galena. Veins are strongly anomalous in lead, silver, bismuth and weakly anomalous in gold.

FEEDBACK: comments and suggestions for Prospector Assistance Program Overall I think the program is a good one but probably works best for someone that has both time and money. I think it is important to keep in mind what the ultimate goal is - that is to find an economic ore deposit. Anything that can further that objective is a good thing.

SUMMARY REPORT

ON THE

HECKMAN CREEK PROJECT

VERNON MINING DIVISION
BRITISH COLUMBIA

Latitude: 50° 09' North
Longitude: 118° 36' West

NTS: 82L/2

By: Bernhardt Augsten P.Geo.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

This report summarizes the results of a prospecting grant located in the Heckman Creek drainage of southern British Columbia, approximately 35 kilometres east of Lumby. The premise of this prospecting grant was to investigate the source of placer gold in both Heckman Creek and its tributaries principally through the use of heavy mineral sampling. Unfortunately the grant could not be completed, however the results obtained do point to three somewhat refined target areas defined by highly anomalous gold in pan concentrate samples and in one area, also by silver, lead and bismuth with weak gold in quartz veins. Further work is anticipated to try and explain these anomalies.

2.0 LOCATION, ACCESS AND PHYSIOGRAPHY

This prospecting grant proposal is centered on the Heckman Creek drainage basin which is located in southern British Columbia on Map Sheet 82L/2E, (Fig. 1,2). The Heckman Creek drainage basin is accessed by the Heckman Creek Forest Service Road which is located approximately 35km east of Lumby, BC. Heckman Creek is a tributary of Monashee Creek which in turn flows into Cherry Creek. The project is centered at latitude 50° 09' and longitude 118° 35'.

The Heckman Creek basin is accessed via the Heckman Creek Forest Service Road which leaves Highway #6 approximately 6km east of Cherryville, across from the Gold Pan Café. There is an extensive network of logging roads and relatively recent cut blocks which facilitate access within the drainage basin. Much of the logging activity has occurred after 1990. Alternative access to the headwaters of some of the tributaries is off the Kettle River main line logging road. Four-wheel drive vehicles are recommended, although much of the area can be accessed with two-wheel drive.

The area can be considered rugged for the most part. The lower two thirds of Heckman Creek is bounded by very steep slopes as is much of Big Goat Creek and Inches Creek. In addition prominent cliffs are formed by the younger plateau basalts, most noticeably on the east side of Heckman Creek. Forest cover consists of mature stands of lodgepole pine, Douglas fir, cedar, hemlock and larch, with one or more of these species predominating depending where you are in the basin.

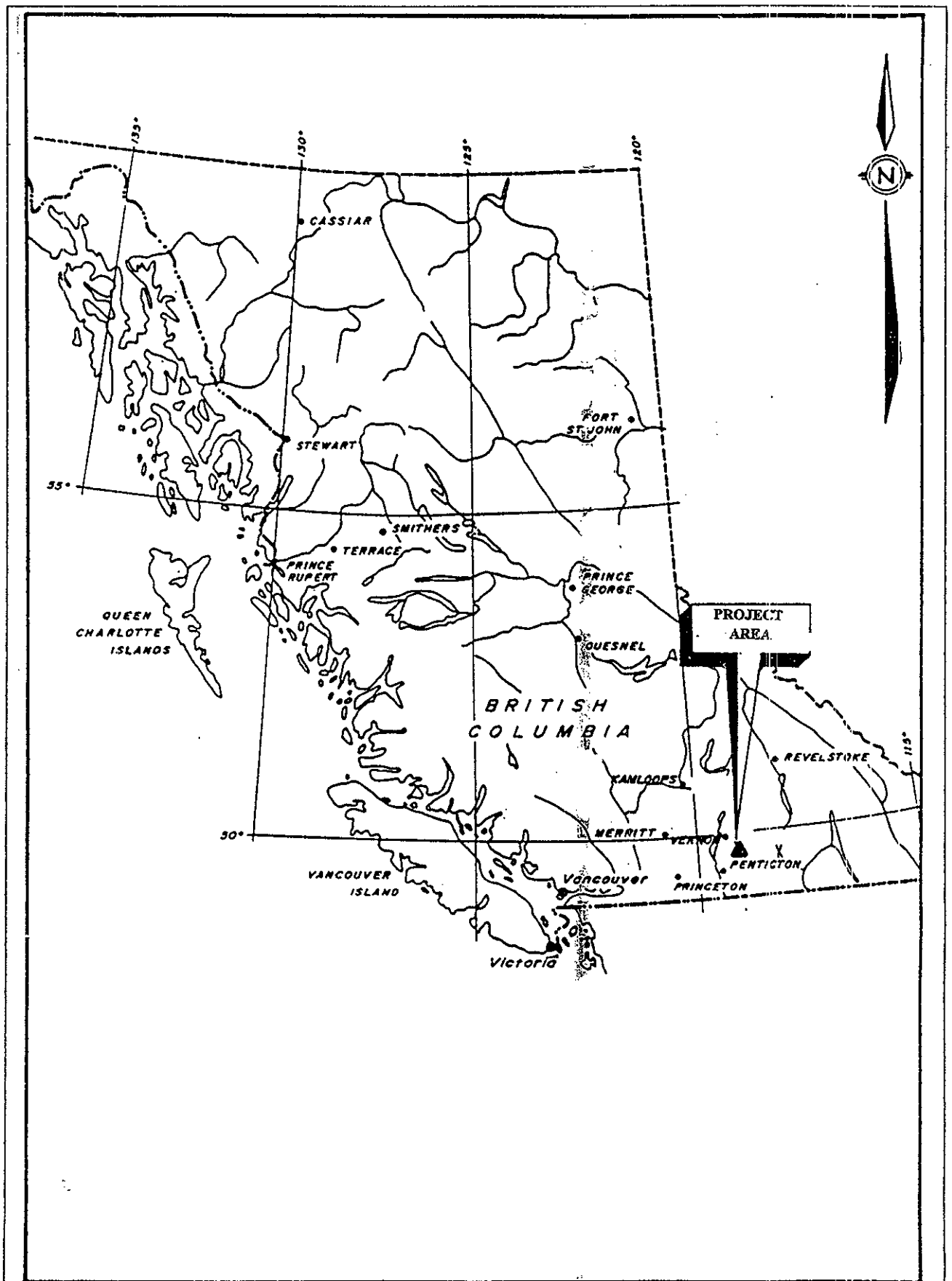

FIGURE 1 – LOCATION MAP

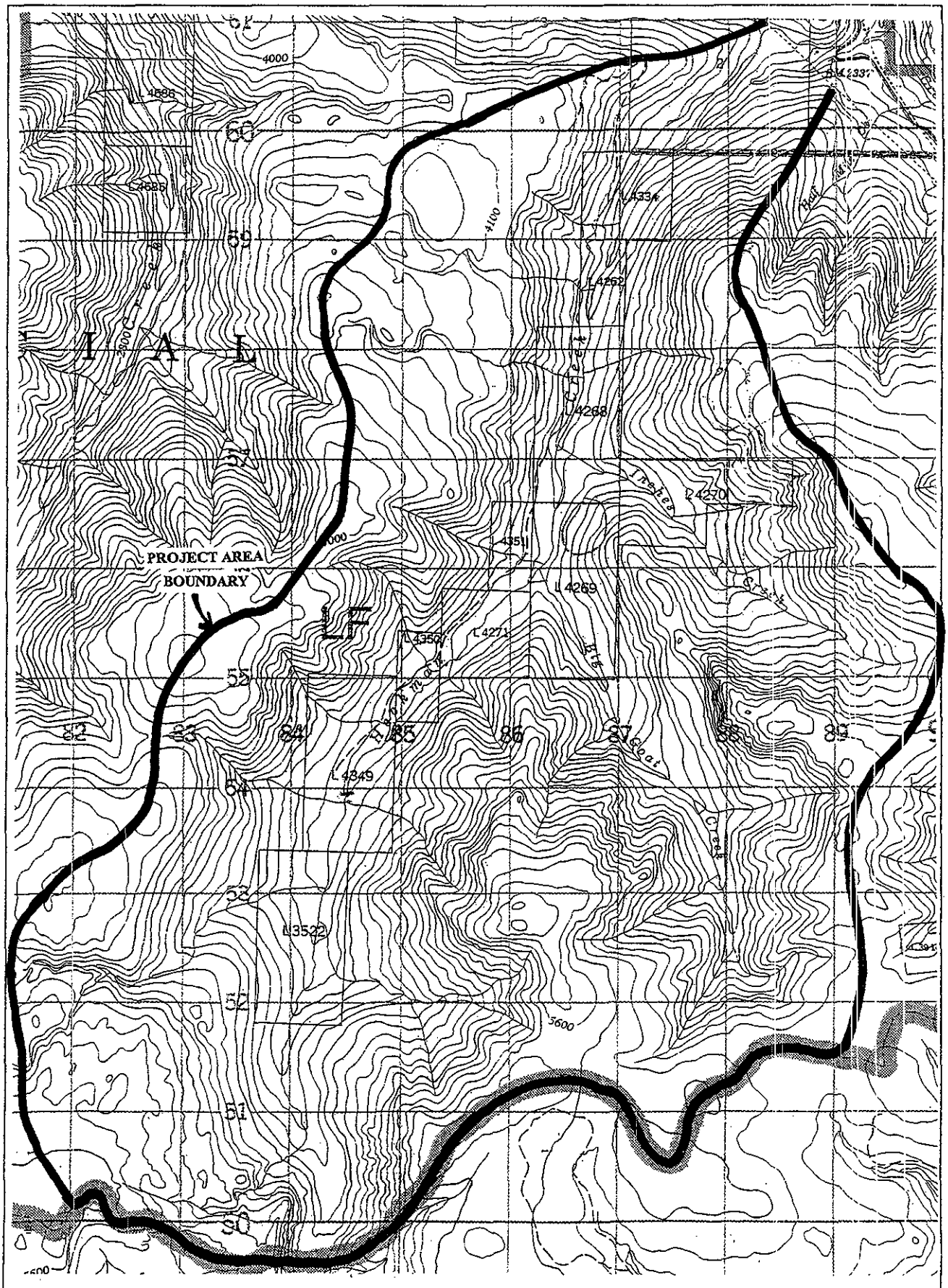

FIGURE 2 – HECKMAN CREEK DRAINAGE BASIN – 1:50,000

3.0 EXPLORATION HISTORY

The Heckman Creek drainage basin has had remarkably little exploration work according to the historical documentation available. Relatively minor amounts of placer gold were extracted near the mouth of Heckman Creek, (124grams gold). The only other significant work was done on the Pita 2 showing,(082LSE060), which was located on the north side of Inches Creek which is a tributary of Heckman. These claims are now lapsed, however a significant amount of work was carried out between 1981 and 1988, including soil geochemistry, mapping, trenching and drilling, (Christopher, 1987). The results of this work were poor with highlights of 195ppb Au in a grab sample and 2.5 g/tAg in a 15 centimetre chip sample from a trench. It appears that their work was concentrated on skarn occurrences associated with a contact between limestone and diorite. Inches Creek flows into Heckman Creek near the lower part of the Heckman Creek drainage. From Inches Creek southward there is no documented exploration work.

The governement RGS program collected one sample on Heckman Creek that was strongly anomalous in gold and copper at 130ppb Au and 190ppm Cu. Other samples further upstream from this point were not anomalous.

4.0 REGIONAL AND LOCAL GEOLOGY

The Heckman Creek area lies within the southern Omineca Crystalline Belt, an uplifted zone of variably metamorphosed and deformed Proterozoic to Tertiary rocks that straddle the boundary between accreted terranes and ancestral North America.

The oldest rock unit in the area is the Carboniferous to Permian Thompson Assemblage comprising argillaceous sediments, volcaniclastic rocks and limestone pods, the individual members of which are interdigitated on a relatively fine scale. The Thompson Assemblage represents an accreted terrain previously mapped as "Cache Creek Group". Intruding these rocks are large masses of Mesozoic granitoid rocks collectively referred to as the 'Nelson Batholith' and smaller intrusive masses of Cenozoic age. Capping all older rocks are Tertiary basaltic volcanics of the Kamloops Group, (Jones, 1959; Okulitch, 1979).

5.0 EXPLORATION PROGRAM

This prospecting proposal was focused on the collection of heavy mineral samples from streams contributing to the Heckman Creek drainage basin.in the search for gold. Limited historical work, particularly on Heckman Creek and Big Goat Creek suggested that this sampling method was valid and indeed superior to the collection of silt size stream sediments. In conjunction with heavy mineral sampling, some silt sampling, limited moss mat sampling and prospecting was carried out.

5.1 METHODOLOGY Heavy mineral sampling was conducted on any creek that appeared to carry water, even minor amounts. Many of these amounted to little more than ditches, yet when examining their drainage influence they may reflect a relatively large geological area. When doing heavy mineral sampling we found that one of the most important things to do was to try and get as deep as possible into the stream bed to collect the sample. We would collect approximately one half to three quarters of a five gallon pail of mixed sediment from as deep as possible in the stream bed. This would be screened first through a ¾" mesh and then once again through a ¼" mesh into a large gold pan. This material would then be panned down to approximately a tablespoon of heavy mineral concentrate. The mineralogy would be examined and any visible gold grains described. The sample would then be transferred into a plastic sample bag. Sample sites are all flagged with the relevant sample number and a GPS coordinate would be taken for the site. The entire heavy mineral concentrate was fire assayed for gold and the weight of the sample was given and the total amount of gold. There is a certain amount of subjectivity to comparing these gold values due to the variability in sample size. For plotting purposes and general comparisons the values were normalized to grams per tonne. This method seems to work, where there is no gold it is quite obvious and the exceptionally high samples stand out. Pan concentrate samples were prefixed with '**H00**', silt samples with '**SS00**', rock samples with '**R00**', and mossmat samples with '**M00**'. All samples and significant results are plotted on Fig. 3 (in pocket).

5.2 RESULTS – HEAVY MINERAL CONCENTRATES A total of 27 pan concentrate samples were collected. Of these 48% had no gold whatsoever, 30% were deemed strongly anomalous and 15% were highly anomalous. The most significant samples are listed below. All analyses are available in Appendix I.

Table 1 Significant Pan Concentrate Samples

Sample #	UTM COORDINATES*		SAMPLE COMMENTS	AU WEIGHT (gm)	SAMPLE WEIGHT (gm)	AU gm/t
	NORTHING	EASTING				
HOO4	5553946	384374	At least two pieces of visible gold, lots of magnetite, some red garnet	0.301	6.26	48
HOO5	5553990	387951	One piece of coarse visible gold and at least one piece of fine visible gold, lots of magnetite, some red garnet	0.615	4.67	132
H0024	5559090	386652	One piece of coarse gold (500-700μ), no magnetite, appreciable garnet	0.105	8.65	89
H0027	5554267	383854	One piece of coarse gold, two pieces of fine gold, minor magnetite and garnet.	0.168	2.68	62.7

- Note: GPS coordinates taken with a handheld GARMIN 12 receiver, set for NAD 83.

H004 was taken within Heckman Creek at the bridge at the 10.3 km point towards the headwaters of the creek. Interestingly, from this point upwards no significant values were obtained within either Heckman Creek or tributaries flowing into it. However, sample number H0027 is taken from a creek that on the maps is shown entering Heckman Creek below the point at which H004 was taken. In the field it looks like at some point this creek may in fact have entered Heckman at a point upstream from where H004 was taken and as such may be the source of the gold at H004. The drainage from which H0027 was collected has not yet been prospected but is considered a primary future

target. H005 was taken from a small tributary to Big Goat Creek flowing into Big Goat from the east. This was the best sample taken in the entire program. This small creek splits further upstream and both branches were sampled with only the one branch containing visible gold, H007 with a normalized value of 12 gm/t. This creek was prospected with no obvious source of the gold seen. This remains a high priority prospecting target. H0024 was taken from a small creek flowing into Heckman from the west. This had a relatively large piece of coarse gold in it. The corresponding silt sample (SS008) was also anomalous in gold at 215.4 ppb Au. This creek was prospected and found to actually dry up or disappear part way up the slope to the west. No source of this gold was found. In summary the heavy mineral sampling has resulted in three focused prospecting targets which have been partially prospected but require more work.

5.3 **RESULTS – SILT SAMPLING** Originally silt sampling wasn't part of the planned program but when it was decided to analyze the entire pan concentrate by fire assay it was felt that some silts would be in order to establish whether there was any trace element geochemistry that may correlate with gold in pan concentrates. In addition it was felt that silt sampling may detect any base metal anomalies. A total of ten silt samples were taken. By and large the silt sample data was uneventful. With few exceptions gold and trace elements were at background levels. However, sample numbers **SS006** and **SS008** were strongly anomalous in gold at 602.0ppb and 215.4ppb respectively. These correspond to anomalous gold in pan concentrates, (See H0024 and H0022). Sample number SS008 was also somewhat anomalous in copper at 110ppm.

5.4 **RESULTS – ROCK SAMPLING** A total of 21 rock samples were collected during general prospecting and heavy mineral sampling. Most of these samples were float boulders.

TABLE 2 ROCK SAMPLE DESCRIPTIONS

SAMPLE NUMBER	SAMPLE TYPE*	DESCRIPTION
R001	F	White quartz vein material with <1% fracture-controlled sphalerite and trace fracture-controlled chalcopyrite
R002	F	Small piece of angular, limonitic rock. On fresh surface rock is an aphanitic light grey to pinkish grey colour containing 5-7% disseminated silver-grey metallic mineral, possible arsenopyrite
R003	O	Large piece (50cm x 20cm) of strongly oxidized, limonitized quartz vein and quartz vein breccia with small amounts of unoxidized pyrite (<0.5%). 25% limonite/iron oxide.
R004	O	Similar to R003 but less oxidized; small amounts (<0.3%) of silver-grey metallic mineral, possible galena.
R005	F	Rusty weathering qtz sericite pyrite schist. Monderately to strongly foliated with 5-10% pyrite segregated along foliation planes
R006	O	15-20 cm. Wide quartz vein hosted in a biotite diorite. Contains 1-10% fracture-controlled pyrite plus strong limonite-coated fractures.
R007	F	15cm x 15cm angular quartz vein float; contains 2% fracture-controlled pyrite and trace fracture-controlled medium grey metallic tabular mineral, (possible arsenopyrite?)
R008	F	Same location as R007; 35cm x 15cm x 15cm piece of crackle-brecciated to brecciated white quartz vein material with strong fracture-controlled limonite. Trace pyrite on fractures and in quartz fragments.
R009	O	Subcrop rubble of a medium grained monzonite to granodiorite cut by a set of parallel quartz +/- pyrite (now mostly limonite) veinlets up to 1cm wide. Veinlets display vuggy to coxcomb texture in places. In more intensely altered pieces, feldspars partially altered to clay.
R0010	F	Large piece (45cm x 55cm x 25cm) of angular quartz vein float with well-developed limonite on fractures; <1% fracture-controlled pyrite and minor drusy/vuggy cavities.

R0011	F	Large piece (20cm x 15cm x 15cm) of quartz vein, somewhat rounded, with well-developed limonite on fractures, notable was one set of parallel fractures 0.5 to 1cm apart; Also contains 1-2% coarse fracture-controlled pyrite.
R0012	O	4 metre continuous chip sample across highly contorted grey carbonaceous phyllite with bedding parallel quartz carbonate lenses.
R0013	O	Poorly exposed quartz vein on high side of road. Material is white quartz with argillaceous partings. No visible sulphides.
R0014	F	Coarse grained quartz vein with moderate limonitic fractures; 1-2% fracture-controlled pyrite with trace fracture-controlled sphalerite. Hosted by grey siliceous metasediments.
R0015	F	Quartz/feldspar granite pegmatite vein? No visible sulphides.
R0016	F	Quartz/feldspar pegmatite
R0017	F	Quartz/feldspar pegmatite with moderate to strong hematite staining
R0018	F	Pegmatitic quartz vein with coarse pyrite hosted by garnet bearing granite.
R0019	F	Strongly limonite-stained, sucrosic-textured quartz vein with weak 'layering'; Also medium grey-coloured 'frothy' oxidized layers; No visible sulphides.
R0020	F	Quartz/feldspar/muscovite +/- garnet pegmatite. No visible sulphides
R0021	F	Light grey, fine-grained quartz vein with 10% limonite on fractures and in vugs; No visible sulphides.

- F – float sample, O – outcrop sample

5.5 RESULTS – MOSS MAT SAMPLING One mossmat sample was taken (M001) in conjunction with pan concentrate sample H0011. This sample was perhaps weakly anomalous in gold at 11.6ppb. The reason for taking a mossmat at this site was that the creek had large amounts of sericite schist float in it and no silt to collect. We were looking for potential base metal anomalies.

6.0 CONCLUSIONS AND RECOMMENDATIONS

While this prospecting grant was not completed, the work that was done resulted in some interesting heavy mineral gold anomalies that require further follow-up. See also Fig. 3.

ANOMALY A: This anomaly is represented by pan concentrate samples H005 and H007 which were strongly anomalous in gold. The discovery of nearby quartz veins with strongly anomalous silver lead and bismuth (Samples R003,4) suggest the presence of a mineralizing hydrothermal system. Further prospecting is warranted with the addition of reconnaissance contour soil sampling to discover the source of the gold in the streams.

ANOMALY B: This anomaly is represented by pan concentrate sample H0027 which was strongly anomalous in gold with good coarse gold from a very small almost dry stream bed. This creek has never been prospected and the upper reaches of this creek lie close to the contact with the Nelson type intrusions and sedimentary rocks of the Thompson Assemblage including limestones. This environment would be prospective for skarn type gold deposits. In addition this is the southern most tributary of Heckman Creek that carries gold as evidenced from our sampling.

ANOMALY C: This anomaly is represented by pan concentrate sample H0024 and SS008 both of which were strongly anomalous in gold. This creek was prospected upslope until it dried up and disappeared with no indication of mineralization, however the gold was there. The geology in this area is poorly understood. Perhaps reconnaissance contour soil sampling across this drainage may be effective along with further prospecting.

7.0 **REFERENCES**

Christopher, P. A., 1987: Geological, Geochemical and Geophysical Report on the PITA claims, (PITA 1-8, 10-16, 20-29). Assessment Report #15,878.

Nelles, D.M., 1986: Geochemical Report on the Aim Property. Assessment Report #15461

Jones, A.G., 1959: Vernon map-area, British Columbia; Geol. Surv. Can., Memoir 296

Jones, H.M., 1988: A Report on the Pita 2 and 5 Claims, Part of Pita II Group, Heckman – Monashee Pass Creeks, Vernon Area. Assessment Report #18,071.

Okulitch, A.V., 1979: Geology and Mineral Deposits of the Thompson-Shuswap-Okanagan Region. Parts of 82 and 92. Map 1:250,000. GSC Open File 637.

Read, P. B. 1979: Geology and Mineral Deposits, Eastern Part of Vernon East-Half, British Columbia, GSC Open File 658.

APPENDIX I

ANALYTICAL RESULTS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Augsten, Bernie PROJECT BAH001 File # A002496

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: Bernie Augsten

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au* ppb
SS001	.5	16	6	67	<.1	20	7	465	2.56	2	3	<2	4	85	.3	<.5	1.0	72	.64	.120	16	23	.66	99	.070	<1	1.14	.015	.11	3	<1	3.7	<1	.02	7	2.8
SS002	.4	24	8	75	.1	53	10	769	2.57	2	6	<2	2	100	.2	<.5	<.5	87	1.00	.085	25	46	1.25	98	.043	1	1.68	.012	.11	1	<1	6.0	<1	.03	9	6.0
SS003	.2	14	6	56	<.1	12	4	379	1.96	1	5	<2	3	87	.3	<.5	<.5	54	.64	.095	20	14	.46	84	.046	<1	1.31	.013	.08	1	<1	3.7	<1	.03	7	3.9
SS004	.3	17	5	56	<.1	25	8	489	2.24	2	2	<2	3	90	.2	<.5	.6	58	.58	.119	16	27	.76	83	.072	<1	1.11	.015	.11	<1	<1	3.7	<1	.01	7	1.8
SS005	1.0	22	7	73	<.1	22	9	595	2.64	2	3	<2	4	108	.3	<.5	4.3	81	.78	.145	18	23	.71	123	.080	<1	1.25	.019	.12	5	<1	4.2	<1	.02	8	3.1
SS006	.5	31	8	77	.2	23	11	604	2.79	5	2	<2	1	90	.2	<.5	.7	84	.73	.100	15	28	.92	164	.105	<1	1.53	.019	.15	1	<1	6.1	<1	.03	9	602.0
SS007	.3	30	6	56	.1	56	13	492	2.52	5	1	<2	1	60	.3	<.5	<.5	71	.72	.085	11	44	1.23	84	.085	<1	1.44	.019	.09	<1	<1	5.3	<1	.01	8	14.7
SS008	.8	110	7	60	.2	14	8	433	2.06	15	1	<2	<1	43	.7	1.0	<.5	44	1.29	.051	4	18	.82	68	.056	2	1.10	.007	.05	<1	<1	3.5	<1	.05	7	5.1
RE SS008	.8	113	8	66	.3	16	9	468	2.27	16	1	<2	<1	45	.7	.7	<.5	50	1.34	.053	4	20	.92	72	.068	1	1.22	.008	.05	<1	<1	3.9	<1	.05	7	215.4
STANDARD DS2	14.4	126	32	159	.2	38	11	818	2.98	61	27	<2	5	31	12.0	11.0	11.0	78	.55	.093	17	165	.61	152	.100	4	1.66	.032	.17	8	<1	4.7	2	.03	9	228.7

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
- SAMPLE TYPE: SILT AU* BY ACID LEACHED, ANALYZE BY ICP-MS. (10 gm) Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 21 2000 DATE REPORT MAILED: Aug 2/00 SIGNED BY. C. Leong ..D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Augsten, Bernhardt PROJECT BAH001 File # A002032

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: B. Augsten

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au* ppb
M001	.8	71	14	107	.2	8	7	432	1.72	11	<1	<2	<1	72	.6	.6	<.5	29	13.54	.067	4	11	.52	63	.028	2	.87	.007	.07	<1	<1	2.7	<1<.01	3	11.6

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
- SAMPLE TYPE: MOSS MAT AU* BY ACID LEACHED, ANALYZE BY ICP-MS. (10 gm)

DATE RECEIVED: JUN 27 2000 **DATE REPORT MAILED:** July 7/00 **SIGNED BY** C. Leong .D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

 Data FA

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

Augsten, Bernhardt PROJECT BAH001 File # A002030

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: B. Augsten

SAMPLE#	Au** mg	Sample gm
H001	<.001	4.87
H002	<.001	6.53
H003	<.001	9.45
H004	.301	6.26
H005	.615	4.67
H006	<.001	7.95
H007	.123	10.27
H008	.071	7.35
H009	.001	12.54
H010	<.001	5.39
H011	<.001	10.43
STANDARD AU-1	.102	14.60

GROUP 6 - PRECIOUS METALS BY FIRE ASSAY FROM TOTAL SAMPLE, ANALYSIS BY ICP-ES.
- SAMPLE TYPE: PAN CONC.

DATE RECEIVED: JUN 27 2000 **DATE REPORT MAILED:** July 7/00 **SIGNED BY:** C. Leong D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA 4m

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Augsten, Bernhardt PROJECT BAH001 File # A002031

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: B. Augsten

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au* ppb
R001	3.3	1284	4447	5010	42.7	3	1	98	1.41	9	<1	<2	1	11	21.1	25.3	1.7	4	.02	.014	1	15	.19	25	.027	6	.20	.004	.07	5	4	.4	<1	.91	1	89.4
R002	.8	82	28	131	.3	3	20	486	5.36	<1	<1	<2	3	35	.2	<.5	.5	46	.83	.077	4	4	1.85	89	.266	3	2.35	.048	.07	<1	<1	3.2	<1	1.62	5	<.2
R003	5.7	230	1802	79	34.1	3	1	51	2.31	7	<1	<2	1	4	1.1	<.5	65.1	11	.01	.004	1	29	.04	6	.003	2	.08	.010	.03	7	<1	.3	<1	.17	<1	71.0
R004	2.3	52	1489	35	21.4	3	1	32	1.83	7	<1	<2	<1	3	.3	<.5	34.4	4	.01	.002	<1	21	.01	13	.002	3	.03	.009	.07	6	<1	<.1	<1	.39	<1	41.5
R005	2.5	58	44	26	3.8	4	6	105	2.48	44	<1	<2	2	4	<.2	2.7	1.1	12	.02	.034	3	8	.03	104	.162	1	.38	.015	.23	<1	<1	2.6	<1	.50	<1	25.6
R006	2.4	122	12	14	.8	9	6	101	2.84	16	<1	<2	1	<1	<.2	<.5	1.2	8	.02	.006	1	18	.09	11	.003	5	.30	.004	.03	6	<1	.3	<1	1.03	<1	11.7
RE R006	2.4	122	11	15	.8	10	7	102	3.01	17	<1	<2	2	1	<.2	<.5	1.2	8	.02	.006	3	21	.09	11	.002	3	.30	.004	.03	6	<1	.3	<1	1.07	<1	10.5

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* BY ACID LEACHED, ANALYZE BY ICP-MS. (10 gm) Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUN 27 2000 **DATE REPORT MAILED:** July 7/00 **SIGNED BY** ..... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Augsten, Bernie PROJECT BAH001 File # A002495

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: Bernie Augsten

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au* ppb
R007	8.4	110	673	4653	12.5	4	<1	532	.67	4	<1	<2	1	34	103.2	<.5	890.1	1	1.05	<.001	<1	45	.01	16	.001	8	.03	.006	.01	252	1	.6	<1	.44	<1	72.0
R008	376.3	23	1133	218	25.0	4	<1	103	.93	3	2	<2	1	1	2.3	3.3	1803.2	4	.02	.003	<1	52	.01	5	<.001	2	.04	.004	.01	23	1	.2	<1	.07	<1	80.6
R009	7.9	7	36	56	.8	2	<1	44	1.37	1	1	<2	4	15	.8	<.5	23.9	9	.09	.049	8	15	.05	47	.001	3	.38	.039	.25	6	<1	.9	<1	.17	4	15.6
R0010	8.5	16	85	136	.8	4	2	41	1.00	8	<1	<2	<1	1	1.0	1.5	12.9	1	.01	.001	<1	28	<.01	7	<.001	3	.02	.003	.01	9	<1	<.1	<1	.30	2	6.7
R0011	6.2	14	21	52	.3	3	3	36	.90	4	<1	<2	<1	1	.3	.5	4.4	<1	.01	<.001	<1	31	<.01	2	<.001	<1	.02	.005	<.01	9	<1	<.1	<1	.33	2	81.7
R0012	1.9	55	15	137	.7	74	8	403	3.12	12	<1	<2	<1	583	1.2	1.9	1.5	18	8.49	.070	3	16	1.77	175	<.001	<1	.42	.024	.13	1	<1	7.0	<1	.09	8	8.8
RE R0012	1.9	54	14	137	.7	75	9	404	3.13	12	<1	<2	<1	586	1.3	2.1	1.0	18	8.52	.071	3	17	1.78	175	<.001	<1	.42	.025	.13	1	<1	7.0	<1	.09	8	8.7

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* BY ACID LEACHED, ANALYZE BY ICP-MS. (10 gm) Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 21 2000 **DATE REPORT MAILED:** Aug 3/00 **SIGNED BY.** C. Leong D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

Augsten, Bernie PROJECT BAH001 File # A002494

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: Bernie Augsten

SAMPLE#	Au** mg	Sample gm
H0012	<.001	2.69
H0013	.013	6.25
H0014	<.001	7.00
H0015	.011	4.46
H0016	<.001	6.43
H0017	<.001	4.41
H0018	<.001	4.18
H0019	.017	2.65
H0020	.019	6.77
H0021	.004	3.77
H0022	.004	2.03
H0023	.040	3.15
H0024	.105	1.18
STANDARD AU-1	.103	29.20

GROUP 6 - PRECIOUS METALS BY FIRE ASSAY FROM TOTAL SAMPLE, ANALYSIS BY ICP-ES.
- SAMPLE TYPE: PAN CONC.

DATE RECEIVED: JUL 21 2000 **DATE REPORT MAILED:** July 26/00 **SIGNED BY** C. Leong D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.)
852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Augsten, Bernie PROJECT BAH001 File # A003583

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: Bernie Augsten

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au* ppb
SS009	1.1	32	9	67	.1	33	13	683	2.88	3	2	<2	4	120	<.2	.5	1.4	88	.93	.164	19	25	.94	126	.105	<1	1.39	.027	.15	4	<1	4.6	<1	.01	6	1.1
SS0010	1.3	67	8	92	.3	33	13	597	2.84	2	2	<2	4	50	.3	.9	.7	76	1.02	.078	15	29	.85	132	.093	<1	1.80	.014	.31	1	<1	5.6	<1	.04	7	7.9
RE SS0010	1.2	63	7	88	.3	32	12	585	2.70	4	2	<2	4	49	.2	.5	<.5	75	.99	.079	15	29	.85	127	.094	<1	1.73	.014	.31	<1	<1	5.6	<1	.04	7	5.7

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
- SAMPLE TYPE: SILT SS80 60C AU* BY ACID LEACHED, ANALYZE BY ICP-MS. (10 gm)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 14 2000 **DATE REPORT MAILED:** Oct 2/00 **SIGNED BY.** C. Leong .D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Augsten, Bernie PROJECT BAH001 File # A003582

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: Bernie Augsten

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au* ppb
R0013	6.4	6	22	286	1.1	8	<1	78	.48	491	<1	<2	1	15	17.0	<.5	3.5	2	.13	.004	<1	24	.01	21	<.001	<1	.03	.010	.02	3	<1	.3	<1	.01	<1	3.2
R0014	1.0	63	2	7	.2	16	4	138	1.07	2	<1	<2	1	86	.3	.7	<.5	9	2.16	.049	2	18	.13	89	.018	2	2.90	.056	.02	3	<1	2.0	<1	.33	10	1.2
R0015	3.5	3	4	8	<.1	4	<1	104	.30	3	3	<2	3	4	.3	<.5	1.7	<1	.09	.049	2	13	.02	10	.002	1	.23	.030	.11	1	<1	.3	<1	<.01	1	1.7
R0016	.5	4	10	4	<.1	3	<1	74	.22	1	4	<2	4	7	<.2	<.5	<.5	<1	.08	.015	5	11	.01	20	<.001	2	.18	.045	.15	4	<1	.2	<1	<.01	1	.5
R0017	2.9	2	6	5	<.1	3	<1	31	.27	1	2	<2	2	5	.2	<.5	3.3	<1	.02	.013	1	11	.01	6	.001	2	.15	.040	.12	1	<1	<.1	<1	<.01	<1	2.3
R0018	1.0	9	7	8	.3	4	<1	67	.56	1	7	<2	4	9	.2	<.5	.8	2	.06	.016	4	11	.02	11	.001	<1	.18	.053	.07	5	<1	.2	<1	.01	1	1.5
R0019	11.1	5	3	7	.1	6	<1	41	1.08	8	<1	<2	1	5	.3	.7	.6	4	.01	.009	2	21	.01	37	.001	2	.10	.009	.09	2	<1	.8	<1	.07	<1	6.7
R0020	.4	1	5	4	<.1	2	<1	47	.24	<1	18	<2	5	3	<.2	<.5	.6	<1	.04	.011	3	11	.01	7	.001	2	.16	.056	.05	4	<1	.2	<1	<.01	1	1.3
R0021	5.3	13	12	67	.2	13	8	478	1.90	4	1	<2	3	18	.8	<.5	<.5	35	.57	.080	13	14	.08	31	.001	3	.35	.003	.04	1	<1	5.4	<1	.07	1	.8
RE R0021	5.2	13	12	64	.2	13	8	478	1.90	4	1	<2	3	18	.8	<.5	<.5	35	.58	.081	13	14	.08	32	.001	3	.35	.002	.04	1	<1	5.5	<1	.08	1	.9

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK R150 60C AU* BY ACID LEACHED, ANALYZE BY ICP-MS. (10 gm)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 14 2000 **DATE REPORT MAILED:** Sep 29/2000 **SIGNED BY.** J. Wang .D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

Augsten, Bernie PROJECT BAH001 File # A003581

R.R. #3, S-16, C-10, Nelson BC V1L 5P6 Submitted by: Bernie Augsten

SAMPLE#	Au** mg	Sample gm
H0025	<.001	1.71
H0026	.005	8.65
H0027	.168	2.68

GROUP 6 - PRECIOUS METALS BY FIRE ASSAY FROM TOTAL SAMPLE, ANALYSIS BY ICP-ES.
- SAMPLE TYPE: PAN CONC.

DATE RECEIVED: SEP 14 2000 **DATE REPORT MAILED:** Sept 25/00 **SIGNED BY** ..... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Bernhardt E.K. Augsten of the City of Nelson, British Columbia, hereby certify that:

1. I am a graduate of Carleton University with a B.Sc. Hons. in Geology (1985)

2. I am presently self-employed as a Consulting Geologist

3. I have practised as a geologist for the last 13 years in Ontario, Quebec, Manitoba, British Columbia, Arizona and Mexico

4. I conducted and supervised the exploration work on this project.

5. I have worked on several other projects in southern British Columbia over the last eleven years

6. I am a registered Professional Geoscientist, registered in the Province of British Columbia.

Bernhardt Augsten P.Geo.

118°36'00"
50°12'00"
381000 382000 383000 384000 385000 386000 387000 388000 389000 390000 391000
5561000 5560000 5559000 5558000 5557000 5556000 5555000 5554000 5552000 5550000

R0013, 286 ppm Zn, 491 ppm As,
R0012, 8.8 ppb Au
R002, 131ppm Zn, 486 ppm Mn,
ANOMALY C
H0025, <.001gm/t Au
H0024, 89.0 gm/t Au
SS008, 215.4 ppb Au
H0023, 12.7 gm/t Au
SS007, 14.7 ppb Au
H0011, <.001 gm/t Au
M001, 11.6 ppb Au
R005, 25.6 ppb Au, 44 ppm As,
H0021, 1.1 gm/t Au
H0010, <.001 gm/t Au
H0022, 2.0 gm/t Au
SS006, 602.0 ppb Au
ANOMALY B
ANOMALY A
H0027, 62.7 gm/t Au
SS0010, 7.9 ppb Au
H004, 48 gm/t Au
H006, <0.001 gm/t Au
H007, 12 gm/t Au
H005, 132 gm/t Au
R003, 1802 ppm Pb, 34.1 ppm Ag, 65.1 ppm Bi, 71.0 ppb Au
R004, 1489 ppm Pb, 21.4 ppm Ag, 34.4 ppm Bi, 41.5 ppb Au
R0014, 1.2 ppb Au
R0015, 1.7 ppb Au
R0016, 0.5 ppb Au
R0017, 2.3 ppb Au
R0018, 1.5 ppb Au
R0019, 6.7 ppb Au, 11.1 ppm Mo
R0020, 1.3 ppb Au
R0021, 0.8 ppb Au
H0012, <.001 gm/t Au
R006, 11.7 ppb Au
H009, 0.10 gm/tAu
H008, 10 gm/t Au
H001, <0.001gm/t Au
SS005, 3.1ppb Au
R001, 1284 ppm Cu, 4447 ppm Pb, 5010 ppm Zn, 42.7 ppm Ag, 89.4 ppb Au
R007, 4653 ppm Zn, 673 ppm Pb, 12.5 ppm Ag, 890.1 ppm Bi, 72.0 ppb Au
R008, 25.0ppm Ag, 1802.2 ppm Bi,
H0013, 2.1 gm/t Au
SS001, 2.8 ppb Au
H003, <0.001gm/t Au
H0026, 0.6 gm/t Au
SS009, 1.1 ppb Au
H0017, <.001 gm/t Au
H0016, <.001 gm/t Au
R0010, 6.7ppb Au
H0015, 2.5 gm/t Au
SS003, 3.9 ppb Au
H0018, <.001 gm/t Au
R0011, 81.7 ppb Au
R009, 23.9 ppm Bi, 15.6 ppb Au
H0014, <.001 gm/t Au
SS002, 6.0 ppb Au
H0020, 2.8 gm/t Au
SS004, 1.8 ppb /Au
H0019, 6.4 gm/t Au
FERRY CREEK FSR
INCHES FSR
NEOWALL CREEK FSR
MCNAUGHTON CREEK FSR

HECKMAN CREEK PROJECT

▲ Sample Location

H001 – Pan concentrate sample

SS001 – Silt Sample

R001 – Rock Sample (either outcrop or float)

M001 – Mossmat Sample

• • • Prospecting Traverses

— ANOMALY

MAP SHEET #S: 082L.017, 082L.018

0 1
KILOMETRE

1:20,000

Fig. 3

00-49 (1)