Kennecott Canada Inc.

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# ASSESSMENT REPORT

# ON THE

# WHITEMAN 1, 2, AND III CLAIMS

Vernon Mining Division

Latitude: 50°13'00 north Longitude: 119°38'00 west

NTS: 82L 04/E

JUL 29 1991 VER, B

Prepared by:

Kerry M. Curtis Russ L. Cranswick

June 20, 1991

## TABLE OF CONTENTS

Pa	'n	
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1.0	Introduction
2.0	Location, Access and Physiography1
3.0	List of Claims
4.0	Area History
5.0	Regional Geology 5
6.0	Property Geology
7.0	Geochemistry
	<ul> <li>7.1 Trace elements</li> <li>7.2 Soil geochemistry</li> <li>7.3 Lithogeochemistry</li> </ul>
8.0	Conclusions
9.0	References

## LIST OF APPENDICES

Appendix 1	Itemized Cost Statement
Appendix 2	Analytical Results
Appendix 3	Analytical Procedures
Appendix 4	Statement of Qualifications

.

#### LIST OF FIGURES

In Text Figure 1 Figure 2 Figure 3	Location Map					. 3	
Figure 3 Figure 4	Regional Geology (1:250,000).	· G· E·Ø	LOG	81 C	ALT	BRA	N C H
Figure 5	Property Geology (1:10,000)						
Figure 6	Sample Location and Anomalous Results (1:10,000)	$\mathbf{O}$	Л	<b>,</b>			6
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## 1.0 INTRODUCTION

A program consisting of reconnaissance geological mapping, rock sampling and geochemistry was conducted on the Whiteman 1,2 and III claims from May 27 to May 31, 1991. The program was designed to identify possible epithermal type gold bearing structures on the property. The interest in this program was generated, in part, by reports (Huntington, 1988) of strong gold mineralization on the adjacent Brett claims owned by Huntington Resources.

## 2.0 LOCATION, ACCESS AND TOPOGRAPHY (see Figures 1 and 2)

The Whiteman claims are located approximately 30 km southwest of Vernon, B.C. on the western side of Okanagan Lake. Whiteman Creek, a 20 km long creek which flows along the northern boundary, drains eastward into Okanagan Lake. Access to the claims is via Westside Road, along Okanagan Lake, to Whiteman Main logging road. The eastern property boundary occurs at approximately the 18 km marker on Whiteman Main.

The claims cover a portion of the north facing drainage of Whiteman Creek. Elevations on the property range from 3200 feet to 4800 feet with thick cover of fir, cedar and dense underbrush.

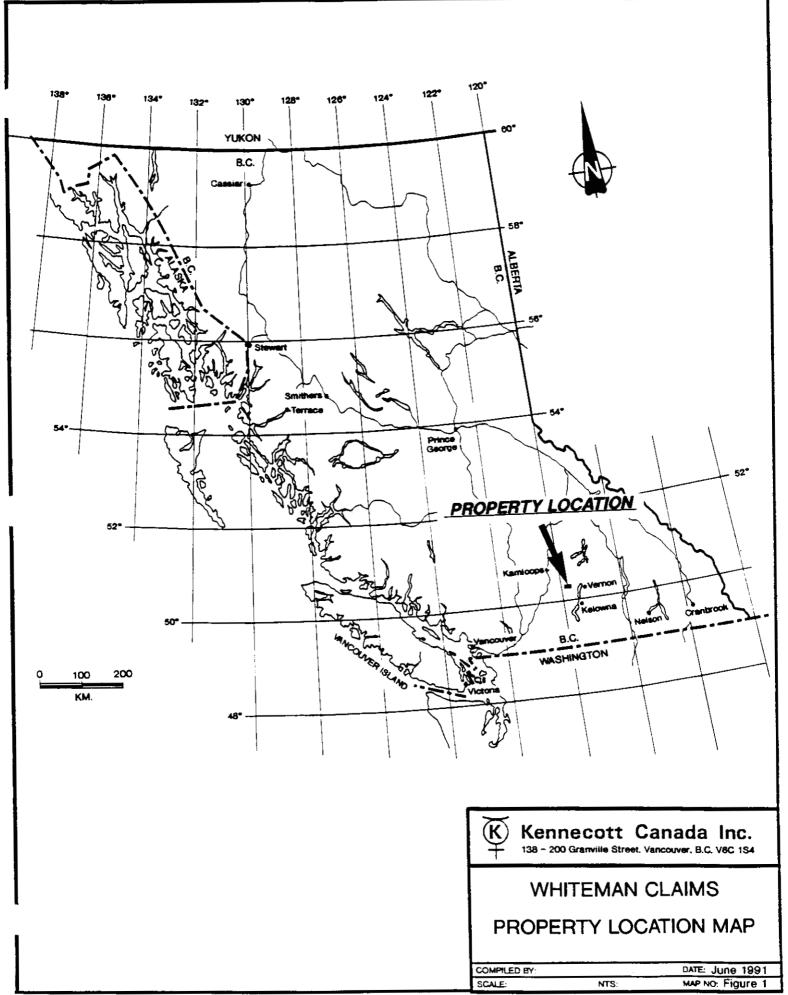
### 3.0 LIST OF CLAIMS (see Figures 2 and 3)

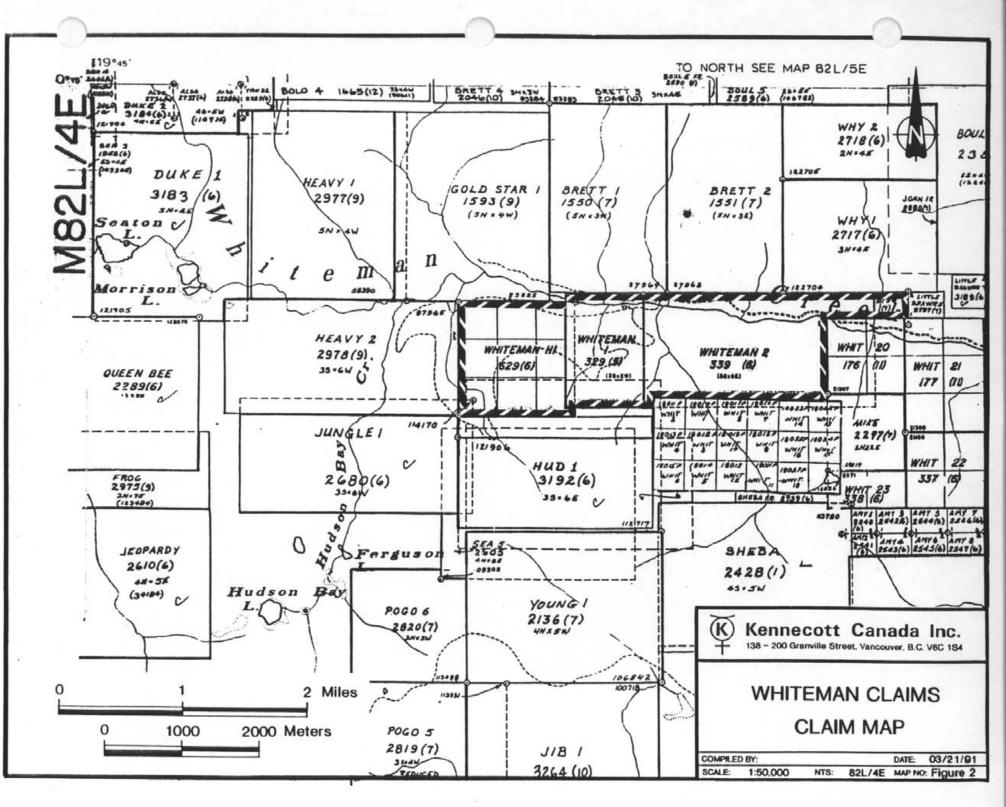
The Whiteman property consists of three contiguous mineral claims comprising 33 units. The claims were grouped in 1979 under the title Whiteman #1 Group. Ownership of the Whiteman 1, 2 and III claims is presently held by Kennco Explorations, (Western) Ltd. The claims fall under the jurisdiction of the Vernon Mining Division.

<u>Claim</u>	Record #	<u>Units</u>	Date of Record	Date of Expiry
Whiteman 1	329	6	May 30, 1977	May 30, 1992
Whiteman 2	339	18	June 14, 1977	June 14, 1992
Whiteman III	629	9	June 13, 1979	June 13, 1992
Total Units		33		

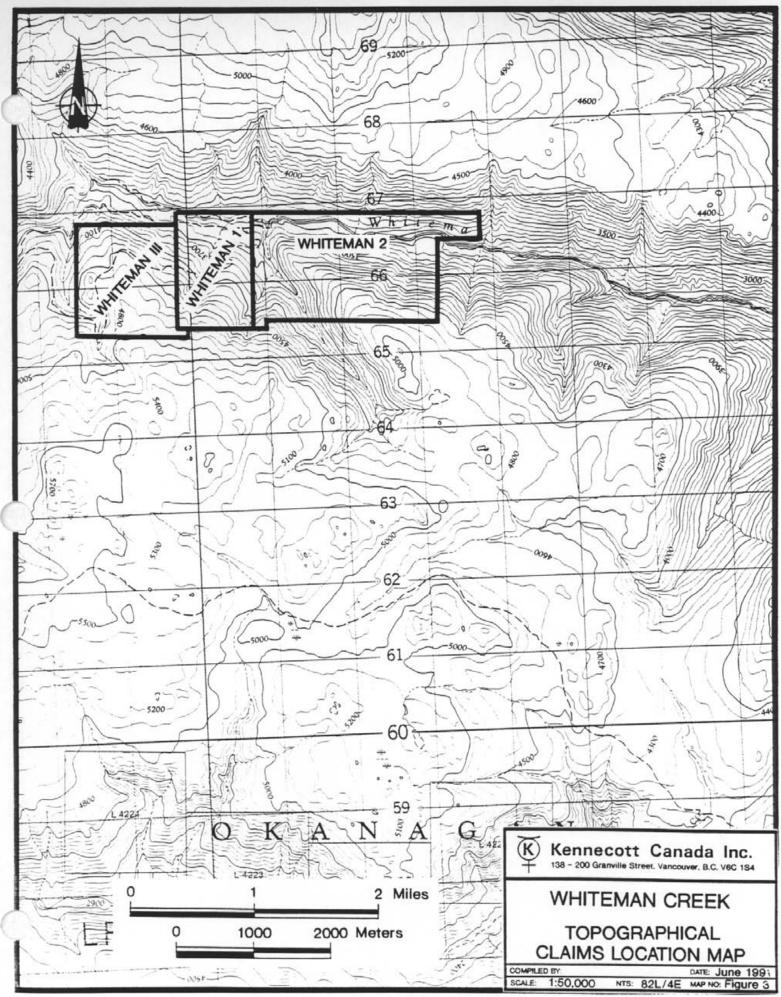
#### 4.0 AREA HISTORY

The earliest recorded activity in the Whiteman Creek area was in the form of placer gold workings. As early as 1898 hydraulic gold mining occurred near the mouth of Whiteman Creek and continued until the early 1920's. No lode sources to these placer occurrences were ever reported.





Page 3



Page 4

The area covered by the Whiteman 1 and 2 claims was first staked in 1973 based on the results of a regional stream geochemical program initiated by Kennco during 1960. Initially, the area was defined as a porphyry Mo-Cu target based on favourable geology, anomalous molybdenum and uranium levels. Evaluation of the property was initiated during 1973 by the staff of Kennco Explorations (Western) and subsequently the claims were allowed to lapse.

During 1977 Kennco staff re-evaluated and re-staked the area now defined by the Whiteman 1 and 2 claims and proposed further work based on anomalous molybdenum and fluorine values.

In 1979 the Whiteman III claim was staked and grouped with the Whiteman 1 and 2 claims. For several years following, a variety of work including rock and soil sampling, geophysics and diamond drilling was completed by Arcturus Mines Ltd who held the property under option. In 1981 all interest in the Whiteman 1, 2 and III claims was returned to Kennco Explorations (Western) Ltd.

## 5.0 <u>REGIONAL GEOLOGY (Figure 4)</u>

Recent initiatives (Meyers, 1989) by the B.C. Geological Survey Branch indicate the western side of Okanagan Lake is underlain by basal units of the Devonian to Triassic Harper Ranch group (DTrh), a series of allocthonous intermediate volcanics and sediments. Subsequent intrusions of hornblende quartz diorite (mKg) of Middle Jurassic age are locally evident.

Crustal extension during the Eocene produced the dominantly mafic volcanic and lesser sedimentary rocks of the Kamloops Group which are extensive along the western side of Okanagan Lake. Alkalic to calc-alkalic syenites correlated to the Coryell Series intrusives (Meyers, 1989) are also locally evident (Whiteman Stock) and are likely sources of heat and fluids for Eocene mineralizing events.

Late (post Eocene) structural trends are represented by north-west and north-east directed faulting associated with the Louis Creek Fault.

#### 6.0 **PROPERTY GEOLOGY (Figure 5)**

Reconnaissance scale mapping on the Whiteman claims confirmed the regional stratigraphic model proposed by Meyers (1989) in the previous section. The following is a description of rock types encountered on the property during 1991.

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#### Stratigraphy

Basal units of the Harper Ranch Group are not evident on the property. The oldest rocks identified on the property are correlated to the Eocene Kamloops Group volcanics. In the property area this series of upright mafic to intermediate flows and volcaniclastics is generally flat lying. Syenitic components of the Whiteman Stock (Coryell Syenite) dominate the Whiteman 1 claim, and are assumed to intrude the overlying Eocene volcanic package.

At the northwest corner of the Whiteman 1 claim, a strongly altered and locally stockwork veined (felsic ?) porphyry occurs adjacent to the Whiteman Stock (Figure 5). It is assumed that this is an associated phase of the Whiteman Stock and thus related to the felsic dike associated with mineralization at the Brett claims (News Release, Huntington, 1988).

#### Structure

North to northwest trending, steeply dipping, faults were identified in 1988 by the staff of Lacana/Huntington Resources on the adjoining Brett claims (Gruenwald, 1989). These post Eocene structures were identified as the host to gold mineralization in the area. Strike projection of these gold bearing structures intersects the extreme north west corner of the Whiteman 2 claim.

Reconnaissance geology identified an area of intense shearing and associated limonitic/sericitic alteration located approximately at the point of projected intersection. Width of the zone exceeds 70 meters, however, orientation of the shearing was not identified.

#### 7.0 <u>GEOCHEMISTRY</u>

During reconnaissance traverses a total of 41 rock samples were collected. Of these 39 were analyzed for gold plus an additional 32 element using ICP analysis and two rock samples were submitted for whole rock (7 major oxides) analysis.

In addition to rock sampling, two reconnaissance soil lines were sampled over areas of limited outcrop and limited previous work on the Whiteman III claim.

Sample locations and anomalous geochemical results are presented in Figure 6. Analytical results and procedures are provided in appendices.

#### 7.1 TRACE ELEMENT GEOCHEMISTRY

Reconnaissance scale rock sampling was conducted to test for anomalous levels of Au, Ag, Cu and Pb reported to occur with gold mineralization on the adjoining Brett claims (Huntington, 1988). A total of 39 rock chip samples were collected over all three claims and sent to Eco-Tech Laboratories of Kamloops B.C. for gold plus 32 element ICP analysis. Sample locations and anomalous results are presented in Figure 6 and complete analytical results are provided in appendices.

Analytical results suggest an absence of surface mineralization at the locations sampled. Weakly anomalous values in Au (40 ppb), Cu (136 ppm), Zn (275 ppm), Pb (174 ppm) were obtained at random sites across the property. Anomalous levels of Mo (358 ppm) were obtained within the Whiteman Stock on the Whiteman 2 claim.

#### 7.2 SOIL GEOCHEMISTRY

Reconnaissance soil lines were sampled over areas with sparse outcrop in an attempt to identify buried mineralized structures on the Whiteman 1 and III claims. Lines were run on topographic contours with sample intervals of 25 meters.

Samples of B horizon soil were collected between 10 and 25 cm below surface. A total of 99 soil samples were shipped to Eco-Tech Labs of Kamloops B.C. for gold plus an additional 32 elements by ICP analysis. Sample locations and anomalous results are provided in Figure 6, while complete results are listed in appendices.

Areas of precious metal (Au,Ag) enrichment in soil were not defined, however localized enrichment of Ba (340 ppm), As (30 ppm) and Zn (130 ppm) were evident. Soil geochemical response may be reduced in some areas by a thick underlying talus cover which was noted during sampling.

Detailed soil sampling was performed over an area of limonitic alteration and intense shearing located on the main road which crosses the Whiteman 2 claim (see insert on Figure 6). Samples were taken at 10 meter intervals in order to closely define anomalous zones. Results indicate a slight enrichment in Au (20-35 ppb) and anomalous Pb (860 ppm) and Zn (172 ppm) over a 40 meter area.

#### 7.3 <u>LITHOGEOCHEMISTRY</u>

Whole rock samples were taken to clarify the chemical nature of intrusive phases encountered on the property. A total of two whole rock samples were submitted to Eco-Tech Laboratories of Kamloops B.C. Samples were analysed for seven major oxides. Sample locations are provided in Figure 6 and results are listed in appendices. Sample 91WKL001 was assumed to be a relatively unaltered specimen of orthoclase porphry (Whiteman Stock). This sample consisted of approximately 30 percent coarse orthoclase in a pink aphanitic groundmass. Free quartz was not apparent. Whole rock analysis indicates this rock to be rich in SiO<sub>2</sub>, and the alkalies, K<sub>2</sub>O and Na<sub>2</sub>O. Low amounts of CaO and Loss on ignition indicate the rock to be poor in calcic plagioclase. Field examination and whole rock geochemistry indicate this rock to be a quartz rich alkalic intrusive.

Sample 91WKL002 was taken to compare intrusive phases on the property. This rock was an equigranular, dioritic phase exposed on the Whiteman 1 claim. Field examination indicated the rock to be associated with older Jurassic intrusions (mJg).

Whole rock analysis indicates a lesser amount of  $SiO_2$  and total alkalies within this sample. Increased amounts of CaO are also evident. A position within the calc-alkalic series of intrusives is proposed for this rock type. While age relations between the two intrusive rock types are unclear, their differring bulk chemistry has been established.

#### 8.0 <u>CONCLUSIONS</u>

Geological mapping indicates the Whiteman Claims cover an area of favorable geology for hosting epithermal type gold mineralization. Rock geochemistry failed to locate areas of anomalous precious metal mineralization on the Whiteman Claims. Contour soil geochemistry may have been hampered by the presence of a basal talus layer located below the B horizon. A broad area of intense shearing and limonitic staining located on the main road within the Whiteman 2 claim may reflect the southward extension of the Brett shear zone. Anomalous base metals and weakly anomalous Au in soils may indicate a location within the lower levels of this gold system. As such, further definition of this zone into higher topographic areas, utilizing geophysics (IP survey) may be warranted.

# 9.0 <u>REFERENCES</u>

Gilmour, W.R. (1989)	Geological, Geochemical, Geophysical and Trenching Assessment Report on the Why 1 Claim, B.C. Assessment Report #18799
Gruenwald, W. (1987)	Diamond Drilling report on the Brett Claims, Vernon Mining Division, British Columbia, B.C. Assessment Report #15564
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Kyba, B.W, (1986)	Geochemical Assessment Report on the Gold Star Claim, Whiteman Creek, Vernon Mining Division, B.C. Assessment Report #15394
Meyers, R.E. (1987)	Current Work on the Brett Property, in Exploration in British Columbia 1987. B.C. Ministry of Energy, Mines and Petroleum Resources, Victoria, B.C.
Meyers, R.E. and Taylor, W.A. (1989)	Lode Gold-Silver Occurrences of the Okanagan Region, South-Central British Columbia. B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1989-5, Victoria, B.C.
Meyers, R.E. and Taylor, W.A. (1988)	Metallogenic Studies of Lode Gold-Silver Occurrences in South-Central British Columbia: A Progress Report. B.C. Ministry of Energy Mines and Petroleum Resources, Geological Fieldwork, 1988, Paper 1989-1. Victoria, B.C.
Wallace, S.R. (1980)	Review of the Whiteman Creek Molybdenite Prospect, Vernon Mining Division, B.C. Company Report for Essex Minerals.
Woodcock, J.R. (1979)	Geology, Geochemistry and Geophysics of the Whiteman 1, 2 and III Claims, Vernon Mining Division, B.C. Company Report for Kennco Explorations (Western) Ltd.
Woodcock, J.R. and Gorc, D. (1980)	Whiteman Creek Drill Project. Company Report for Arcturus Mines Ltd.

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### **APPENDIX 1**

Itemized Cost Statement

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## ITEMIZED COST STATEMENT

#### PROJECT: WHITEMAN

#### FIELD DATES: May 27 to May 31,1991

#### GEOLOGY

R. Cranswick - Project Geologist	5 days @ 250 per	\$1,250
K. Curtis - Contract Geologist	7 days @ 200 per	\$1,400

#### GEOCHEMISTRY

Soil Samples	99 @ \$12 per	\$1,188
Rock Samples	39 @ \$17 per	\$663
Lithogeochemical Samples	2 @ \$30 per	\$60

#### TRAVEL

Truck Rental	(Cana Rentals Ltd.)	5 days @ \$65 per	\$325
Gas			\$175

#### FOOD/ACCOMODATION

#### EQUIPMENT

	Maps, reports, field gear, supplies.	\$414
REPORT		\$500
	Draughting, photocopies	3000

TOTAL EXPENDITURES \$6,725

**APPENDIX 2** 

Analytical Results

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JUER 13, 1991

VALUES IN PPH UNLESS OTHERWISE REPORTED

130 - 200 GRABVILLE STREET VARCOUVER, B.C. VGC 154

ATTENTION: RUSS CRAUSUICE

#### PROJECT: 02-249 ( DEITENAE) 22 ROCK SAMPLES RECEIVED MAY 31, 1991

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316 -19	51 BRR 56		1.2	. 16	25	i	200	6 .12	ä	i	21	(1 3.00	.16	120	.11	120	12	. 65		1080	14	(S	(21	16	<b>C</b> .	a	ii	4	i	ii
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316 -21	91 <b>FRE</b> 59	5	.6	.25	5	2	50	(5 .11	a	i	16	12 1.00	.15	100	.85	24	16	. 12	a	168	32	(5	(28	51	(.01	(1)	2	(1)	i	10
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BCO-TBCH LABORARÓDIES LTD. PRANK J. PRESOTTI, A.Sc.T. B.C. CERTIFIED ASSATER

SC91/LENNECOTT

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#### BCO-TECH LABORATORIES LTD.

10041 BAST TRABS CARADA BUY. KANLOOPS, B.C. V2C 233 PRONE - 604-573-5780 MX - 604-573-4557

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JUNE 10, 1991

VALUES IN PPH UNLESS OTHERNISE REPORTED

#### KENNECOTT CANADA INC. BTK 91-319

138 - 200 GRANVILLE STREET VARCOUVER, B.C. V6C 154

ATTENTION: RUSS CRAMSUICE

PROJECT: 02-249 ( UNITENAE) 99 SOIL SAMPLES RECEIVED MAY 31, 1991

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319 - 2	TRS	11	(5	.2	1.47	10	16	215	(5	.53	a	11	20	t	2.01	.11	20	.23	111	d	. 12	10	1690	10	(5	(2)	69	.17	(1)	4	a	1	
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319 - 5	TRS	15	<5	۲.۷	1.74	10	1	175	(5	. 52	a	10	16	6	2.83	. 16	28	.24	469	a	.01	6	1560		<b>(5</b>	<28	29	.11	(11	10	(14	3	59
319 - 6	JES	16	<5	(.2	1.10	10	6	140	(5	. 35	a	13	32	1	2.91	.17	28	. 35	434	d	.01	- 1	1288	10	(5	(21	32	. 16	(18	55	(1)	2	54
319 - 7	TRS	17	(5	(.2	1.92	5	1	15	(5	.24	(1	,	13	- 1	1.92	.11	10	.16	344	4	. 12	6	1370	1	(5	(28	22	. 89	(1)	36	(1)	1	- 11
319 - 8	<b>BRS</b>	18	<5	<b>(.2</b>	1.65	5	1	15	(5	.21	a	1	15	- 4	1.45	.15	10	.17	289	(1	.12	6	1988	6	(5	(2)	23	. 19	(11	38	(1)	3	47
319 - 9	TRS	19	(5	<. <b>2</b>	1.42	5	6	140	(5	.14	a	•	11	- 1	1.62	. 15	10	.16	211	4	.01	5	2750	6	<b>(5</b>	<20	14	.11	<b>(1)</b>	21	(10	2	- 55
319 -10	TRS	20	(5	(.2	1.42	5	6	350	(5	.31	(1	1	,		1.34	. 85	10	.12	539	a	.12	4	4478	4	<b>&lt;5</b>	(21	55	. 17	(1)	24	(1)	3	- 66
319 -11	TRS	21	(5	(.2	1.57	5	6	340	(5	.13	a	1	1		1.35	.17	10	.12	425	- (1	.01	3	4318	6	<5	<20	54	. 11	(1)	24	(11	1	50
319 -12	JRS	22	(5	(.2	1.59	20	6	15	(5	.35	a	11	38	-	3.35	. 16	20	.13	309	1	.01	1	778	10	5	(21	32	.15	(1)	11	(1)	d	55
319 -13	JRS	23	(5	(.1	1.70	10	6	145	(5	.11	a	12	21		2.43	.17	1	.32	502	a	.01	1	1818	1	(5	<20	33	. 11	(1)	17	(1)	1	60
319 -14	TRS	24	(5	<.2	1.46	31	4	200	(5	.53	a		32	14	5.78	.10		.45	319	1		6	900	18	(5	(28	- 49	.83	(1)	120	(1)	6	11
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319 -17	<b>IRS</b>	28	(5	(.2	2.12	10		130	3	.31	a a	13	25		2.61	.16	10	.37	216	a a	.01		2188	10	(5	(20	41	.11	40		(1)	1	- 63
319 -18 319 -19	TRS TRS	29 30	(5	(.2	1.56 1.75	(5		125	()	.31	a a		10	-	1.40	. #5	· 18	.14	568		. 82		2848		(5	(2)	29	.11		28	(1)		57
319 -20	TRS	31	(5 (5	(.2 (.2	2.28	10 15		215 100	(5) (5)	.65	a	12	14		2.28	.17 .15	28	.20 .26	678 648		.#1	2	3888	10	<5	(20		.17		35	(1)	3	
319 -21	IRS	32	3	<. <u>2</u>	1.86	10	•	195		.21 .42		17	19		2.23	. 15	20				. 82	1	2220 2280	14	(5	(2)	22	. 11		35			
319 -22	IRS	33	(5	(.2	2.24	10		155	3	.43		12	20	-	2.29	. 15	20 20	.28	1472 621		.01		2020	10	7	(2) (2)	35 21	. 84 . 87	(1) (1)	40		3	11
319 -23	TRS	33	3	(.2	1.68	10	ż	31	() ()	.31	- 11	13	25		2.41		10	.44	410		.01 .01	1	588	1	(5 (5	(21	23	. 11		43 51	(1) (1)	,	
319 -24	IRS	36	(5		1.58	5	ŝ	125	(S	.24		ii	12	-	1.45	. 16	10	.20	474	1	. 12		2830	1.	(5	(2)	25			35		5	
319 -25	IRS	37	(5	.1	1.40	ŝ	ŝ	70	(S	.17	- 1	ii	ii		1.79	.03	10	.21	597	4	.12		1200		(5	(21	17	.11				5	
319 -26	TES	38	G	<.2	1.95	5	6	110	(S	.31	a	12	13	5	1.97	. 15	10	.20	645	a	.01	6	3190	6	(5	(21	21	. 13		36	(1)	3	10

• 、 ECO-TECH LABORATORIES LTD.

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PAGE 2 Bti	DESCRIPTION	10 (ppb)	1G	1L(%)	15	B		BI CA(N)		CO	CI	CU FE(\)			NG(\)		NO 81(1			PB			SR	TI (N)	U	I	I	T
319 -27	TRS 39	(5	.2	1.96	10	4	165	(5.29	(1	19	34	9 3.83		20		1169	1.1	1 1	1720	12	(5	(20	26	.17	(10	51	(10	1
319 -28	TES (1	(5	(.2	1.63	28	6	100	(5 .45	d	16	46	9 3.75	.13	38	.10	385	1.0	L 11	1210	12	(5	(20	36	.07	(10	76	(11	1
319 -29	TES 42	(5	(.2	2.07	10	6	65	(5	4	10	11	6 2.12	.11	10	.26	295	<b>4</b> .1		1850	1	(5	<28	21	. 19	(11	31	(11	4
319 -30	TRS 43	(5	.3	2.28	10	6	95	(5.35	a	10	13	4 2.13	.15	10	.21	301	<b>1</b> .	-	2390	10	<5	<20	34	.10	(11	11	(11	3
319 -31	BBS 44	<5	.2	1.73	24	6	45	(5 .50	d	15	42	14 3.95	.13	20	1.42	336	1.1		960	- 16	5	(21)	57	.15	(1)	91	a	a
319 -32	TRS 45	(5	<. <b>2</b>	1.93	5	6	100	(5.32	4		10	4 1.60	.15	10	.17	311	a .		2818	l	(5	<20	21	. 11	(1)	28	(1)	3
319 -33	URS 46	<5	<. <b>2</b>	1.59	5	1	355	(5 .53	1		11	6 1.41	. 16	10		1140	I. D		4630	10	(5	<21	- 44	.11	(1)	22	(1)	4 :
319 -34	ERS 47	<5	(.2	. 1.11	10		170	(5 .19	q	12	26	1 2.56	.11	20	.35	564	4.1		2350	22	(5	(21	31	.11		- 11	(1)	2
319 -35	URS 48	<5	.1	1.38			75	(5 .50	1		12	4 1.66	.11	10	.15	453	4.1		1050	10	(5	(21)	31	.10	(10	36	(1)	3
319 -36	TRS (S	<5	(.2	2.84	5	6		(5 .22	(1	10	11	4 2.47	.11	10	.16	164	<b>. .</b>		1370	16	(5	<28	21	.13	(1)	34	(1)	5
319 -37	URS 50	(5	.1	1.95	10	•	(1	(5 .29	4	12	24	1 2.55	. #5	20	.30	202	1.0		780	10	(5	(20	30	. 85		45		2
319 -38	TRS SI	(5	.5	1.42	30	ļ	95	(5.13			11	10 6.79	.65	30	1.53	281	13 .0		2890	128	3	(20	123	.01		58	(10	q
319 -39	TRS 61	20	.4	1.56	30	,	145	(5.14		23	53	29 7.28 21 7.35	.17	48	.14 .71	586 482	1. 2 1. 1		2230 1970	28 26	(5	(28 (28	156 107	.01 .01	(1) (1)	10 71	(1) (1)	2
319 -40	TRS 62	(5	(.2	1.17	30	•	214 95	<pre> (5 .44 (5 .56</pre>	4	23 14	55 57	42 1.11	.13 .53	40 40	.11	342	10.0			114	(5 (5	(20	155	.07		56	<10	2
319 -41	URS 63 - 45 H		1.7	1.73 2.12	30 25		230	(5.11)	a a	11	186	46 8.21	.31		1.21	345	· · · ·		2724	30	Ğ	(21	311	.07	a	15		1
319 -42	TRS 64	30	.2 2.1	2.59	4		245	(5	a	19	153	69 12.40	.56	4	1.11	557	38 .0		2440	22	š	(21	200	.10	(1)	iii		a
319 -43	URS 65 - 45 H URS 66 - 45 H			1.74	40	ż	145	(5 .17	a	15	35	43 9.43	.56	4	1.25	285	20 .0		1848	50	Ġ	(21	333	.11	a	11	d	(1
319 -44 319 -45	- 125 - 45 E - 125 - 67	15	2.4	1.70	25		140	(5.24	a		11	36 7.29	.61	40		192	12 .0		3370	161	5	(2)	1511	.05	di	- ii	(1)	a
319 -45 319 -46	TES 64	25	.1	3.42	21	ŝ	210	(5.44	ā	1	156	45 8.44	.94		2.69	428	13 .0		3288	140	ŝ	(2)	1262	.10	(1)	щ	(1)	3
319 -47	TRS 69 - 45 H	••		2.37	31	i	188	(5 .23	ā	13	129	44 1.16	.61	4	1.70	346	17 .0	1 1		68	Ġ	(28	376	.11	(1)	- 16	(1)	ā
319 -48	TRS 70	14		2.11	34	ŝ	170	(5 .32	a	12	135	39 9.56	.59	38	1.96	466	13 .0	3 1	2550	34	5	(28	496	. 83	(1)	104	(1)	a
319 -49	TRS 71 - 45 H	••	.2	2.20	44	ŝ	180	(5 .20	đ	12	66	29 9.42	.10	50	.53	373	21 .1	1	3630	120	(5	(21	56	.82	(1)	96	(1)	a
319 -50	TES 881	G		2.11	(S	6	58	(5 .21	4	1	14	5 1.56	.#5	20	.16	740	2.0	1 1	2480	10	(5	(20	22	. 69	(1)	25	<10	4
319 -51	<b>IKS 00</b> 2	G	.4	1.17	5	6	185	(5 .17	(I	11	25	6 3.48	.85	20	. 32	334	2.0	1 1	2150	14	(5	(28	23	. 67	(1)	- 48	(1)	1
119 -52	· NES	G	.2	1.29	Ġ	6	130	(5 .32	(1		,	3 2.04	.01	(18	.13	616	1.1	1 !	5 2910	1	<5	<28	29	. 68	(11	28	(1)	2
319 -53	<b>EKS 104</b>	G	.3	2.84	(5	4	150	(5.23	d		- 14	5 2.63	.17	28	.21	172	1.1	1 :	2388	16	(5	(28	41	. 17	(1)	25	<b>(1)</b>	3
119 -54	<b>TES 00</b> 5	(5	.1	3.47	(5	6	145	(5.31	d	10	28	6 2.81	.11	20	.31	283	1.1	1 (	3720	16	<5	(28	53	. 13	(11	25	<10	1
119 -55	<b>TES 806</b>	(5	.3	1.56	10	6	130	(5.48	4	- 14	27	8 3.16	.17	48	.31	171	3.1			28	<5	<20	38	. 85	(11	- 41	(1)	7
:19 -56	<b>UKS 66</b> 7	(5	.1	1.55	20	6	115	(5 .55	(1	20	- 45	16 5.69	.11	11	.61	926	2.1	1	2050	20	(5	<20	- 13	. 64	(1)	13	<10	16
319 -57	WES 808	<5	.3	2.32	<5	6	105	(5.34	4	,	- 19	6 2.81	.15	20	.26		a .		5 2850	12	(5	(20	25	.11	(1)	34	(1)	5
119 -58	TTS 665	(5	.1	1.94	(5	6	105	(5 .18	4	10	21	5 2.71	.15	10	.30	241	1.0		1 1766	12	<5	<20	17	.11	(1)	39	<10	2
119 -59	TKS 010	(5	.2	3.10	(5	6	110	(5.36	a	3	14	4 2.27	.15	(14	.16		1.	-	1 4478	10	(5	<20	11	.10	(1)	23	(1)	3
319 -60	<b>RES 611</b>	(5	.1	3.52	(5	6	105	(5.21	a	10	20	8 2.58	.15	20	.28		1.		2320	12	<5	(21	19	.11	- (1)	29	<10	1
119 -61	<b>UKS 012</b>	(5	.1	2.97	<5	6	11	(5 .24	4	,	13	4 2.27	.13	10	.17		1.1		5 2170	10	(5	<20	11	.10	(1)	23	(10	3
319 -62	- UKS - 013	(5	۱.	3.44	(5	6	95	(5 .33	4	9	16	6 2.65	.11	10	.22	246	1.1		1930	10	<\$	(20	22	.10	<b>(1)</b>	- 24	(10	4
319 -63	<b>TKS 014</b>	(5	.1	2.58	(5	1	38	(521	a	1	,	3 2.02	.14	10	.11	244	1.4	2	5 2750	1	(5	<20	28	.10	(1)	24	<b>CI</b>	4

PAGE 2

KENNECOTT CANADA INC. ETK 91-319

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**ECO-TECH LABORATORIES LTD.** 

PAGE 3 Ető		JESCE	197100		10 (ppb)	16	AL(N)	12	1	n	DI CA	(1)	CD	CO	a	CU FE(\)	E(\$)	Ц	NG(%)	N	NO NY(J)	<b>)</b> ]	<b>?</b>	<b>?3</b>	<b>53</b>	<b>58</b>	<b>SR</b>	TI ( <b>\ )</b>	U	1	1	Y I
					····· (5		2.46	 (5		120		.15	····· (]		14	4 2.16		10	.19	359	(11)	1	3550	10	(5	(28	15		(10	4	(1)	3 4
319 -6 319 -6	-	165 165	416		Ğ	.1	2.28	is	i			.11	ā	j	16	4 2.46	. 15	18	. 20	179	1.01		1788	10	<5	(20	16	.41	(1)	34		3
319 -6			617		3		3.31	(5	i	145		. 22	a	1	12	6 2.33	.15	20	.17	198	a . <b>H</b>	10	1818	12	(5	(20	20	. 11	(1)	16		
319 -6			018		(5	.1	2.68	(5	6	145	(5	. 17	4	1	1	2 2.84	.11	(18	.11	399	<b>11</b> . D	3	4848		(5	(20	31	. 15		21	(10	
319 -6		IIS	819		(5	.1	2.14	(5	6	50		.23	a	ł	10	4 2.28	.13	10	.13	152	(1 .12		2340		(5	(2)	28	.85 .87	(1) (1)	23 48	(18 (18	
319 -6	•	115	828		<5	.1	1.95	5	6	55		.24	a	11	19	1 2.11	.11	10	.23	165	(1 .01		1740 2880	10 10	(5 (5	(28 (28	19 27	.07	(1)	36	418	- ; <b>1</b>
319 -1		115	821		(5	.2	2.86	5	6	110		.32	d	10	17	3 2.12	.11	10	.22	253	1.01	1	1050	14	(5	<28	31	.16	(1)	ä		17
315 -1	1	11.5	822		(5	.2	1.74	S	•	95		.35	4	13	37	6 3.11	. 87	28 28	.41 .23	241 281	(1 .01		2660	12	3	(2)	24	. 13	a	32	d	- ; 1
319 -1		IX S	823		(5	.3	2.67	(5				.28	4	10	18	6 2.74 6 2.71	. 45 . 45	10	.25	295			2658	12	Ġ	(28	24	. 89	<b>d</b>	38	a	3
319 -1		IKS	824		(5		3.05	(5		75 185		.25 .23	a a	12 - 13	11	6 3.23		28	.30	326	4 .01		1070	14	(5	(2)	26	.11	(1)	48	40	2
319 -1		IXS	025		(5		2.43	5 15	1	115		.63	4	13	- 51	16 5.06	.11		.15	584	1.11	11		22	(5	(2)	55	.11	(1)	15	(10	11
319 -1		115		45 NESE	(5 (5	.ł .2	1.70 1.90	13		115	3	.25	ä	12	29	6 3.31		10	.40	227	1 .01	11		16	(5	(2)	27	.17	(1)	49	(18	1
319 - 319 -		NES NES	027 028		3	.1	2.11	30	1	130	Ġ	.11	ä	15	31	10 2.95		20	.51	392	4 .41	12	1330	11	(5	(21	34	. 89	(10	58	<18	5 1
319 - 319 -		TKS	129		Ğ	(.2	1.01	15	i	150	Ġ	.20	đ	Ĩ	11	3 1.53		40	.12	366	(1 .01	-	1940	10	(5	(28	21		(10	32	(10	2
	19	ILS	838		Ğ	.1	1.56	25	Ġ	130	(5	.23	d	15	39	10 2.91	.07	20	.51	111	1.01		1530	24	(5	(20	32	.10	(10	63	(10	2
		115	631		Ğ	.3	1.52	30	6	115	(5	.66	a	16	52	18 4.22	.11	78	.15	425	2 .01		1690	30	- (5	(28	62		(10	16		13
319 -		IL S	632		(5	.2	1.40	35	6	130	(5	.11	4	14	45	11 3.75			.69	471	2 .01		2858	44	) //	(20 (20	68 - 41	88. 88.	(18 (18	73 28	<10 <10	12
319 -		115	833		(5	.2	2.07	20	6	170	(5	.38	4	9	15	4 1.73		1	.17	518	1.01		4260	10	(5 (5	(21	- 11			17		
319 -	11	<b>T</b> KS	834		(5	(.2	1.12	25	6	130	(5	.52	(]	12	26	1 2.63		30	.12	584	1.01	-	1600 2480	18	(5	(20	23	.11	(1)	30		
319 -	H	HS	835		(5	.2	1.46	15	6	150	(5	.26	4	9	11	4 1.63		10	.14	172 353	<1.02 1.01			11	Ğ	(21	54	.17	(1)	1	di	2
319 -	15	TE S	836		(5	(.2	1.57	25	6	51	(5	.51	4	13	38	1 3.12		20 20	.63 .39	563	(1.0)			11	Ğ	(2)	35	.08	a	54	(1)	1 1
	16	IKS	137		(5	.2	1.91	25	,	130	(5	.33	4	13	. 34	1 2.17 6 2.51		10	.50	225				1	Š	(2)	n	. 19	a	56	(10	1
319 -		TIS	131		(5	(.2	1.82	25		85	(5	.22 .35	4 4	12 14	32 45	3.39		20	.61	245	1.0			12	(5	(21	- 40	. 83	d	78	(18	2
	11	IKS	039		(5	(.2	1.31	38		45 145	(5 (5	.35	4	11	16	5 1.79		10	.30	234	a .0		2930	10	(5	<28	47	. 13	<b>d</b>	28	(10	2
	13	HIS	849		(S	.1	1.53	20 15		55	Ğ	.23	a			3 1.40		a	.11	150	(1 .)	5	1420	6	(5	(21	25	.10	(1)	23	(16	4
	90	ILS	041		\$	.1	1.25	15	ż	125	Ġ	.41	ä	i	11	6 1.73		10	.22	294	(I . I)	5	1020	12	(5	<20	42	.11	(1)	34	(10	2 1
319 -		NES NES	842 843		(5 (5	<.2	1.93	30			is	.28	a	13	33	9 3.07		28	.52	276	1.0	1 1	1420	26	(5	<20	38	. 11	(1)	58	(1)	1
319 - 319 -	92 93	VES	844		G	(.2	1.65	28	- i	115	is	.29	a	•	14	4 1.99	. 13	10	.21		(1 . D	1	2210	10	<5	(21	26	.85	(1)	38	(10	2
	,, ,,	115	845		Ġ	.2	1.60	25	i i	140	(5	.41	d	11	20	5 2.25	16	10	.31	429	1.0		2060	ļ	(5	(28		.11	(1)	42		1
	<b>95</b>	IKS	846		Ġ	(.2	1.26	15	6	200	(5	. 26	a		,	3 1.57			.14		a		3340		<5	(20	28	.11	(10	30	(18 (18	2
•••	56	ILS	117		(5	.2	1.38	20	1	150	(5	.46	a	10	16	5 1.47		10	.29	783			5 1670	12	(5	(2) (2)	41 62	.11 .17	(1) (1)	34 33	(10	
	57	IKS	141		(5	.1	1.92	28	6	198	(5	.68	a	11	11	6 2.01		10	.35				) 3120 5 1480	10	(5 (5		31	.10		36	(1)	2
319 -	58	165	843		(5	.1	2.10	15	6	178	(5	.33	(1	12	21	6 1.9		10	.31		(1.1) (1.1)		3976	4	3	(28	21	.11	d	24	a	
319 -	"	TE S	858		(S	(.2	1.91	20	6	130	(5	.23	a.	I	1	3 1.4	.03	(10	.11	116	(1)	. 1		•			••			••		

NOTE: ( = LESS TEAN

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PEARE J. PETROTTI, A.SC.T. D.C. CERTIFIED ASSAUER

SC91/KREERCOTT

#### ECO-TECH LABORATORIES LTD.

10041 BAST TRANS CANADA BUT. KANLOOPS, M.C. V2C 2J3 PROFE - 604-573-5700 FAT - 604-573-4557

#### KENNECOTT CANADA INC. ETK 91-317

138 - 288 GRANVILLE STREET TABCOUTER, B.C. **16C 154** 

ATTENTION: BUSS CRAMSWICK

.

#### PROJECT: 02-249 ( UNITENAN) 19 ROCE SAMPLES RECEIVED MAT 31, 1991

BT	DESCRIPTION	10 (ppb)	1G	· 1L(1)	15	ł	11	01 C		CD	CO	CR		FE(\)			#G{\}			84(%)	81	9	28	58	58	SE T		U	T	Ŧ	T	11
																															1222223	121112
317 - 1	91 NKR 881	5	(.2	.54	15	2	128	(5	.15	a	3	114	122	1.66	.15		. 20	264	16	.47	1	550	36	(5	(26	28	.03	10	23	(11	1	11
317 - 2	51 BKR 602	5	(.2	.62	5	- 4	130	(5	.13	(1	2	13	- 21	1.51	.21	- 40	. 32	236	1	. 17	- (1	768	22	(5	<20	31	. 16	(10	29	(10	1	11
317 - 3	51 BER 003	5	.6	.23	(5	2	38	(5	.01	(1	1	141	11	1.15	.31	(11	.13	31	29	.83	4	68	24	(5	(28	14	(.11	(11	1	(18	1	al
317 - 4	51 TER 004	5	(.2	.30	5	2	10	(5	.84	(1	1	166	1	.57	.21	(11	.02	25	26	.12	4	10	4	(5	(28	5	(.11	<b>(1</b>	6	(10	a	ä
117 - 5	51 TEE 045	ŝ	.1	.26	ŝ	ā	15	(S	.11	a	2	36	6	2.11	.23	20	.12	28	33	. 82	a	180	26	(5	(20	12	(.11	(1)	i.	(11	1	ä
317 - 6	51 EKE 686	ŝ	(.2	.45	ŝ	2		G	.11	a	2	52	a	2.88	.11	28	.28	116	6	. 85	a	150	14	(S	(21	12		a	n	a	i	ii l
317 - 7	51 HER 447	i		.22	č		15	15		a	a	11	a	.15		- 44	. 16	52	- ii	.15	a	188	124	is	(21		.01	a	-	(1)	;	- "i
				.21				/5			;			1 47	16		.12		12	. #5	Ä	218	36	Ġ	(21			4	•	a	•	
317 - 1	51 TKR 888	,			ġ		20	(3)		u /i	4	11	14	1.04				16	14										;			u i
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ECO-TECE LABORATORIES LTD. CLIET ATERS LABORATORY NAMAGER

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JUNE 10, 1991

VALUES IN PPH UNLESS OTHERNISE REPORTED



ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING 10041 East Trans Canada Hwy., Kamioopa, B.C. V2C 2J3 (604) 573-5700 Fax 573-4557

JUNE 12, 1991

CERTIFICATE OF AWALYSIS ETK 91-317

KENNECOTT CANADA INC. 130 - 200 GRANVILLE ST. VANCOUVER, D.C. V6C 15A

ATTENTION: RUSS CRANSVICK

SAMPLE IDENTIFICATION: 19 ROCK samples received MAY 31 , 1991 PROJECT: 02-249 (WHITEHAM)

87 <b>1</b>	Description	Baû	P205	5102	Fe203		11203	CaO	T102	Sa02	K20 L	.0.1.
317 -18 317 -19	91 <b>WK</b> L 001	.06	.12	73.39 60.49		.21	14.71 16.11			4.12 4.01		.95 2.26

NOTE: VALUES EXPRESSED IN PERCENT

SC91/KEENECOTT

BECO-TECH LABORATORIES LTD. BERNE J. PEZZOTTI, A.SC.T. B.C. CERTIFIED ASSAYER

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## **APPENDIX 3**

Analytical Procedures



# ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING 10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (604) 573-5700 Fax 573-4557

June 19, 1991

KENNECOTT CANADA INC. #138 - 200 Granville Street VANCOUVER, B.C. V6C 1S4

ATTENTION: Kerry Curtis

Dear Kerry:

With reference to our telephone conversation, the following geochemical procedures were used to analyze the samples recently submitted:

- Gold Geochem

Fire Assay preconcentration on a 10 gram sample; Atomic Absorption finish.

#### - Multi-Element ICP

Sample ( 1.000 g. ) is digested with 6 ml. of 3:1:2 mixture of HCl, HNO<sub>3</sub>, H<sub>2</sub>O at 95° C for 90 minutes and then diluted to 20 ml with distilled water and analyzed by ICP.

Please don't hesitate to call me if I can be of further assistance.

Sincerely,

ECO-TECH LABORATORIES

Frank J. Pezzotti, A.Sc.T. President

## APPENDIX 4

# Statement of Qualifications

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#### STATEMENT OF QUALIFICATIONS

#### KERRY M. CURTIS, Geologist

I, KERRY M. CURTIS, of 5, 3636 West 16th Avenue, Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:

- 1. THAT I am a Geologist in the employment of Kennecott Canada Inc., of Suite 138, 200 Granville Street, Vancouver, British Columbia, V6C 1S4.
- 2. THAT I am a graduate of the University of British Columbia with a Bachelor of Science Degree in Geology.
- 3. THAT my primary employment since 1985 has been in the field of mineral exploration.
- 4. THAT my experience has encompassed a wide range of geologic environments and has allowed considerable familiarization with prospecting, geophysical, geochemical and exploration drilling techniques.
- 5. THAT this report is based on field work, conducted by myself, and field data compiled myself, during May and June of 1991.
- 6. THAT I have no interest in the property described herein, nor in securities of any company associated with the property, nor do I expect to receive any such interest.

DATED at Vancouver, B.C., this	24 <sup>TH</sup>	_day of _	JULY	, 1991.
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C:MAIN\CURTIS.QUA

#### STATEMENT OF QUALIFICATIONS

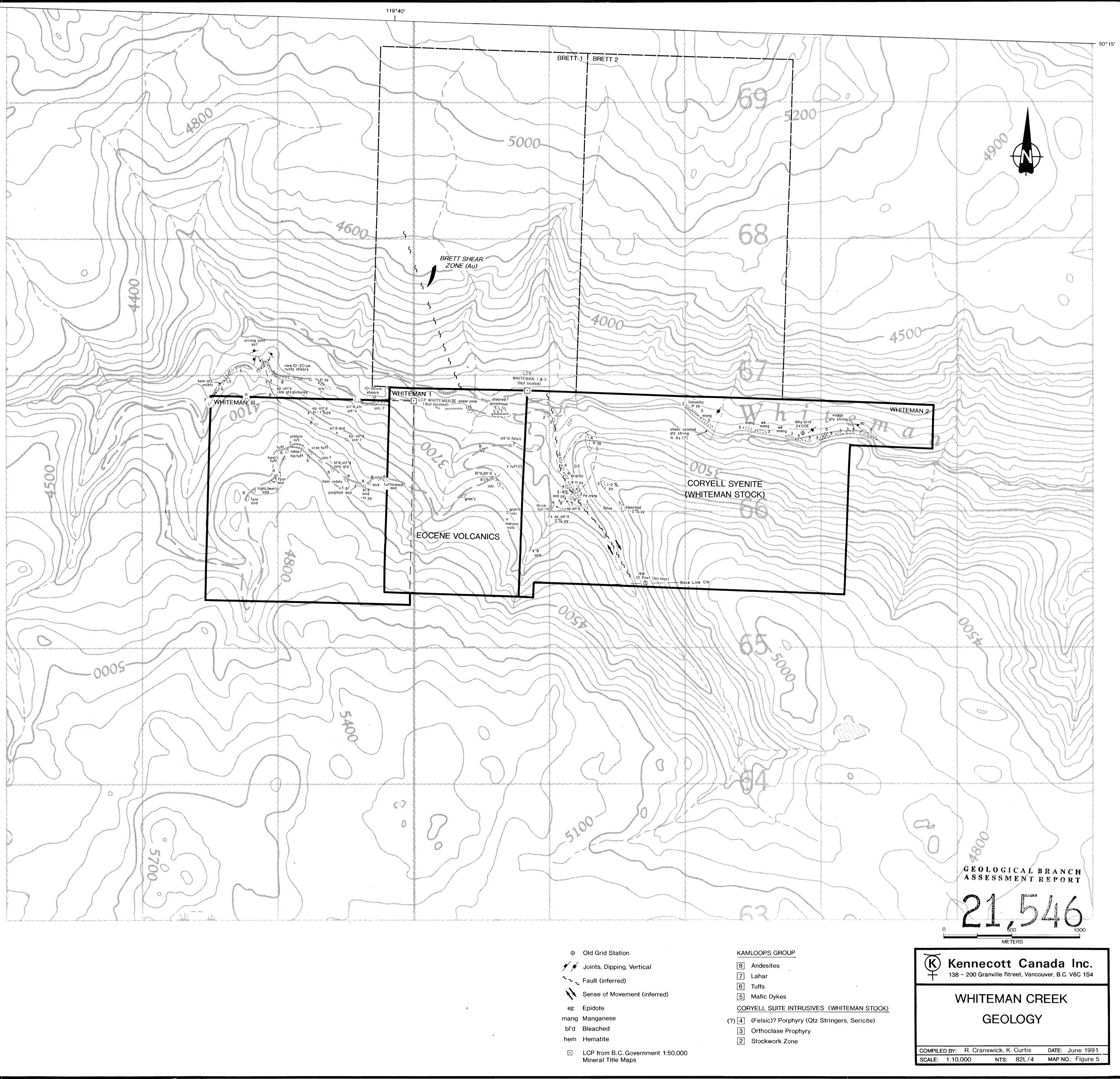
I, Russ L. Cranswick, of 102 - 2110 West 5<sup>th</sup> Avenue, Vancouver, B.C. V6K 1S2, hereby certify that:

- 1) I am a geologist employed by Kennecott Canada Inc., 138 200 Granville Street, Vancouver, British Columbia V6C 1S4.
- 2) I am a graduate of the University of British Columbia with a B.Sc. Degree in Geology obtained in 1987.
- 3) I have practised in the field of mineral exploration since 1984 in a wide variety of geological environments within British Columbia, Ontario, the Yukon Territories and the Northwest Territories.
- 4) I am co-author of this report which is based on field work and data compilation conducted by myself and the co-author during the week of May 27 31, 1991.
- 5) I have no direct, or indirect, interest in the property described herein, nor do I expect to receive any such interest in this or any other associated properties.

DATED at Vancouver, B.C., this  $\underline{A4^{\prime\prime}}_{}$  day of  $\underline{J49}_{}$ , 1991.

Russ L. Cranswick, Geologist

B:STMTQUAL.CRA





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