

'85-89(b)-13460

ASSESSMENT REPORT
ON THE
1984 GEOLOGICAL AND GEOCHEMICAL EXPLORATION ACTIVITIES
GOLDWAY 9 CLAIM GROUP

Omineca Mining Division
NTS 94D/8

Located Approximately 18 km Southeast of Johanson Lake
Latitude: $56^{\circ}27'$ North; Longitude: $126^{\circ}05'$ West

Owned and Operated by
Selco Division - BP Resources Canada Limited

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,460

D. R. Heberlein
Geologist

November, 1984.

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SUMMARY AND RECOMMENDATIONS

The Goldway 9 claim group was staked to cover a low contrast Au-Cu-As-Ag stream sediment anomaly discovered by reanalysis of stream sediment samples from an earlier regional reconnaissance program. Preliminary mapping and extensive sampling during the 1984 field season failed to locate any mineralization that could explain the anomaly. Weak disseminated pyrite associated with intermediate ash tuffs, at the base of a calcareous argillite and ash tuff unit, was the only sulphide found. Its stratigraphic position with respect to regionally defined units is close to that of the auriferous skarn deposits across the valley on the Soup claims. It is therefore a possibility that gold is present within these pyritized rocks, but in insufficient quantity to warrant any further work. Concentration during pyrometasomatism close to a diorite intrusion may have resulted in significant enhancement of gold on the Soup Claims.

No further work is recommended.

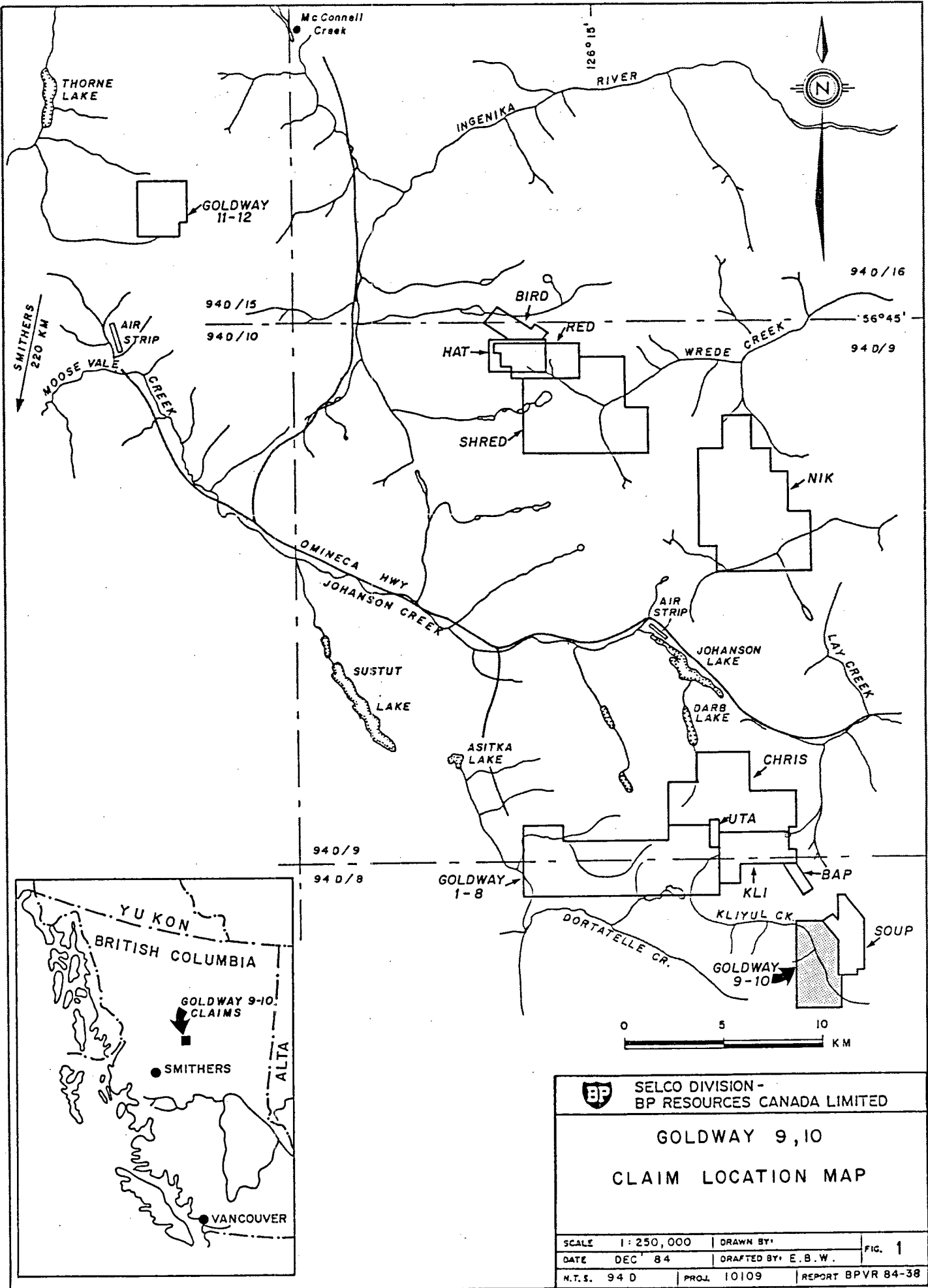
INTRODUCTION


The Goldway 9 claim group consists of two claims totalling 40 units. The claims are situated at $56^{\circ}27'$ north latitude and $126^{\circ}05'$ west longitude on NTS mapsheet 94D/8 (Fig. 1). Access to the claims is by fixed wing aircraft based in Smithers, to the Johanson Lake airstrip 18 km to the northwest. A helicopter is required for the remaining distance. Alternative access to Johanson Lake is via the Omineca Road; a two wheel drive seasonal route from Fort St. James, 300 km to the south.

The claims are centered on a U-shaped glacial valley through which Kliyul Creek drains to the southeast. Hillsides are extremely steep with average slopes in excess of 37° . Relief on the property is approximately 1000 metres, with a maximum elevation of 2100 metres. Outcrop is restricted to higher elevations where almost total exposure occurs on bluffs and cliffs around the walls of alpine curvages and their dividing ridges. Lower slopes are talus covered and outcrop is only seen in creek gullies. Treeline is at 1500 metres.

CLAIMS

Goldway 9 Claim Group is in the Omineca Mining Division and consists of 40 units that are wholly owned by BP Resources Canada



 SELCO DIVISION - BP RESOURCES CANADA LIMITED		
GOLDWAY 9, 10 CLAIM LOCATION MAP		
SCALE 1: 250,000	DRAWN BY:	FIG. 1
DATE DEC '84	DRAFTED BY: E.B.W.	
N.T.S. 94 D	PROJ. 10109	REPORT BPV R 84-38

Limited. Claim names and record numbers are listed below:

<u>CLAIM NAME</u>	<u>UNITS</u>	<u>RECORD NO.</u>	<u>RECORDED DATE</u>
GOLDWAY 9	20	6213	May 4, 1984
GOLDWAY 10	20	6214	May 4, 1984

REGIONAL GEOLOGY

The Kliyul Creek area is underlain by Upper Triassic Takla Group volcanic and sedimentary rocks. These consist of andesitic and basaltic andesite flows, tuffs and breccias with intercalated tuffaceous sandstones, silty limestones and calcareous argillites. Rocks are regionally folded into broad open folds with north-northwest axial trends. Greenschist facies metamorphism is superimposed on the entire district.

Stratigraphy of the area suggests a series of explosive volcanic events with intermittent periods of quiescence. Older rocks exposed are of andesitic composition and include porphyritic andesite flows and fragmental rocks. Higher in the section, flows and fragmentals are more basic in composition (basalts and basaltic andesites) and typified by augite porphyries and augite crystal tuffs. A 20 to 50 metre thick section of fine grained calcareous tuffs and argillites with interbeds of gritty

limestone and pyritic ash tuff, forms a prominent marker unit near the top of the andesites. This unit is present only on the south and west sides of Kliyul Creek, suggesting a facies change to the north. Bradley (1984) and Smit (1984) postulate that the east side of the valley was a volcanic highland flanked by a lagoonal facies to the west and southwest and that calcareous sediments were deposited during periods of quiescence.

PROPERTY GEOLOGY (Fig. 2)

Stratigraphy of the Goldway 9, 10 claims can be divided into three distinct lithologic units, a lower andesitic fragmental unit; a middle calcareous sedimentary unit and an upper basic augite porphyritic, fragmental unit. This succession is consistent with those observed at the Kli and Soup claims.

1. Volcanic Rocks

a) Unit 1: Andesitic Fragmentals

Andesitic fragmentals make up the lowest unit exposed on the property. In outcrop, the rocks are green-grey to pale grey in colour and exhibit well developed bedding. Bed thickness varies between 20 cm and 3 metres. Crystal lithic tuffs comprise about to 60% of the exposed sequence and are characterized by lithic lapilli of fine

grained andesite in a matrix of feldspar and augite crystal ash tuff. Lithic fragments are elongate in shape and always strongly oriented parallel to the bedding planes. Whispy streaks of chloritic material within the matrix resemble fiamme; flattened vitric shards commonly found in ash flow tuffs and ignimbrites.

Crystal tuffs and rare andesitic flows make up the remainder of Unit 1. Although similar in appearance, the tuffaceous units can be distinguished by a well developed foliation. Flow units are generally massive.

Basic crystal lithic tuff beds are sparsely distributed throughout unit 1. A dark green colour on weathered surfaces distinguishes them from andesitic varieties. They commonly contain streaks and lenses of chlorite (up to 25 mm in length) that probably were original basic lithic or pumice fragments that have subsequently been flattened. Basic tuffs increase in abundance upwards in the sequence until they dominate the stratigraphy. This portion of the section is described separately as Unit 3. A prominent lahar breccia unit, 5 metres thick, can be followed for several hundred metres along strike below the calcareous argillites of Unit 2.

b) Calcareous Tuffs, Argillites and Gritty Limestone

Towards the top of the andesitic fragmental unit a 20 to 50 metre section of finely bedded calcareous argillites and pyritic ash tuff is present. In outcrop, this unit has a prominent ribbed aspect caused by result of the competence difference between limey and tuffaceous horizons. Bedding thickness ranges from 2 cm to 1 metre.

At the base of the unit, tuffs are markedly pyritic; containing an average 3% disseminated pyrite. Calcareous argillites are dark grey to black and recessive weathering. At many locations bedding is disrupted by soft sediment folds. Graded bedding and rip-up clasts have also been observed. These are good indicators of stratigraphic tops.

c) Unit 3: Basic Tuffs

Above Unit 2 the andesitic tuffs grade into a basic tuff assemblage. Basic units are typically dark green and contain visible augite. Chloritic streaks and lenses parallel to bedding, possibly representing flattened lithic fragments (pumice?). Augite porphyry sills and flows occur throughout the section. These contain coarse

grained, euhedral augite phenocrysts in a pale grey feldspathic groundmass. Preferential weathering of the groundmass has produced a knobbly texture at many locations.

2. Intrusive Rocks

Intrusions exposed on the property include syenite, diorite and augite porphyry.

Syenite

Syenite is exposed for 100 metres in a creek bed on the west side of the valley. Size of this intrusion is not known, but it is likely a part of a 2 km long dioritic body outcropping on the far side of the valley. The syenite is coarse grained and equigranular and is composed of 75% perthitic orthoclase, 20% plagioclase, 2% biotite and 1% quartz. Biotite is mostly altered to fine grained chlorite. Pyrite occurs as disseminations in the groundmass.

Quartz Diorite

Several quartz diorite dykes intrude the Takla volcanics. Most are porphyritic with crowded phenocrysts of white plagioclase (weakly sericitized) up to 10 mm in diameter in

a medium grained groundmass. Visual estimates of mineral abundances are: plagioclase 85%, quartz 5%, hornblende or biotite 5%.

Augite Porphyry Dykes and Sills

Basic dykes are found throughout the volcanic section. These are generally medium to fine grained basaltic augite porphyries with phenocrysts up to 20 mm in diameter. Sills of more andesitic augite porphyry are present in the upper parts of the section. These are easily confused with thin flow units that are interbedded with the andesitic fragmentals.

3. Alteration and Mineralization

Hydrothermal alteration has not been observed on the Goldway 9 claim group. Volcanic rocks are uniformly chloritized and contain patches of epidote and occasional micro-veins of calcite. These secondary minerals are characteristic of a regional greenschist facies metamorphism that is superimposed on the area.

Pyrite (averaging 3%) occurs at the base of Unit 2. It is primarily disseminated within the crystal ash tuffs.

Bleaching of the pyritic tuffs is thus likely to be a weathering phenomenon rather than a hydrothermal feature. No other sulphide minerals have been observed.

4. Structure

Structure on the property is relatively simple with rocks dipping westwards on the southwest limb of a large anticlinal structure, the axis of which trends southeast along Kliyul Creek. At the north end of the property, rocks strike towards the east-southeast (parallel to the fold axis) and dip between 5° and 20° to the west. Further south dips are steeper, between 25° and 85° . A steady increase in dip is observed in a westerly direction, i.e., away from the fold axis.

Two styles of faulting are present. At the north end of the property low angle thrust faults cause considerable thickening of Unit 2. Displacement on these structures rapidly diminishes southwards until no offset is visible. Steeply dipping reverse and normal faults seen at the southern and central part of the property may be extensions of the low angle structures. These faults trend east-west and northeast-southwest. Measured offsets range from several

metres to approximately 100 metres with down throws on the north and west sides.

GEOCHEMISTRY (Fig. 4)

The sampling program on the Goldway 9 claim group was conducted in early August. All drainages on the side of the valley containing the original anomaly were silt sampled at 100 metre intervals. Talus fine samples collected from the base of outcrop on the main hillside and midway down the hill. Rock chip samples were taken at approximate 100 metre intervals across the pyritic ash tuffs at the base of Unit 2 and across the calcareous argillite and tuff sequence.

Results (Appendix 1) are disappointing with gold values in the background range of 5 to 15 ppb for both silts and talus fines. One silt sample (#863796) returned 390 ppb gold and 159 ppm copper. A rock chip sample (#863809), taken 100 metres upstream, returned 90 ppb gold suggesting a weak enhancement of gold in the pyritic ash tuffs at this location.

APPENDIX 1
LIST OF ANALYTICAL RESULTS

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
 THIS LEACH IS PARTIAL FOR: CA, P, MG, AL, TI, LA, K, V, BA, SI, SR, CR AND B. AU DETECTION 3 PPM.
 AU** ANALYSIS BY FA/AAS FINISH FROM 20 GRAM SAMPLE. SAMPLE TYPE - ROCK CHIPS

NOTE: IS = INSUFFICIENT SAMPLE
 MD = NOW DETECTED
 - = NOT ANALYZED

DATE RECEIVED AUG 30 1984 DATE REPORTS MAILED Sept 7/84 ASSAYER [Signature] DAVID CHIU, CERTIFIED B.C. ASSAYER

BP - SELCO MINING		PROJECT# B1-84-557										REPORT# B4-20-084					INVOICE# B260					JOB# B4-434					FILE# B4-2481					PAGE # 1	
SAMPLE #	MO	CU	PB	ZK	AG	KI	CO	MM	FE	AS	U	AU	TH	SR	CD	SB	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	NA	K	M	AU**		
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	I	PPM	PPM	I	PPM	I	PPM	I	I	I	PPM	PPM		
863819	1	61	10	90	.3	19	9	711	4.17	3	5	MD	7	142	2	2	2	77	4.90	.08	6	42	1.36	91	.06	5	1.63	.04	.24	2	MD		
863820	1	55	7	73	.4	27	11	673	3.51	2	5	MD	11	73	2	2	3	54	8.96	.08	2	54	1.37	88	.09	9	1.68	.04	.11	2	5		
863821	2	56	1	62	.3	47	13	641	1.56	4	5	MD	2	31	2	2	2	47	.83	.05	2	95	1.86	29	.13	7	1.97	.04	.05	2	10		
863822	1	42	3	54	.1	12	7	555	4.86	3	5	MD	2	19	1	2	5	36	.69	.07	3	71	1.56	17	.16	6	1.64	.05	.04	2	MD		
863823	1	32	2	54	.1	15	4	701	1.91	2	5	MD	6	139	2	2	2	29	39.32	.07	2	21	.77	17	.03	2	1.02	.03	.03	2	10		
863824	8	55	1	54	.1	20	12	835	5.02	6	5	MD	6	46	1	2	2	44	3.51	.04	2	79	1.43	16	.08	3	1.56	.02	.05	2	30		
863825	1	69	3	61	.2	42	18	452	4.70	2	5	MD	4	36	2	2	2	38	2.17	.06	3	86	1.76	50	.13	7	1.80	.03	.08	2	30		
863826	31	47	5	134	.3	48	8	752	2.44	2	5	MD	15	107	3	2	2	52	15.91	.07	3	19	.59	26	.06	3	.88	.03	.06	2	20		
863827	1	58	1	67	.2	26	13	745	5.01	2	5	MD	3	13	1	2	6	41	.48	.04	3	76	1.95	16	.18	2	1.86	.03	.03	2	20		
863828	7	69	6	73	.4	57	18	585	5.02	4	5	MD	3	33	1	2	2	33	1.74	.00	3	95	1.58	52	.12	8	1.72	.03	.04	2	MD		
863829	12	42	5	215	.2	51	6	576	2.74	2	5	MD	14	128	6	3	2	80	32.11	.67	5	21	.67	35	.05	5	.91	.03	.06	2	10		
863830	2	63	3	60	.3	45	17	707	4.81	2	5	MD	3	29	1	2	2	42	2.28	.05	2	96	1.55	20	.15	6	1.68	.02	.03	2	10		
863831	3	82	8	80	.3	65	21	703	5.15	41	5	MD	4	85	1	2	4	40	1.47	.04	2	108	1.56	36	.16	4	1.94	.03	.07	2	5		
863832	1	43	4	71	.1	19	8	642	2.50	27	5	MD	17	131	2	2	2	32	18.20	.07	2	27	.99	22	.04	3	1.44	.02	.05	2	MD		
863833	1	68	2	71	.4	47	17	674	5.15	5	5	MD	4	28	1	2	2	39	1.09	.05	2	103	1.52	26	.14	3	1.71	.04	.05	2	MD		
863834	2	36	3	104	.3	3	13	1034	5.92	2	5	MD	4	36	1	2	2	125	1.88	.07	3	13	2.22	15	.10	4	2.79	.03	.04	2	5		
863835	1	33	4	48	.1	18	4	758	1.68	3	5	MD	7	156	2	3	2	29	39.99	.06	2	22	.64	14	.04	4	.90	.01	.04	2	45		
STD C	20	59	39	123	7.7	69	28	1072	3.82	39	19	8	40	49	18	19	20	58	.44	.12	40	57	.88	178	.06	39	1.72	.04	.13	15	-		
862610	1	56	4	67	.1	22	14	802	3.55	2	5	MD	2	34	1	2	2	68	.50	.08	3	58	1.78	40	.09	2	1.95	.02	.06	2	10		
862611	5	111	12	377	.2	85	23	1197	6.60	35	21	MD	2	181	5	2	2	137	1.78	.31	3	47	1.38	70	.04	3	2.44	.03	.09	2	25		
862612	2	92	7	109	.1	44	19	1250	5.16	14	5	MD	2	119	1	2	2	79	.81	.15	2	69	1.80	70	.07	2	2.33	.02	.10	2	30		
862613	1	60	4	72	.1	26	14	835	3.78	6	5	MD	2	50	1	2	2	69	.54	.10	3	59	1.74	45	.07	2	1.97	.02	.07	2	10		
862614	1	69	5	88	.1	31	16	1098	4.50	12	5	MD	2	65	1	2	2	82	.80	.12	3	53	1.79	63	.07	2	2.13	.04	.08	2	15		
862615	1	81	6	83	.1	35	17	1186	4.37	14	5	MD	2	63	1	2	2	71	.76	.13	2	53	1.59	65	.04	3	1.95	.03	.08	2	5		
862616	1	53	5	63	.1	23	13	781	3.41	2	5	MD	2	31	1	2	2	59	.42	.09	3	54	1.58	39	.05	2	1.72	.02	.06	2	10		
862617	1	48	1	63	.1	22	12	748	3.34	2	5	MD	2	32	1	2	2	62	.44	.09	4	52	1.59	36	.06	2	1.73	.02	.05	2	15		
862618	1	52	2	65	.1	23	13	788	3.50	2	5	MD	2	37	1	2	2	65	.44	.09	3	59	1.69	39	.08	3	1.87	.02	.05	2	10		
862619	1	49	2	68	.1	26	13	829	3.77	2	5	MD	2	37	1	2	2	60	.50	.09	4	61	1.72	34	.08	2	1.98	.02	.04	2	10		
862620	1	36	5	71	.1	23	12	776	3.77	5	5	MD	2	34	1	2	2	60	.45	.09	3	67	1.87	30	.08	2	2.08	.03	.04	2	10		
862621	1	44	5	67	.1	25	13	792	3.64	2	5	MD	2	36	1	2	2	59	.46	.09	3	61	1.70	36	.08	2	1.93	.02	.04	2	5		
862622	1	34	6	68	.1	23	11	752	3.61	2	5	MD	2	31	1	2	2	57	.44	.10	3	62	1.79	29	.07	2	1.98	.02	.03	2	10		
862623	1	48	3	72	.1	27	13	875	3.85	5	5	MD	2	37	1	2	2	60	.46	.10	3	58	1.78	38	.07	2	2.01	.02	.04	2	10		
862624	1	62	8	61	.1	25	13	797	3.55	5	5	MD	2	38	1	2	2	67	.55	.16	5	48	1.28	53	.05	2	1.57	.01	.06	2	10		

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OCT 04 1984

SELCO - BP RESOURCES
VANCOUVER, B.C.

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ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 ML5 WITH WATER.
THIS LEACH IS PARTIAL FOR: CA, P, MG, AL, TI, LA, X, W, BA, SI, SR, CR AND B. AU DETECTION 3 PPM.
AU ANALYSIS BY AA FROM 5 GRAM SAMPLE. SAMPLE TYPE - 29 TALUS FINE & 2 ROCK

NOTE: IS = INSUFFICIENT SAMPLE
ND = NOT DETECTED
- = NOT ANALYZED

DATE RECEIVED SEPT 11 1984 DATE REPORTS MAILED Sept 25/84 ASSAYER Datz DAVID CHIU, CERTIFIED B.C. ASSAYER

BP - SELCO MINING PROJECT# 557 REPORT# 84-20-096 JOB# 84-466 INVOICE# 8323 FILE# 84-2692 PAGE # 1

SAMPLE #	MO	CU	PB	ZN	AG	NI	CO	MM	FE	AS	U	AU	TH	SR	CD	SB	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	MA	K	W	AU#
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
853217	2	178	9	100	.2	55	30	1441	6.29	10	5	ND	2	72	1	2	2	127	.72	.08	3	154	3.24	102	.08	3	4.16	.03	.06	2	10
853218	1	22	4	69	.1	31	19	1704	5.37	4	5	ND	2	20	1	2	2	103	.28	.07	4	76	2.21	38	.18	5	2.80	.01	.02	2	45
853219	1	22	8	70	.1	18	12	943	5.14	4	5	ND	2	25	1	2	2	107	.28	.06	4	37	1.93	27	.21	3	2.75	.01	.03	2	25
853220	1	24	5	71	.1	27	15	1125	5.82	4	5	ND	2	17	1	2	2	143	.28	.06	4	67	2.41	23	.24	4	2.98	.01	.07	2	35
853221	1	17	7	59	.1	27	10	551	5.06	7	5	ND	2	27	1	2	2	126	.24	.08	4	65	1.90	29	.19	4	2.64	.01	.03	2	10
853222	1	85	8	80	.3	43	19	1829	5.19	5	5	ND	2	28	1	2	2	83	.47	.20	7	92	2.26	105	.03	3	3.36	.01	.09	2	10
853223	1	50	7	65	.1	55	14	602	4.29	6	5	ND	2	45	1	2	2	119	1.11	.07	3	141	2.15	41	.14	2	2.45	.01	.03	2	10
853224	1	17	6	53	.2	18	8	566	4.25	3	5	ND	2	16	1	2	2	80	.14	.09	6	44	1.13	64	.04	2	1.86	.01	.05	2	ND
853225	1	56	6	75	.1	40	19	1132	5.09	5	5	ND	2	21	1	2	3	110	.42	.10	2	105	2.68	37	.12	2	2.96	.01	.04	2	10
853226	1	22	6	65	.1	29	13	724	5.21	3	5	ND	2	23	1	2	3	107	.26	.06	3	65	2.05	21	.19	2	2.83	.01	.03	2	5
853227	1	20	4	68	.1	35	14	949	5.14	6	5	ND	2	26	1	2	3	132	.37	.07	2	82	2.42	24	.25	2	2.71	.01	.03	2	20
853228	1	15	5	102	.3	32	15	868	6.12	5	5	ND	2	14	1	2	3	194	.16	.07	2	349	3.73	45	.26	2	4.25	.01	.14	2	ND
853229	1	17	4	58	.1	22	10	560	3.97	2	5	ND	2	30	1	2	2	100	.25	.04	4	53	1.61	28	.18	2	2.42	.01	.02	2	20
853230	1	37	8	66	.2	22	14	1157	4.87	4	5	ND	2	20	1	3	2	83	.20	.05	4	51	1.73	37	.09	2	2.63	.01	.02	2	20
853231	1	54	6	68	.1	30	16	931	5.03	3	5	ND	2	50	1	2	2	105	.35	.05	4	74	2.34	42	.16	4	3.25	.01	.03	2	ND
853232	2	43	6	72	.3	32	15	1880	4.87	8	5	ND	2	43	1	2	2	101	.84	.06	3	93	1.71	50	.16	3	3.08	.01	.03	2	5
853233	1	22	6	67	.1	22	11	687	3.90	6	5	ND	2	31	1	2	2	76	.33	.04	4	54	1.71	32	.13	4	2.12	.01	.03	2	10
853234	1	76	7	77	.1	35	17	1110	4.44	8	5	ND	2	36	1	2	2	64	.51	.10	3	65	1.95	36	.13	3	2.54	.01	.03	2	5
853235	1	30	5	74	.1	20	11	650	6.20	10	5	ND	2	34	1	2	2	116	.22	.07	4	55	1.68	30	.29	2	2.58	.01	.01	2	ND
853236	2	73	9	113	.2	30	18	1184	4.99	17	5	ND	2	88	1	3	2	72	.78	.09	4	51	1.94	60	.09	5	2.41	.02	.05	2	25
STD	21	174	44	95	2.3	717	12	662	3.67	13	5	ND	4	27	1	8	2	49	1.59	.12	7	89	.64	33	.04	28	.79	.04	.21	2	-
853237	1	46	8	93	.2	21	19	1486	4.88	7	5	ND	2	58	1	3	2	62	1.16	.09	2	27	1.68	38	.06	5	2.06	.01	.02	2	ND
853238	1	47	6	90	.1	31	16	1032	4.81	13	5	ND	2	52	1	2	2	69	.53	.08	3	59	2.17	43	.10	2	2.55	.01	.04	2	10
853239	1	56	8	51	.2	20	15	1285	3.46	7	5	ND	2	60	1	2	2	62	1.02	.12	3	38	.99	84	.08	4	1.79	.01	.04	2	5
853240	1	39	7	76	.1	21	12	794	4.46	7	5	ND	2	57	1	2	2	79	.72	.06	3	52	1.45	79	.16	2	2.17	.01	.03	2	ND
853241	1	45	8	81	.1	26	16	1024	4.54	7	5	ND	2	44	1	2	2	70	.89	.08	2	81	2.01	52	.09	2	2.38	.02	.04	2	ND
853242	1	56	20	100	.1	21	15	1582	4.50	14	5	ND	2	56	1	2	2	62	.85	.09	2	51	1.84	65	.10	6	2.20	.02	.05	2	ND
853243	2	92	7	97	.1	26	16	968	4.99	12	5	ND	2	79	1	2	2	62	3.48	.09	2	45	1.73	32	.11	2	2.15	.02	.02	2	ND
853244	1	31	5	101	.1	15	11	769	5.18	16	5	ND	2	55	1	2	2	73	.54	.13	3	65	2.10	29	.10	2	2.98	.03	.01	2	ND
853245	1	33	4	89	.1	24	11	898	5.37	5	10	ND	2	21	1	2	5	86	.28	.03	2	56	1.63	26	.52	3	2.02	.01	.01	2	ND
862044	3	627	25	35	1.9	20	60	100	5.12	62	5	ND	2	2	1	3	2	7	.17	.01	2	223	.10	8	.01	6	.20	.01	.01	3	85
862048	4	617	25	36	1.8	19	59	93	4.96	60	5	ND	2	2	1	3	2	6	.17	.01	2	215	.09	7	.01	6	.19	.01	.01	2	50
STD C	20	58	39	123	6.7	69	27	1097	3.83	42	18	8	36	49	17	16	21	58	.44	.14	37	57	.88	178	.06	38	1.64	.06	.12	13	-

SAMPLE	MO	CU	PB	ZK	AG	XI	CO	MM	FE	AS	U	AU	TH	SR	CD	SB	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	KA	K	M	AU+
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	I	PPM	PPM	I	PPM	I	PPM	I	I	I	PPM	PPB
STL	19	163	46	90	2.2	685	11	626	3.31	10	5	ND	2	23	1	8	2	41	1.48	.12	7	61	.60	54	.03	23	.65	.03	.18	2	-
862625	1	57	7	69	.1	28	14	860	3.49	3	5	ND	2	39	1	2	2	41	.47	.13	3	52	1.49	50	.04	2	1.73	.02	.06	2	5
862626	1	40	3	63	.1	23	12	714	3.51	5	5	ND	2	30	1	2	2	55	.39	.10	3	63	1.65	32	.05	2	1.81	.02	.04	2	5
862627	1	46	4	66	.1	25	12	753	3.64	2	5	ND	2	30	1	2	2	58	.42	.10	3	69	1.72	34	.06	3	1.91	.02	.04	2	35
862628	1	61	6	68	.1	28	14	741	3.74	2	5	ND	2	38	1	2	2	66	.51	.13	3	75	1.75	43	.06	2	1.91	.02	.06	2	5
862629	1	56	5	66	.1	26	14	751	3.51	2	5	ND	2	36	1	2	2	63	.43	.10	4	69	1.73	42	.06	2	1.86	.02	.05	2	10
862630	2	114	12	80	.1	36	21	1228	5.14	12	7	ND	2	27	1	2	2	92	.28	.08	5	79	1.70	87	.03	2	2.20	.02	.07	2	30
862631	1	57	5	63	.1	26	14	715	3.40	2	7	ND	2	35	1	2	2	65	.41	.10	4	65	1.68	44	.06	2	1.78	.01	.05	2	10
862632	1	74	4	67	.1	30	16	768	3.92	2	6	ND	2	40	1	2	2	76	.53	.12	4	89	1.71	49	.06	3	1.84	.02	.06	2	10
862633	1	94	9	97	.1	38	21	974	5.10	15	23	ND	2	148	1	2	2	67	2.11	.11	2	64	2.00	85	.06	2	2.32	.01	.09	2	5
862634	1	114	4	98	.1	45	25	929	5.31	11	31	ND	2	173	1	2	2	69	2.51	.12	2	66	1.93	97	.06	2	2.36	.01	.19	2	5
862635	2	119	10	124	.4	44	25	1059	6.03	16	11	ND	2	101	1	2	2	63	1.54	.12	2	44	1.59	97	.05	2	2.06	.01	.17	2	5
862636	2	111	8	124	.5	43	25	1057	6.00	10	12	ND	2	100	1	2	2	64	1.59	.11	2	46	1.64	94	.06	2	2.10	.01	.16	2	10
862637	5	114	6	171	.1	55	26	1168	6.17	14	11	ND	2	162	2	2	2	53	1.39	.11	2	42	1.36	47	.03	2	2.23	.03	.03	2	10
862638	1	110	7	66	.1	35	23	2098	4.30	6	5	ND	2	57	1	2	2	56	.64	.12	3	53	1.59	72	.03	2	1.91	.01	.03	2	10
862639	1	90	5	75	.1	14	18	1459	5.14	2	45	ND	2	62	1	2	2	53	4.39	.07	2	17	1.67	32	.06	3	1.89	.01	.02	2	5
862640	1	142	5	99	.1	32	24	1150	5.43	12	28	ND	2	148	1	2	2	61	2.66	.09	2	43	1.68	86	.06	2	2.37	.01	.10	2	10
862641	2	99	5	100	.1	53	24	1489	5.87	14	5	ND	2	127	1	2	2	54	.54	.14	2	106	1.68	55	.03	2	2.56	.02	.03	2	10
862642	1	215	6	88	.1	50	25	1804	5.26	9	5	ND	2	87	1	2	2	66	.95	.13	2	84	1.74	89	.04	3	2.54	.01	.08	2	10
862643	1	92	7	84	.1	32	19	1263	4.96	27	5	ND	2	60	1	2	2	47	.98	.12	2	34	1.34	39	.02	3	1.83	.01	.02	2	10
862644	2	183	13	85	.1	55	29	2279	5.43	20	5	ND	2	131	1	3	2	70	.52	.12	4	79	1.85	125	.02	3	3.33	.02	.03	2	15
862645	2	112	11	96	.2	38	22	1158	5.58	19	5	ND	2	128	1	2	2	69	.85	.11	2	52	1.81	85	.05	3	2.41	.01	.08	2	20
862646	3	101	10	114	.2	54	24	1290	5.87	4	5	ND	2	94	1	2	2	70	.86	.13	3	40	1.57	66	.05	4	2.19	.02	.05	2	5
862647	2	95	6	98	.2	49	25	1380	5.88	17	5	ND	2	64	1	2	2	52	.54	.12	2	47	1.48	37	.04	2	2.13	.01	.02	2	5
862648	2	95	8	92	.2	31	19	1106	4.94	17	5	ND	2	89	1	2	2	56	1.69	.10	2	37	1.64	70	.07	3	2.13	.01	.09	2	10
862649	2	105	4	93	.3	36	23	1246	5.74	7	5	ND	2	46	1	2	2	56	.33	.13	3	36	1.58	31	.05	3	2.02	.01	.02	2	10
862650	3	102	11	125	.2	55	24	1284	6.11	2	5	ND	2	97	2	2	2	77	.54	.14	2	43	1.61	77	.06	3	2.31	.02	.06	2	5
862651	6	135	10	195	.2	102	31	1481	7.38	11	5	ND	2	139	3	2	2	68	.81	.14	2	51	1.36	64	.04	3	2.07	.02	.06	2	10
862652	4	129	8	160	.3	77	29	1732	7.17	2	5	ND	2	86	2	2	2	106	.66	.15	2	55	1.73	96	.06	4	2.48	.03	.09	2	5
862653	3	96	4	118	.2	42	19	1193	5.14	2	5	ND	2	81	2	2	2	48	2.02	.12	2	33	1.48	69	.05	3	1.89	.02	.11	2	10
862654	2	203	10	94	.2	82	29	1829	6.14	11	5	ND	2	137	1	2	2	67	.77	.14	2	80	1.78	133	.02	3	2.67	.02	.05	2	15
862655	1	96	7	92	.1	59	20	2078	5.62	3	5	ND	2	24	1	3	2	71	.47	.10	2	130	2.48	55	.01	4	3.17	.03	.05	2	ND
862656	1	227	9	84	.1	46	23	3196	5.28	5	5	ND	2	171	1	2	2	60	.54	.11	2	67	2.03	164	.02	2	2.86	.01	.04	2	5
862657	1	101	7	71	.1	36	17	1900	4.56	2	5	ND	2	82	1	2	2	67	.35	.11	4	74	1.82	94	.05	3	2.65	.01	.04	2	3
862658	1	30	5	48	.2	19	9	808	3.66	4	5	ND	2	41	1	2	2	66	.15	.08	4	48	1.08	60	.09	3	1.96	.01	.02	2	10
862659	2	158	6	74	.1	64	23	1749	4.86	5	5	ND	2	38	1	3	2	51	.30	.13	3	59	1.71	43	.05	3	2.78	.01	.03	2	5
862660	1	67	7	87	.2	29	16	1133	4.13	7	5	ND	2	72	1	2	2	60	.56	.11	2	37	1.52	69	.05	2	1.97	.02	.11	2	10
862661	2	64	7	91	.1	28	16	1177	4.46	4	5	ND	2	71	1	3	2	64	.55	.11	2	39	1.76	68	.06	3	2.20	.02	.09	2	10
862662	1	104	5	95	.1	34	25	1397	5.39	2	5	ND	2	111	1	2	2	71	.59	.12	2	46	1.95	106	.06	2	2.65	.01	.08	2	5
862663	2	121	9	112	.3	39	25	1228	6.08	2	5	ND	2	76	1	2	2	97	.97	.09	2	37	1.68	131	.08	4	2.22	.04	.15	2	5
STD	24	174	47	99	2.3	725	12	661	3.66	10	5	ND	3	24	1	10	2	45	1.63	.12	6	68	.64	73	.04	24	.70	.03	.20	2	-
862664	1	172	8	79	.1	98	22	982	5.10	2	5	ND	2	120	1	2	2	83	1.06	.09	2	180	2.32	95	.08	4	3.28	.02	.17	2	ND
862665	2	326	15	81	.1	67	29	2842	5.96	14	5	ND	2	120	1	2	2	69	1.24	.14	2	91	1.82	105	.03	5	2.96	.02	.07	2	15
862666	1	125	7	74	.1	45	18	1417	4.62	2	5	ND	2	78	1	2	2	76	.67	.11	3	94	1.72	92	.05	3	2.96	.01	.06	2	5
862667	1	167	10	71	.1	53	16	1055	4.85	16	5	ND	2	78	1	2	2	51	.58	.14	2	69	1.41	79	.03	3	2.71	.02	.05	2	5
862668	2	82	5	93	.2	34	20	1356	5.19	6	5	ND	2	38	1	3	2	119	.39	.11	4	59	1.55	102	.06	3	3.21	.04	.04	2	ND
862669	1	164	14	82	.2	17	20	1787	5.43	20	5	ND	2	140	1	2	2	64	1.17	.09	2	23	1.88	172	.02	2	2.80	.02	.07	2	5
862670	1	50	2	83	.1	61	19	1130	4.96	2	5	ND	2	23	1	2	2	80	.40	.08	2	150	2.75	33	.09	3	2.92	.02	.04	2	ND
862671	1	35	6	50	.1	24	13	1115	4.71	4	5	ND	2	58	1	2	2	102	.13	.10	4	62	1.26	80	.05	2	2.30	.01	.03	2	5
862672	1	123	14	69	.1	51	19	2130	4.50	9	5	ND	2	108	1	3	2	69	.67	.08	3	99	1.64	118	.03	3	3.50	.04	.03	2	5
862673	2	113	14	76	.1	75	25	2447	5.35	11	5	ND	2	76	1	2	2	56	.42	.17	4	86	1.42	114	.03	3	2.97	.01	.03	2	ND
862674	5	124	10	91	.1	337	45	1543	6.81	15	5	ND	2	36	1	2	3	59	.63	.18	2	290	1.48	56	.06	4	2.21	.02	.03	2	10
862675	3	78	6	66																											

SAMPLE I

	MO	CU	PB	ZN	AG	NI	CO	MN	FE	AS	U	AU	TH	SR	CD	SB	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	NA	K	W	AUM
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	I	PPM	PPM	I	PPM	I	PPM	I	I	I	PPM	PPB
863770	1	223	8	100	.2	33	24	1156	4.35	11	5	ND	2	62	1	2	2	123	.80	.10	2	85	2.79	86	.09	3	3.88	.02	.11	2	5
863771	1	110	7	76	.1	26	21	1533	4.77	5	5	ND	2	75	1	2	2	79	.30	.15	4	58	1.90	115	.10	2	3.06	.01	.05	2	ND
863772	1	102	6	80	.1	24	17	1310	4.71	4	5	ND	2	75	1	2	2	67	.12	.12	6	58	1.94	63	.09	2	3.05	.02	.06	2	5
863773	2	156	9	119	.3	35	23	1574	5.89	9	5	ND	2	76	1	2	2	115	.74	.13	2	63	2.45	115	.10	2	3.17	.03	.12	2	5
863774	2	75	5	104	.1	33	17	1265	5.07	9	5	ND	2	90	1	2	2	86	.64	.12	4	50	2.02	92	.09	2	2.51	.03	.08	2	5
863775	2	96	11	90	.2	29	18	1115	4.87	15	5	ND	2	69	1	2	2	92	.67	.13	3	55	1.81	67	.06	2	2.50	.02	.08	2	10
863776	2	102	8	92	.2	32	20	1357	5.21	27	5	ND	2	70	1	2	2	105	.77	.14	4	67	1.98	76	.06	3	2.68	.02	.07	2	10
863777	1	48	5	86	.2	26	13	1018	4.54	2	5	ND	2	61	1	2	2	75	.55	.09	3	84	2.15	67	.11	3	2.60	.05	.08	2	5
863778	1	79	8	89	.2	31	16	1272	4.65	11	5	ND	2	65	1	2	2	86	.60	.13	2	61	1.97	64	.06	2	2.51	.03	.07	2	5
863779	2	94	9	102	.2	33	19	1329	5.23	8	5	ND	2	78	1	2	2	92	.64	.13	3	55	2.08	86	.08	2	2.65	.02	.08	2	ND
863780	2	95	10	86	.1	30	17	1306	4.85	14	5	ND	2	65	1	2	2	87	.82	.14	3	56	1.91	100	.06	2	2.46	.02	.07	2	15
863781	1	151	6	69	.2	116	19	966	4.65	6	5	ND	2	68	1	2	2	147	1.68	.57	7	312	3.33	92	.12	2	2.52	.02	.19	3	10
863782	2	104	4	63	.2	116	17	806	4.46	10	5	ND	2	65	1	2	2	160	1.94	.78	11	302	3.16	44	.12	3	2.31	.01	.17	2	5
863783	2	115	6	71	.2	118	18	896	4.48	4	5	ND	2	54	1	2	2	184	1.75	.59	7	238	3.48	59	.17	3	2.42	.02	.32	2	15
863784	1	153	6	72	.2	112	18	876	4.53	6	5	ND	2	58	1	2	2	181	1.84	.63	8	235	3.37	42	.15	3	2.55	.01	.24	2	10
863785	1	155	12	63	.3	105	16	778	4.38	9	5	ND	2	72	1	2	3	171	1.94	.82	12	242	3.05	46	.14	4	2.27	.01	.28	2	5
863786	2	192	7	77	.2	119	19	921	4.79	6	5	ND	2	55	1	2	4	202	1.83	.62	8	237	3.40	48	.17	4	2.72	.01	.37	2	10
863787	2	150	6	63	.2	97	16	752	4.72	11	5	ND	2	65	1	2	2	175	2.10	.91	13	244	2.89	36	.14	4	2.16	.01	.26	2	10
STD	22	165	43	95	2.4	705	12	659	3.65	12	5	ND	2	26	1	9	2	48	1.56	.72	6	83	.43	106	.04	24	.74	.04	.20	2	-
863788	2	142	27	109	2.8	94	16	757	4.41	12	5	ND	2	58	1	2	4	167	1.90	.78	10	207	2.84	35	.13	40	2.20	.02	.22	3	320
863789	2	157	10	99	.3	47	25	1021	5.74	2	5	ND	2	61	1	2	2	111	.68	.10	2	143	3.00	94	.08	2	3.79	.02	.11	2	5
863790	1	148	10	74	.1	38	24	1815	5.36	21	5	ND	2	59	1	2	2	86	.43	.12	4	83	1.97	87	.10	2	3.20	.01	.66	2	10
863791	1	159	4	73	.1	45	20	982	4.91	7	5	ND	2	55	1	2	3	85	.55	.09	3	100	2.14	57	.07	4	3.08	.02	.05	2	10
863792	1	162	6	96	.1	49	29	1091	5.94	3	5	ND	2	74	1	2	3	115	.77	.09	2	151	3.13	99	.08	2	3.72	.03	.12	2	5
863793	1	178	6	102	.2	54	29	1594	6.35	2	5	ND	2	71	1	2	3	121	.77	.09	2	166	3.36	114	.08	2	3.97	.03	.13	2	10
863794	2	176	8	98	.1	52	29	1470	6.07	3	5	ND	2	73	1	2	2	116	.76	.09	2	151	3.20	105	.09	2	3.78	.03	.12	2	16
863795	1	184	11	99	.2	53	29	1484	6.10	4	5	ND	2	68	1	2	3	117	.73	.09	2	153	3.22	102	.08	3	3.78	.03	.12	2	5
863796	1	159	27	154	3.9	45	25	1204	5.30	2	5	ND	2	62	2	2	3	105	.79	.08	2	134	2.77	88	.07	50	3.30	.04	.10	3	396
863797	2	157	6	89	.1	47	24	1055	5.46	2	5	ND	2	64	1	2	4	105	.70	.09	2	135	2.78	91	.06	3	3.41	.02	.08	2	10
863798	1	125	4	57	.1	65	17	876	4.25	2	5	ND	2	48	1	2	2	98	.97	.24	3	138	2.03	46	.08	2	3.45	.01	.04	2	5
863799	1	163	6	92	.1	48	27	1379	5.67	3	5	ND	2	64	1	2	3	111	.77	.09	2	143	2.99	93	.07	2	3.54	.03	.10	2	10
863800	1	180	9	100	.1	51	28	1512	6.14	3	5	ND	2	64	1	2	2	119	.78	.09	2	154	3.22	98	.08	3	3.80	.03	.10	2	10
863801	1	176	8	98	.1	48	27	1446	5.94	2	5	ND	2	59	1	2	2	115	.76	.11	2	139	3.11	93	.08	2	3.66	.02	.12	2	5
863802	1	210	6	85	.2	57	24	1178	5.18	2	5	ND	2	59	1	2	2	110	.84	.12	2	160	2.86	99	.09	3	3.18	.02	.12	2	10
863803	1	230	6	85	.1	73	24	1175	5.37	4	5	ND	2	61	1	2	2	114	.91	.17	2	209	3.06	93	.09	2	3.18	.02	.13	2	10
863804	1	243	4	85	.1	79	24	1158	5.42	2	5	ND	2	63	1	2	3	120	.95	.19	2	222	3.11	93	.09	2	3.19	.02	.14	2	10
863805	1	225	6	72	.1	80	21	939	4.87	3	5	ND	2	64	1	2	4	113	1.11	.34	2	236	2.73	86	.09	2	2.70	.02	.13	2	15
863806	1	181	5	70	.1	108	23	936	4.75	2	5	ND	2	62	1	2	2	111	1.15	.36	2	285	2.90	104	.09	2	2.67	.02	.13	2	15
STD C	20	58	40	122	7.0	69	27	1038	3.82	40	19	8	40	48	17	16	21	57	.44	.12	40	56	.88	174	.06	38	1.71	.06	.12	14	-
863807	18	48	7	52	.1	61	15	449	5.58	24	5	ND	6	20	1	2	2	55	1.65	.05	2	115	1.40	66	.16	2	1.54	.04	.15	2	5
863808	3	57	8	98	.1	29	15	1149	4.33	5	5	ND	4	26	1	2	4	55	.28	.06	7	65	1.98	76	.07	7	2.36	.03	.07	2	10
863809	8	58	24	66	.1	39	12	471	5.47	8	5	ND	5	21	1	2	7	75	.58	.09	3	70	1.33	39	.20	2	1.61	.05	.08	2	90
863810	1	52	10	59	.2	21	13	691	2.94	3	5	ND	4	74	1	2	2	63	6.57	.06	4	41	1.48	42	.12	2	1.78	.04	.07	2	10
863811	10	76	6	47	.2	60	14	500	6.43	30	5	ND	5	27	1	2	2	51	1.63	.06	2	91	1.13	63	.12	2	1.67	.07	.07	2	10
863812	8	32	5	38	.2	8	11	341	5.72	8	5	ND	4	20	1	2	2	58	.27	.07	5	40	1.00	76	.13	5	1.62	.08	.06	2	5
863813	1	47	1	56	.1	11	9	596	4.82	2	5	ND	4	20	1	2	5	39	.48	.05	3	68	1.73	29	.16	2	1.94	.07	.06	2	ND
863814	1	57	7	96	.3	25	9	518	2.94	2	5	ND	6	143	1	3	2	78	5.44	.06	5	56	1.06	149	.10	6	2.45	.28	.41	2	ND
863815	2	60	1	67	.1	25	16	560	5.17	2	5	ND	6	47	1	2	3	49	.76	.05	4	59	1.53	50	.17	5	1.99	.10	.04	2	5
863816	1	65	1	78	.1	32	16	654	4.87	2	5	ND	5	38	1	2	2	52	.87	.07	5	67	1.88	23	.13	2	2.34	.09	.06	2	10
863817	1	55	1	83	.1	23	18	789	4.90	5	5	ND	5	29	1	2	3	59	.57	.04	5	38	2.59	18	.13	8	3.14	.06	.02	2	10
863818	3	48	6	81	.5	15	14	511	5.22	2	5	ND	5	57	1	2	2	49	1.12	.08	4	26	1.21	42	.12	2	1.72	.10	.08	2	ND
STD C	20	58	40	122	7.0	69	27	1038	3.																						

SAMPLE I	CO	CU	PB	ZN	AG	NI	CO	MX	FE	AS	U	AU	TH	SR	CD	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	KA	K	V	AU*	
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
853201	1	91	9	71	.1	30	20	911	4.45	10	5	NO	2	100	1	2	2	72	.93	.08	2	66	1.82	70	.06	3	2.24	.04	.06		15
853202	1	58	6	66	.1	19	13	795	4.02	2	5	NO	2	57	1	2	2	59	1.68	.07	2	43	1.64	45	.08	2	2.14	.01	.04	2	20
853203	2	94	5	78	.1	27	19	1006	4.63	11	5	NO	2	102	1	2	2	58	1.49	.08	2	52	1.70	55	.06	3	2.21	.02	.04	2	15
853204	1	77	4	75	.1	24	17	924	4.44	7	5	NO	2	80	1	2	2	41	1.45	.08	2	53	1.72	52	.04	3	2.23	.02	.05	2	13
853205	2	142	9	92	.1	38	27	1300	5.41	13	5	NO	2	137	1	2	2	63	.79	.10	2	67	1.87	72	.06	2	2.43	.02	.06	2	15
853206	1	66	5	66	.1	20	14	814	3.93	3	5	NO	2	60	1	2	2	55	1.43	.07	2	48	1.54	46	.05	3	2.02	.01	.05	2	NO
853207	1	68	5	69	.1	22	14	835	4.08	4	5	NO	2	60	1	2	2	58	1.42	.08	2	46	1.63	45	.06	2	2.13	.01	.04	2	15
853208	1	79	4	75	.1	24	17	940	4.41	3	5	NO	2	79	1	2	2	58	1.20	.08	2	48	1.69	50	.06	3	2.19	.01	.06	2	20
853209	2	58	3	70	.1	20	18	798	4.05	2	5	NO	2	52	1	2	2	57	1.40	.08	2	45	1.64	42	.07	4	2.12	.01	.04	2	10
853210	1	52	2	65	.1	17	12	744	3.94	2	5	NO	2	53	1	2	2	59	1.45	.07	2	45	1.67	45	.07	2	2.18	.02	.04	2	15
853211	2	106	6	84	.1	29	20	1083	4.24	2	5	NO	2	80	1	2	2	70	.85	.09	2	69	1.68	67	.06	4	2.18	.01	.06	5	5
853212	1	96	7	83	.3	33	18	1170	5.27	13	5	NO	2	25	1	2	2	94	.34	.07	2	77	1.64	85	.03	2	2.17	.01	.07	2	25
853213	1	52	4	65	.1	18	12	732	3.80	3	5	NO	2	50	1	2	2	59	1.43	.07	2	51	1.61	43	.06	3	2.05	.02	.04	2	10
853214	1	59	6	63	.1	18	12	749	3.77	2	5	NO	2	45	1	2	2	56	1.45	.07	2	41	1.59	42	.06	2	2.03	.01	.04	2	15
853215	1	49	2	62	.1	19	12	711	3.46	2	5	NO	2	35	1	2	2	61	.81	.08	2	53	1.64	38	.07	2	1.88	.02	.05	2	20
853216	1	45	4	61	.1	20	12	674	3.21	2	5	NO	2	28	1	2	2	62	.40	.08	2	54	1.65	35	.07	3	1.75	.02	.05	2	10
853217	2	178	9	100	.2	55	30	1441	6.29	10	5	NO	2	72	1	2	2	127	.72	.08	3	154	3.24	102	.08	3	4.14	.03	.06	2	10
853218	1	22	4	69	.1	31	19	1704	5.37	4	5	NO	2	20	1	2	2	103	.28	.07	4	76	2.21	38	.18	5	2.80	.01	.02	2	45
853219	1	22	8	70	.1	18	12	943	5.14	4	5	NO	2	25	1	2	2	107	.28	.06	4	37	1.93	27	.21	3	2.75	.01	.03	2	25
853220	1	24	5	71	.1	27	15	1125	5.82	6	5	NO	2	17	1	2	2	143	.28	.06	4	67	2.41	23	.24	4	2.98	.01	.02	2	35
853221	1	17	7	59	.1	27	10	551	5.06	7	5	NO	2	27	1	2	2	126	.24	.08	4	65	1.90	29	.19	4	2.64	.01	.03	2	10
853222	1	85	8	80	.3	43	19	1829	5.19	5	5	NO	2	28	1	2	2	83	.47	.20	7	92	2.26	105	.03	3	3.36	.01	.09	2	10
853223	1	50	7	65	.1	55	14	602	4.29	6	5	NO	2	45	1	2	2	119	1.11	.07	3	141	2.15	41	.14	2	2.45	.01	.03	2	10
853224	1	17	6	53	.2	18	8	566	4.25	3	5	NO	2	16	1	2	2	80	.14	.09	6	44	1.13	64	.04	2	1.86	.01	.05	2	NO
853225	1	56	6	75	.1	40	19	1132	5.09	5	5	NO	2	21	1	2	3	110	.42	.10	2	105	2.68	37	.12	2	2.96	.01	.04	2	10
853226	1	22	6	65	.1	29	13	724	5.21	3	5	NO	2	23	1	2	3	107	.26	.06	3	65	2.05	21	.19	2	2.83	.01	.03	2	5
853227	1	20	4	68	.1	35	14	949	5.14	6	5	NO	2	26	1	2	3	132	.37	.07	2	82	2.42	24	.25	2	2.71	.01	.03	2	20
853228	1	15	5	102	.3	32	15	868	6.12	5	5	NO	2	14	1	2	3	194	.14	.07	2	349	3.73	45	.26	2	4.25	.01	.14	2	NO
853229	1	17	4	58	.1	22	10	560	3.97	2	5	NO	2	30	1	2	2	100	.25	.04	4	53	1.61	28	.18	2	2.42	.01	.02	2	20
853230	1	37	8	66	.2	22	14	1157	4.87	4	5	NO	2	20	1	3	2	83	.20	.05	4	51	1.73	37	.09	2	2.63	.01	.02	2	20
853231	1	54	6	68	.1	30	16	931	5.03	3	5	NO	2	50	1	2	2	105	.35	.05	4	74	2.34	42	.16	4	3.25	.01	.03	2	NO
853232	2	43	6	72	.3	32	15	1880	4.87	8	5	NO	2	43	1	2	2	101	.84	.06	3	93	1.71	50	.16	3	3.08	.01	.03	2	5
853233	1	22	6	67	.1	22	11	687	3.90	6	5	NO	2	31	1	2	2	76	.33	.04	4	54	1.71	32	.13	4	2.12	.01	.03	2	10
853234	1	76	7	77	.1	35	17	1110	4.44	8	5	NO	2	36	1	2	2	64	.51	.10	3	65	1.95	36	.13	5	2.54	.01	.03	2	5
853235	1	30	5	74	.1	20	11	650	6.20	10	5	NO	2	34	1	2	2	116	.22	.07	4	55	1.68	30	.29	2	2.58	.01	.01	2	NO
853236	2	73	9	113	.2	30	18	1184	4.99	17	5	NO	2	88	1	3	2	72	.78	.09	4	51	1.94	60	.09	5	2.41	.02	.05	2	25
STD	21	174	44	95	2.3	717	12	662	3.67	13	5	NO	4	27	1	8	2	49	1.59	.12	7	89	.64	33	.04	28	.79	.04	.21	2	-
853237	1	46	8	93	.2	21	19	1486	4.88	7	5	NO	2	58	1	3	2	62	1.16	.09	2	27	1.68	38	.06	5	2.06	.01	.02	2	NO
853238	1	47	6	90	.1	31	16	1032	4.81	13	5	NO	2	52	1	2	2	69	.53	.08	3	59	2.17	43	.10	2	2.55	.01	.04	2	10
853239	1	56	8	51	.2	20	15	1285	3.46	7	5	NO	2	60	1	2	2	67	1.02	.12	3	38	.99	84	.08	4	1.79	.01	.04	2	5
853240	1	39	7	76	.1	21	12	794	4.46	7	5	NO	2	57	1	2	2	79	.72	.06	3	52	1.45	79	.16	2	2.17	.01	.03	2	NO
853241	1	45	8	81	.1	26	16	1024	4.54	7	5	NO	2	44	1	2	2	70	.89	.08	2	81	2.01	52	.09	2	2.38	.02	.04	2	NO
853242	1	56	20	100	.1	21	15	1582	4.50	14	5	NO	2	56	1	2	2	62	.85	.09	2	51	1.84	65	.10	6	2.20	.02	.05	2	NO
853243	2	92	7	97	.1	26	16	968	4.99	12	5	NO	2	79	1	2	2	62	3.48	.09	2	45	1.73	32	.11	2	2.15	.02	.02	2	NO
853244	1	31	5	101	.1	15	11	769	5.18	16	5	NO	2	55	1	2	2	73	.54	.13	3	65	2.10	29	.10	2	2.98	.03	.01	2	NO
853245	1	33	4	89	.1	24	11	698	5.37	5	10	NO	2	21	1	2	5	86	.28	.03	2	56	1.63	26	.52	3	2.02	.01	.01	2	NO
862044	3	627	25	35	1.9	20	60	100	5.12	62	5	NO	2	2	1	3	2	7	.17	.01	2	223	.10	8	.01	6	.20	.01	.01	3	85
862048	4	617	25	36	1.8	19	59	93	4.96	60	5	NO	2	2	1	3	2	6	.17	.01	2	215	.09	7	.01	6	.19	.01	.01	2	50
STD C	20	58	39	123	6.7	69	27	1097	3.83	42	18	8	36	49	17	16	21	58	.44	.14	37	57	.88	178	.06	38	1.64	.06	.12	13	-

APPENDIX 2

GEOCHEMICAL PREPRATION AND ANALTYICAL TECHNIQUES

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vancouver, B.C.
V7P 2S

RECEIVED

NOV 28 1984

SELCO - BP EXPLORATION
VANCOUVER, B.C.

TO: Dr. Stan Hoffman
BP - Selco Mining
Suite 700 - 890 West Pender Street
Vancouver, B.C. V6C 1K5

FROM: Vangeochem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine elements in hot acid soluble by Induction Couple Plasma Spectrometer (ICP) analysis.

1. Method of Sample Preparation

- (a) Geochemical soil, silt or rock samples were received in the laboratory in wet-strength 4" x 6" Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.
- (b) The dried soil and silt samples were sifted by hand using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.
- (c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

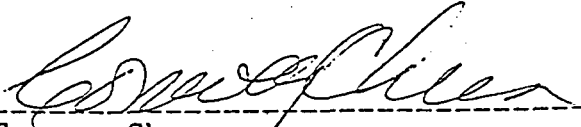
2. Method of Digestion

- (a) 0.500 gram of -80 mesh sample was used.
- (b) Samples were digested in a hot water bath with conc. HNO₃ and conc. HCl acids.
- (c) The digested samples were diluted to a fixed volume and shaken well.

3. Method of Analysis

The ICP analyses elements were determined by using Jarrel Ash, model 885. Direct reading emission spectrograph of a inductive coupled plasma excitation source. All major matrix and trace elements are interelement corrected to trace elements. All data is entered into Apple II plus, stored on floppy disks, and printed by Epson 100.

4. The analyses were supervised by Mr. Dean Toye and Mr. Conway Chun of Vangeochem Lab Ltd. and their staff.



Conway Chun
VANGEOCHEM LAB LTD.

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vancouver, B.C.
V7P 2S3

TO: Dr. Stan Hoffman
BP - Selco Mining
Suite 700 - 890 West Pender Street
Vancouver, B.C. V6C 1K5

FROM: Vangeochem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine gold by fire-
assay method and detected by atomic absorption spec. in
geological samples.

1. Method of Sample Preparation

- (a) Geochemical soil, silt or rock samples were received in the laboratory in wet-strength 4" x 6" Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.
- (b) The dried soil and silt samples were sifted by hand using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.
- (c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Extraction

- (a) 20.0 - 30.0 grams of the pulp samples were used. Samples were weighed out by using a top-loading balance into fusion pot.
- (b) A Flux of litharge, soda ash, silica, borax, flour, or potassium nitrite is added, then fused at 1900 degrees F and a lead button is formed.

(c) The gold is extract by cupellation and part with diluted nitric acid.

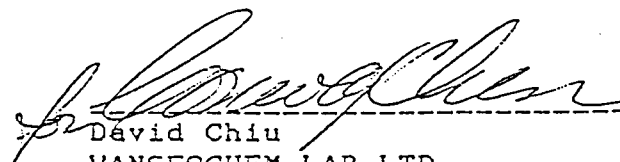
(d) The gold bead is saved for measurement later.

3. Method of Detection

(a) The gold bead is dissolved by boiling with sodium cyanide, hydrogen peroxide and amonium hydroxide.

(b) The gold analyses were detected by using a Techtron model AAS Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out on a strip chart recorder. The gold values in parts per billion were calculated by comparing them with a set of gold standards.

4. The analyses were supervised or determined by Mr. Conway Chun or Mr. David Chiu and his laboratory staff.


David Chiu
VANGEOCHEM LAB LTD.

VANGEOCHEM LAB LTD.
1521 Pemberton Ave.
North Vancouver, B.C.
V7P 2S3

TO: Dr. Stan Hoffman
BP - Selco Mining
Suite 700 - 890 West Pender Street
Vancouver, B.C. V6C 1K5

FROM: Vangoechem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine Aqua Regia
soluble gold in geochemical samples

1. Method of Sample Preparation

- (a) Geochemical soil, silt or rock samples were received in the laboratory in wet-strength 4" x 6" Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.
- (b) The dried soil and silt samples were sifted by hand using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.
- (c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Digestion

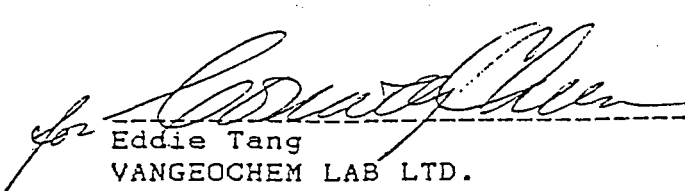
- (a) 5.00 - 10.00 grams of the minus 80-mesh samples were used. Samples were weighed out by using a top-loading balance into beakers.
- (b) 20 ml of Aqua Regia (3:1 HCl : HNO₃) were used to digest the samples over a hot plate vigorously.
- (c) The digested samples were filtered and the washed pulps were discarded and the filtrate was reduced to about 5 ml.

- (d) The Au complex ions were extracted into diisobutyl ketone and thiourea medium. (Anion exchange liquids "Aliquot 336").
- (e) Separate Funnels were used to separate the organic layer.

3. Method of Detection

The gold analyses were detected by using a Techtron model AAS Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out on a strip chart recorder. A hydrogen lamp was used to correct any background interferences. The gold values in parts per billion were calculated by comparing them with a set of gold standards.

- 4. The analyses were supervised or determined by Mr. Conway Chun or Mr. Eddie Tang and his laboratory staff.


for _____
Eddie Tang
VANGEOCHEM LAB LTD.

APPENDIX 3
STATEMENT OF COSTS

STATEMENT OF COSTS

GOLDWAY 9, 10 CLAIMS

GEOLOGICAL SURVEY (Mapping, Sample collection)

3 man days at \$103.57/day	\$ 310.71	
3 man days at \$ 68.78/day	206.34	
1 man day at \$ 65.63/day	65.63	
6 man days at \$ 55.17/day	331.01	
3 man days at \$ 89.24/day	267.72	
	<u>\$1181.42</u>	\$1,181.42

OPERATING COSTS (Room & board, food, rentals,
fuel, equipment expediting)

16 man days at \$75.00/day		\$1,200.00
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GEOCHEMICAL ANALYSIS (Vangeochem Labs)

31 Rock chip samples at \$16.21/sample	\$ 502.40	
153 Silts & Talus fines at \$12.25/sample	1874.25	
	<u>\$2376.65</u>	\$2,376.65

SAMPLE SHIPMENT COSTS

\$ 100.00

COMPUTER COSTS

184 samples at \$2.00/sample		\$ 368.00
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TRANSPORT

Helicopter - 11.8 hours at \$477.89/hr. (with fuel)	\$5639.10	
Fixed Wing - 270 miles at \$1.65/mile (with fuel)	444.90	
Truck - (rental, fuel, insurance, repairs) 6 days at \$86.00/day	516.00	
	<u>\$6600.00</u>	\$6,600.00

REPORT PREPARATION

Geologist - 4 days at \$103.57/day	\$ 414.28	
Geologist - 1 day at \$89.24/day	89.24	
Drafting - 8 hours at \$18.00/hr.	144.00	
Materials	50.00	
	<u>\$ 697.52</u>	<u>\$ 697.52</u>

TOTAL		\$12,523.59
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APPENDIX 4
CERTIFICATE OF AUTHORS

CERTIFICATE

I, David Rudi Heberlein, of #202-9130 Capella Drive, Burnaby, British Columbia, hereby certify that:

1. I am a qualified geologist residing at the above address.
2. I have practised my profession since graduation from the University of Southampton, England, with a B.Sc. with Honours in Geology (1980) and from the University of British Columbia with an MSc. in Geology (1984).
3. That I am presently an employee of Selco Division - BP Resources Canada Limited as a geologist.
4. That I personally supervised geological and geochemical examinations of the Goldway 9, 10 group of Claims and interpreted the results herein.
5. I hold no interest, direct or indirect, in the Goldway 9, 10 Claims.

Respectfully submitted,

D. R. Heberlein
Geologist



Vancouver, B.C.
December, 1984

CERTIFICATE

I, C.M. Rebagliati, of Vancouver, in the Province of British Columbia, hereby certify the following:

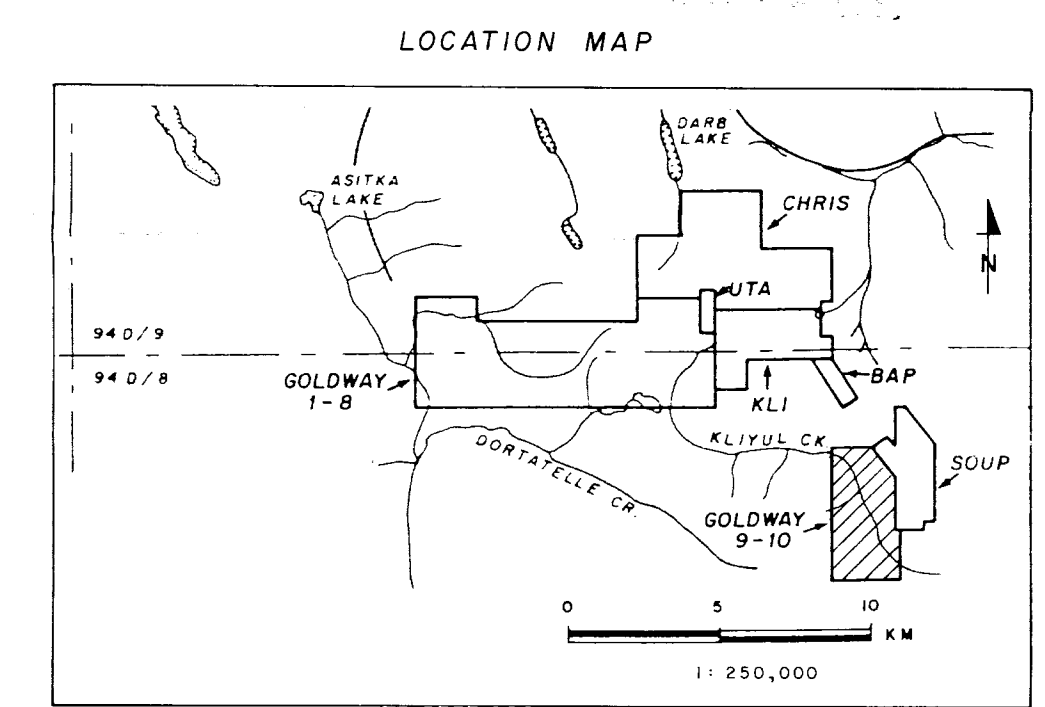
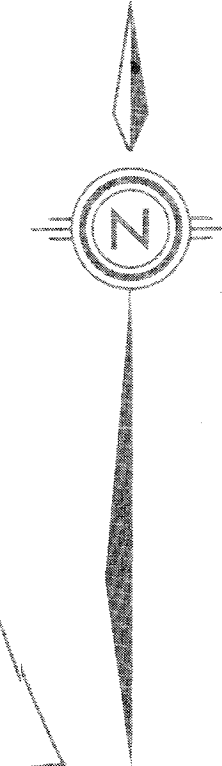
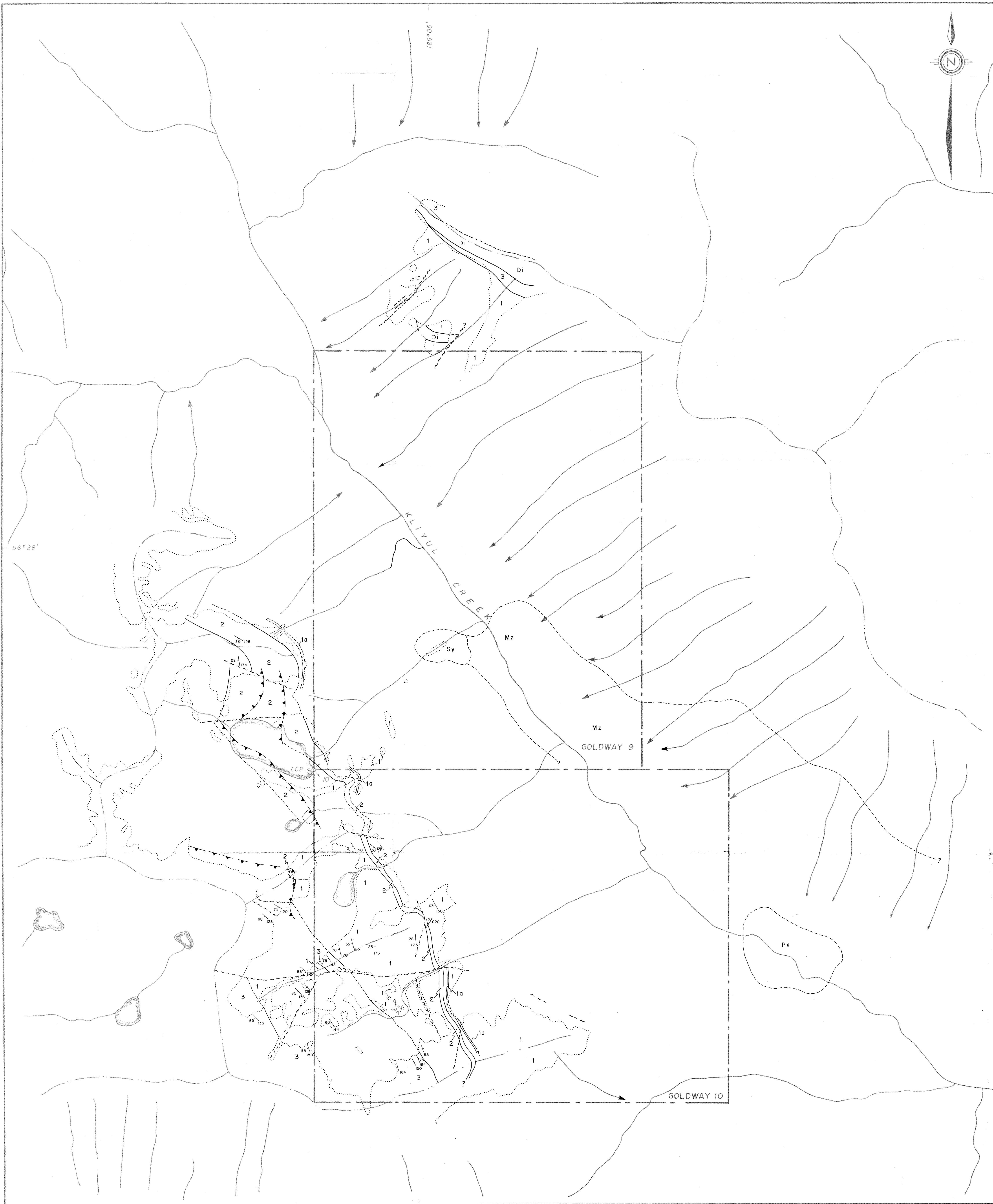
1. That I am a registered Professional Engineer in the Province of British Columbia.
2. That I have practised my profession since graduation from the Haileybury School of Mines of Ontario in 1966 and from the Michigan Technological University in 1969 with a B.Sc. degree in Geological Engineering.
3. That I am presently employed by Selco Division - BP Resources Canada Limited in Vancouver as Senior Geologist.
4. That I personally examined the property to confirm and evaluate the exploration program.

Respectfully submitted,

C.M. Rebagliati, P. Eng.



Vancouver, B.C.
December, 1984



LEGEND

**UPPER TRIASSIC TO LOWER JURASSIC
OMINECA INTRUSIONS**

- Sy SYENITE
- Mz MONZONITE
- Di DIORITE

TAKLA GROUP VOLCANIC & SEDIMENTARY ROCKS

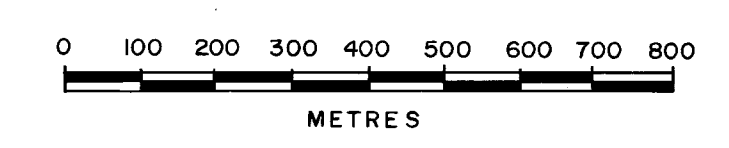
- 3 BASIC CRYSTAL & LAPILLI TUFFS WITH RARE BASIC FLOWS
- 2 CALCAREOUS TUFFS, ARGILLITES & GRITTY LIMESTONES
- 1 ANDESITIC LITHIC, CRYSTAL AND ASH TUFFS WITH RARE BRECCIAS
- 1a LAHAR BRECCIAMARKER UNIT

GEOLOGICAL SYMBOLS

- GEOLOGIC CONTACT (KNOWN, INFERRED)
- FAULT
- / THRUST FAULT
- / BEDDING ATTITUDE
- LIMIT OF OUTCROP
- / GULLY (DRY)

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,460

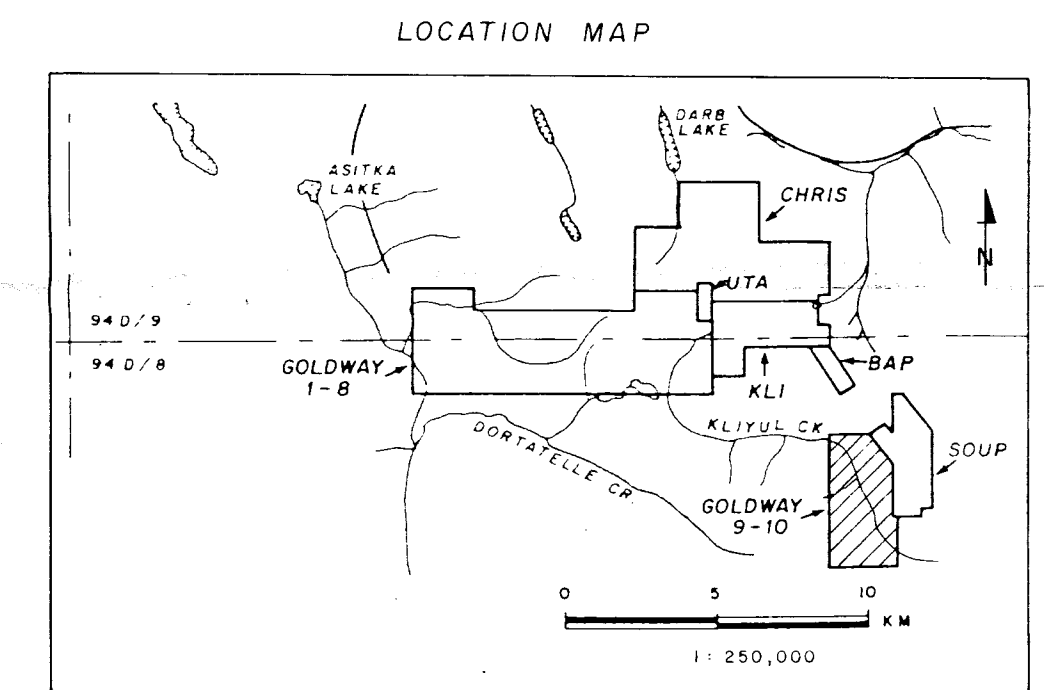
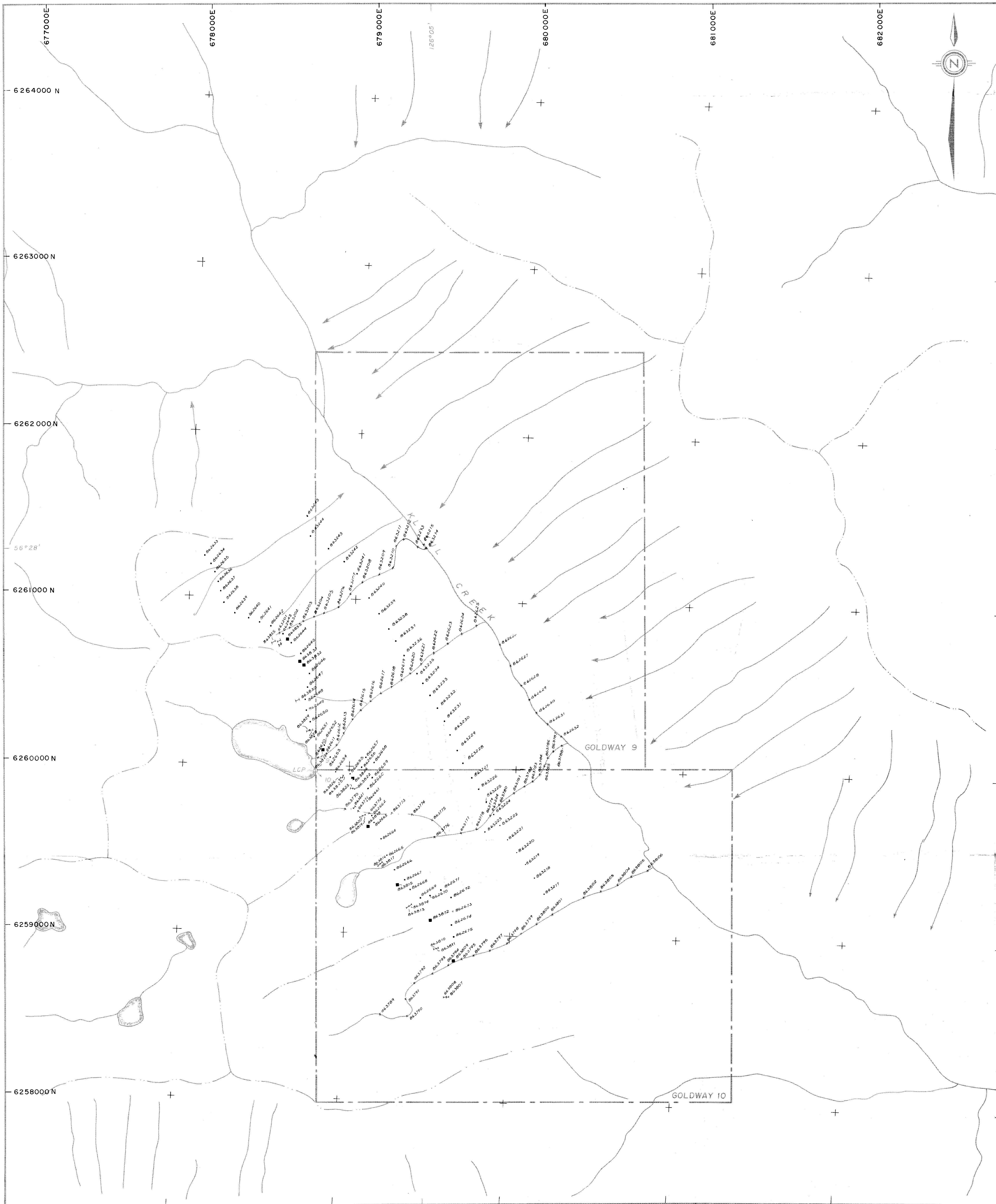


BP SELCO DIVISION -
BP RESOURCES CANADA LIMITED

**GOLDWAY 9,10 CLAIMS
GOLDWAY PROJECT**

GEOLOGY

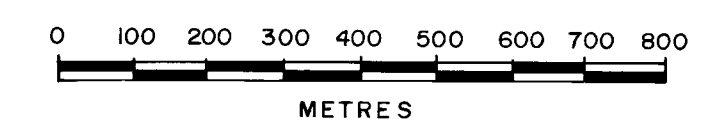
SCALE 10,000	DRAWN BY: D.H.	FIG. 2
DATE DEC 84	DRAFTED BY: E.B.W.	
N.T.S. 94 D / 8	PROJ. 10109	REPORT BPVR 84-38



- LEGEND**
- x STREAM SEDIMENT
 - TALUS FINE
 - ROCK CHIP

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,460



BP SELCO DIVISION -
BP RESOURCES CANADA LIMITED
**GOLDWAY 9,10 CLAIMS
GOLDWAY PROJECT
SAMPLE LOCATION MAP**

SCALE 10,000	DRAWN BY: D.H.	FIG. 3
DATE DEC 84	DRAFTED BY: E.B.W.	
N.T.S. 94 D / 8	PROJ. 10109	REPORT BPVR 84-38