1997-1998 Geological & Geochemical & Geophysical

Report on the Redhill Property

Redhill Group A & B

Kamloops Mining Division

British Columbia

Lat. 50 40'N Long. 121 21'W

NTS 92I/11W

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GEOLOGICAL SURVEY BRANCH

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For-Teck Corp.

May, 1998 By G.Evans

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1.0 - Introduction

The Redhill property was staked by Teck Corp in March of 1997 to cover a favorable package of volcanics with good VMS potential. This area has had a long history of exploration on extensive gossans and sulphide occurences in altered felsic volcanics. Recent work by the MDRU has identified this sequence as analagous in age and chemistry to the Kutcho Assemblage which hosts the known Kutcho Creek Cu,Zn,Au and Ag VMS deposit. Difficulties have arisen in target selection and this program has attempted to see if lithogeochemistry and I.P. are effective tools at identifying prospective stratigraphy.

1.1 - Location and Access (Fig.1)

The Redhill property is located approximately 11.0 km's south of Cache Creek. The property straddles both sides of the trans Canada highway. Numerous gravel logging and ranch roads access much of the property.

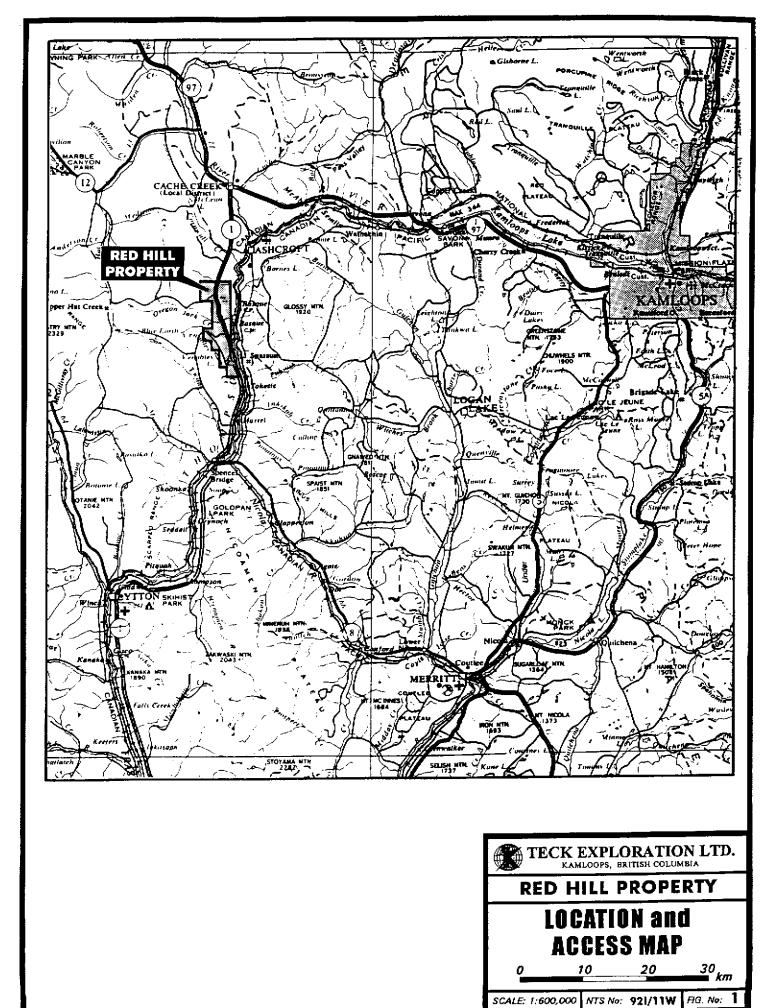
1.2 - Property Status (Fig.2)

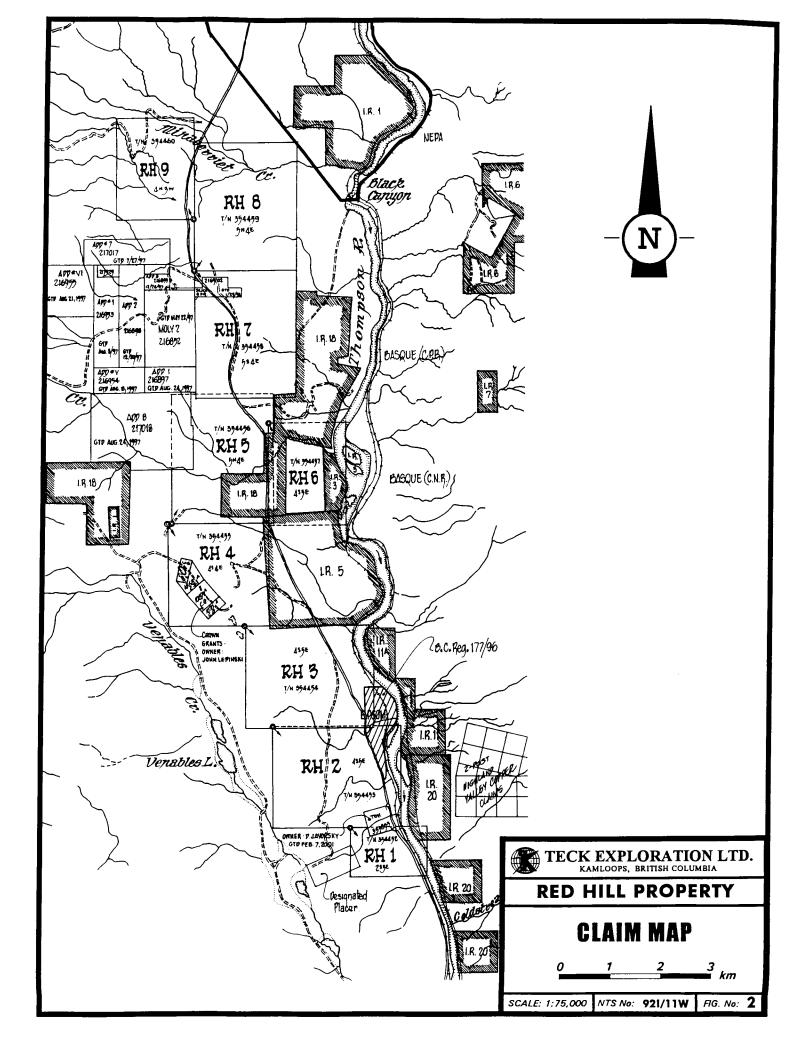
The property consists of the RH-1 through RH-9 claim blocks for a total of 146 units. These have been grouped into Redhill Group A (RH-1-6) and Redhill Group B (RH-7-9) for filing purposes but work on both areas is included in this report. These claims are registered to Teck Corp.

Claim Name	Claim Group	# of Units	Tenure #	Expiry Date
RH-1	Rehill Group A	6	354452	March 11,2001
RH-2	Redhill Group A	20	354453	March 11,2001
RH-3	Redhill Group A	20	354454	March 10,2001
RH-4	Redhill Group A	16	354455	March 13,2001
RH-5	Redhill Group A	20	354456	March 13,2001
RH-6	Redhill Group A	12	354457	March 08,2001
RH-7	Redhill Group B	20	354458	March 09,2000
RH-8	Redhill Group B	20	354459	March 08,2000
RH-9 *N B all dates pe	Redhill Group B	12 f this report	354460	March 14,2000

*N.B. all dates pending acceptance of this report.

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1.3 - Physiography and Climate

The property covers rolling hills on the west side of the Thompson river that range from 400-850 meters in elevation. Below 450 m's elevation the area is typically covered by grassland and sagebrush with cactus while above 450 m's elevation open Ponderosa pine becomes the dominant vegetation. This area is very arid with a majority of precipitation as snowfall from November to March. Temperatures range from -30 degrees C in the winter to +40 degrees C in the summer.

1.4 - History

The area has seen a long but erratic exploration history including:

- 1924-1952 Work on the Basque and Venables valley epsomite ponds.
- 1957- Work by Ainsworth Base Metals on "Baby's Own" magnetite Cu-Au skarn.
- 1959- Cache Creek Silica Co. On silica schists for the silica content.
- 1962- Noranda worked on the gossans on the north side of Red Hill-E.M., Mag and 8 ddh's(271 m's).
- 1966- Delkirk Mining explored the gossans on Red Hill- 366m's of bulldozer trenching and 3 X-ray holes (90m's).
- 1967-68- Canoo Mines Ltd. Explored the Martel vein showings(Mo,Ag) and drilled 4 ddh's(39 m's).
- 1968- Quintana Minerals Corp. Explored Redhill and drilled four deep rotary percussion holes (806 m's).
- 1970- Texas Gulf conducted exploration the "salt" claims north of Venables Lake.
- 1971-Cerro and Ducanex explored Red Hill and conducted geological surveys, mag I.P., 12 percussion holes (960 m's) and 4 ddh's (599 m's).
- 1971-Noranda worked on ground west of Red Hill which included mapping, soil geochem, mag and one ddh (152 m's).
- 1971-72 El Paso Mining conducted exploration on the Mars claims 10 km north of Spences Bridge, which included 3 pdh (366 m's).
- 1974- Bethlehem Copper Corp. conducted exploration over the Red Hill area which included soils and 3 pdh's (177 m's).

- 1978- 79Cominco explored the Lofar,Sofar and Hifar properties over the Redhill Group A area and were looking for felsic hosted VMS systems. This work consisted of geological mapping, soils, E.M., mag and I.P. surveys. This was followed up with percussion drilling on the "Lofar, Orion" claims.
- 1979- Larry Reaugh carried out percussion drilling on the "Moly" claim west of Redhill.
- 1980-81-Selco conducted geological and lithogeochemical work on the Redhill area followed up by percussion drilling.
- 1981- Esso conducted I.P. surveys over an area west of Redhill.
- 1982-85 -Selco conducted work over much of the existing property including: mapping, lithogeochemical sampling, soil orientation surveys, UTEM surveys, 16 excavator trenches and drilled 16 ddh's (3000 m's approx.).
- 1985- Rea Gold continued exploration on the west side of Red Hill with 6 ddh's (765.7 m's).
- 1988- Rea Gold continued exploration on Red Hill with an additional 9 rotary pdh's (1835.7 m's).
- 1994- Chitna Resources conducted soil sampling and some rock analysis over the southern portion of the Redhill property.

2.0-1997-1998 Program

For the purposes of this report the property is split into the Redhill Group A and Redhill Group B areas and the work is recorded separately.

Redhill Group A: Work on RH-1,2,3.

1/- 20.325 Km's of picketed grid with stations every 25 meters.

2/- Approx. 3.5 Square Km's geologically mapped @ 1:5,000 Scale

3/- 23 Rock samples collected for Wholerock, 30 element ICP and Au geochem.

4/- 10 Rock samples collected for 30 element ICP and Au geochem.

5/- 12.5 line kilometers of Gradient-Realsection TD I.P. survey.

Redhill Group B: Work on the SE portion of RH-7

1/-10.3 Km's of picketed grid with stations every 25 meters.

2/-1.5 Square Km's geologically mapped @ 1:5000 Scale

3/-35 Rock samples collected for Wholerock, 30 element ICP and Au geochem.

4/- 3 Rock samples collected for 30 element ICP and Au geochem.

3.0 - Geology

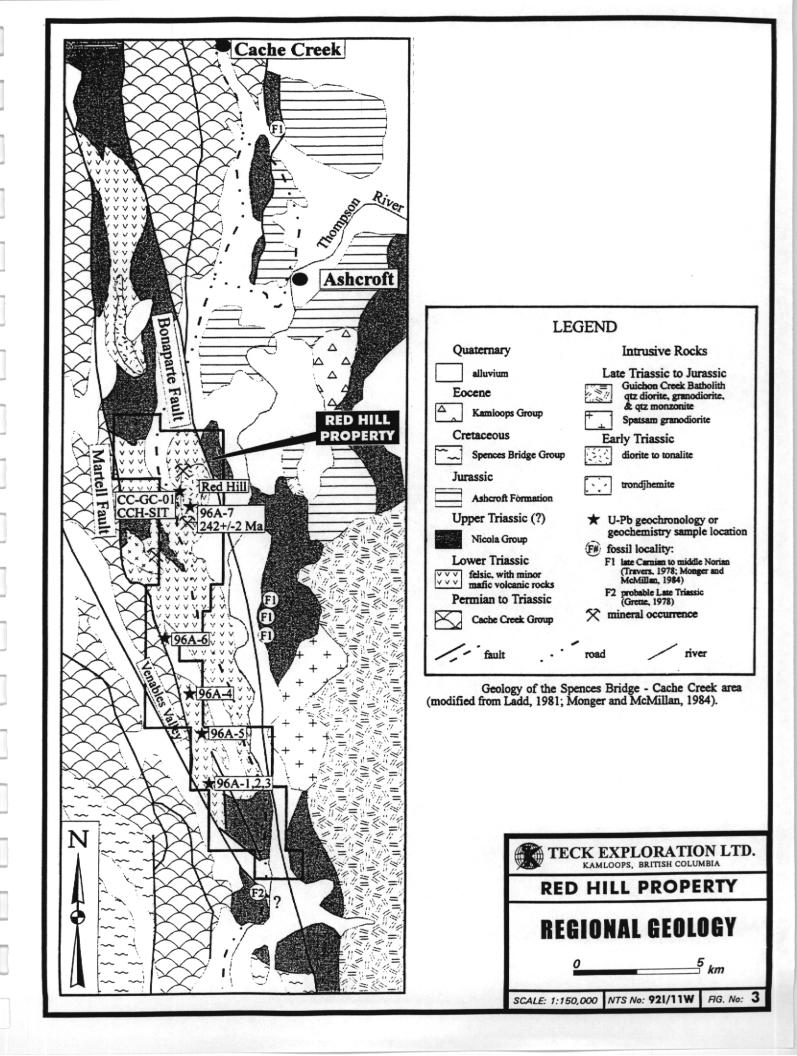
3.1 - Regional Geology (Fig.3)

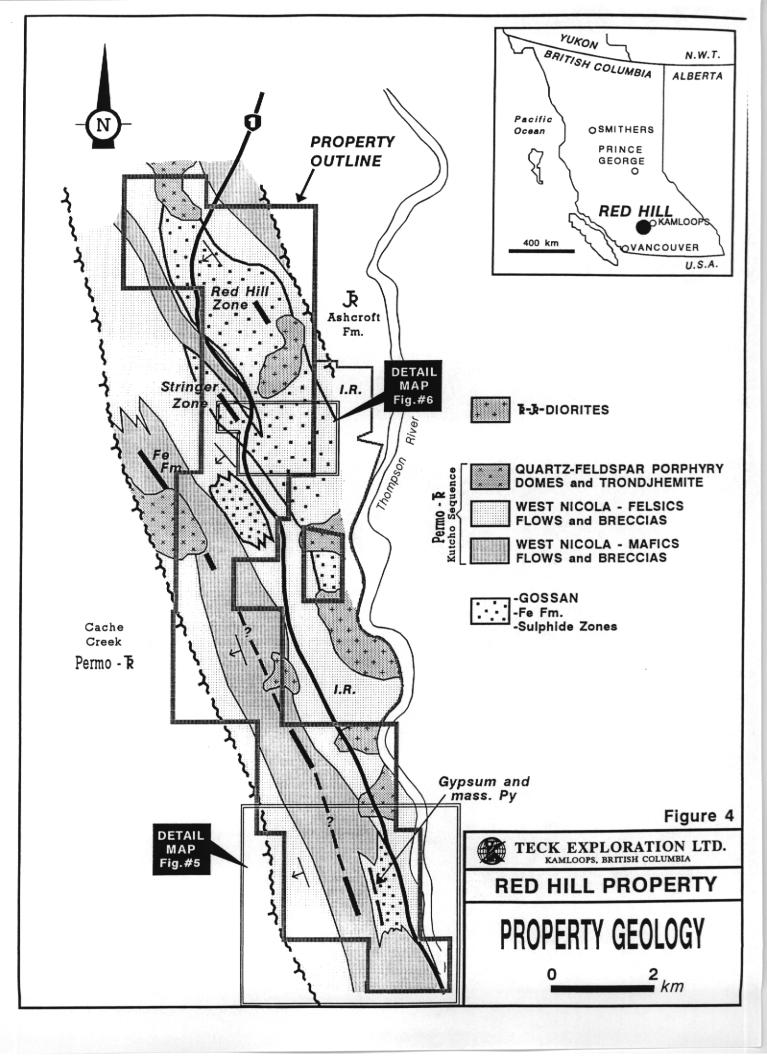
The property is located over a sliver of distinctive volcanic rocks previously identified as late Triassic of the Western Nicola volcanic facies. This wedge is in thrust fault contact with (Permo-Triassic) Cache creek rocks to the west and is bounded by the Jurassic Guichon Batholith to the east. Later Jurassic Ashcroft Formation sediments occupy a graben? to the NE of the property.

More recent work by the MDRU (Childe, Friedman, Mortensen and Thompson) has correlated rocks on the property to volcanic rocks of the Permo-Triassic Kutcho Assemblage. This offers a potential link with the sulphide occurences on the Redhill property and the Kutcho VMS system (17 Mt @ 1.6% Cu, 2.3% Zn, 29 g/t Ag and 0.3 g/t Au).

3.2 - Property Geology (Fig. 4)

The property covers a sequence of volcanics and sediments with several types of intrusives that maybe a portion of the Permo-Triassic Kutcho assemblage. This belt strikes nortwest with steep west dipping units. The volcanics consist of a low-K tholeiite chemistry and range from basalts/ andesites through dacites to high silica rhyolites. This sequence is strongly deformed by overthrusting of the Cache Creek assemblage and has developed small scale isoclinal folding with a strong development of a axial planar foliation generally paralell to the dip. The structure has largely destroyed primary textures which combined with a shortage of marker horizons makes stratigraphic correlations very difficult. A number of diorite to trondhjemite intrusive complexes are present in the sequence and are believed to be co-eval hypabysal complexes. This is supported by the high energy environment dominated by felsic volcanics, rapid facies changes and a general lack of sediments.





Limited information to date suggests the sequence grades from felsic dominated flows and pyroclastics with associated hypabysal dome complexes on the east to lower energy sediments and mafic/felsic tuffaceous units to the west. This does not take into account any large scale folding which could be present. The 1997-98 work consisted of two much smaller map areas on the property which will be discussed in more detail in following sections. Recent work by the MDRU suggests an early Triassic age 242+/-2 MYA for this sequence and a REE signature, both similar to Kutcho Assemblage rocks.

3.3 - Rock Types & Alteration & Mineralization

The following are field descriptions for the various units and the lithogeochemistry will be discussed in a later section.

1. Rhyolite- These are typically massive aphanitic white-apple green rocks. Qualifiers include 1a which is pervasive QSS (quartz sericite schists) which are altered units with a strong pervasive foliation overprinting the rock (yelow-pale green color). Typically the rhyolites contain 5-30% white-blue 0.5-3.0 mm QP's (Quartz Phenocrysts) and occasional flow banding supports flows (1c) versus crystal tuff units (1d). Occasionally more dacitic units also contain 1.0-2.0 mm 5-10% plagioclase phenocrysts (FP's). Commonly vague outlines (subangular and stretched paralell to foliation) of 1-5cm lapilli are visible (unit 1b) in lapilli tuff units. Hematite is very common in all forms of rhyolites with occasional boxwork textures present in areas of heavier sulphides. This creates large gossanous areas but only 20-30% of the time can remnant sulphides be seen. Generally this consists of 1-8% very fine grained disseminated pyrite with occasional trace chalcopyrite.

2. Dacite- This unit is not particularly common but is quite distinctive. It has a pale green siliceous sericitic matrix with an average of 0- 5% 1mm quartz phenocrysts and 10-25 % 1-3 mm plagioclase phenocrysts. Occasionally this unit contains a weak to moderate chlorite content in the matrix but still maintains a siliceous blocky texture. This unit rarely contains more than a trace amount of disseminated pyrite and is rarely hematitic on the surface. Commonly these units contain weak flow banding (2a-QFP Flow).

3. Andesite/Basalt- This unit is dominated by (3a) which is strongly foliated chlorite/ carbonate schists with little remnant textures. Unit 3b is plagioclase phyric flows 10-15% FP's in a chloritic matrix with occasional chlorite altered remnant 2-3mm pyroxene phenocrysts. Unit 3c is FP rich cystal tuff units with some evidence of graded bedding. The Andesites do not generally display strong oxidized hematitic surfaces (possibly due to carbonate buffering) but often contain 1-5% disseminated pyrite.

4. Argillites/Cherts- No sediments were seen in the grid areas mapped but are generally associated with mafic tuffs and consist of graphitic argillites and recystallized white-grey laminated cherts.

5. Diorite- Again these were not seen in the grid areas mapped but consist of fine-medium grained mafic diorite, commonly magnetic.

S. Sulphides- As previously mentioned several of the rock types contain disseminated sulphides, the sulphides symbol is reserved for greater than 20 sulphides or oxides. As mentioned due to arid conditions oxidation is strong on surface exposure for up to the first one meter in depth. Surface expressions of semi-massive to massive sulphides consists of boxwork textures in a mixture of hematite, jarosite and limonite oxides. These maybe intrepreted in future work to determine primary sulphides. When fresher sulphides are encountered they are typically very fine grained pyrite with lesser amounts of chalcopyrite and sphalerite in contents of 20-65%. The matrix is typically sericite schists with variable amounts of calcite, gypsum and manganese.

3.4- Geology Of Grid Area A. (Fig.5)

The area mapped covers approximately 3.5 square kilometers of high energy volcanic stratigraphy. This area has limited outcrop (10-15%) restricted to gullies and steep hillsides with extensive outwash and drumlins. The entire sequence is dominated by north to northwest striking andesite/basalt FP flow breccia units commonly containing 2-3cm felsic QP lapilli. Where this unit gains a stronger rhyolite component the matrix becomes more siliceous and is termed a dacite and occasional QP's begin to appear.

Within this sequence a large somewhat discordant alteration system is present which appears to have altered the FP andesite sequence (see L-3 lithogeochemistry). This consists of a strongly silicified shell with variable QFP's preserved and the unit commonly contains 2-5% very fine grained disseminated pyrite. Within this silicified shell is an inner core of intense quartz sericite schist. This has few remnant textures although occasionally 2-3mm plagioclase phenocrysts are visible. This core zone has been intensely altered and generally has the texture of clay. Widespread gypsum and dolomite veining (5-20%) is present along with Mn and limonite staining with 2-15% very fine grained disseminated pyrite. A few locations in this alteration demonstrated small scale isoclinal folds and in general the deformation in this unit is intense. Near the top of this alteration .3-.6 meter massive pyrite bands were noted with massive gypsum and elevated basemetals in a VMS system were anticapated. When results were received this area displays intense base metal depletion which will be discussed in the lithogeochem section. The only other distinctive unit is a 100 meter wide siliceous rhyolite flow striking northwest along the western third of the grid area. This unit is poorly exposed but shows up clearly on the I.P. survey as a chargeability high/ resistivity high feature. This unit generally has 3-8% very fine grained disseminated pyrite within it but lithogeochemistry and base metal content suggest the horizon is only of moderate intereest. This sequence suggests tops are to the southwest with a high energy basal sequence grading upwards on a grid scale.

3.5- Geology Of Grid Area B. (Fig.6)

The area mapped covers approximately 1.5 square kilometers of proximal volcanic stratigraphy at the south end of Red Hill. Known stratabound mineralization includes the "stringer zone" at the northwest corner of the area and weak mineralization on the hilltop in the central portion of the grid. B.P.-Selco has conducted a moderate amount of previous exploration on both these targets including percussion and diamond drilling. Both areas of mineralization are along mafic tuff / felsic flow-lapilli tuff contacts and contain semi-massive to massive mineralization containing values in Cu,Zn,Ag and Au. These are believed to be syngenetic mineralized horizons and two lithogeochemical traverses L-1 and L-2 were run over the horizons (see discussion on lithogeochemistry).

Geology of the grid area is dominated by felsic volcanics striking NW with steep southwest dips. The felsic volcanics range from QP flows and Lapilli tuffs with varying amounts of disseminated pyrite in a high energy environment. Lesser amounts of mafic tuffs and FP+/- Px flows are present and mark the bimodal behavior of this volcanic sequence and represent relative quiescent periods between erruptive cycles. This is demonstrated with a minor argillite component in the mafics east of the "stringer zone" and also demonstrates a subaqueous environment. There is a general trend to thicker more distal mafic volcanics to the northwest which is supported by the presence of high level QFP dome complexes to the southeast of the grid area.

As previously mentioned it is believed in general stratigraphic tops on the property are to the southwest and there was no small or large scale evidence for folding on the grid area. Numerous faults are present but are generally paralell to foliation and may represent thrust faults.

4.0- Lithogeochemistry

A historic difficulty with this property has been the complexity of lithologies combined with widespread occurences of gossanous alteration zones. This has made target selection for favorable mineralized horizons difficult. To make matters worse conventional soil sampling is strongly restricted due to extensive outwash and drumlin fields. To this end Teck tested four detailed lithogeochemical lines with sampling every 20-50 meters accross the stratigraphy to determine if there is a recognizable alteration signature to prospective mineralized horizons. To this end only a total digestion package was selected for major elelments combined with the standard 30 element I.C.P. package and Au geochem.

L-1 and L-2 covered sections of Grid area B and will be discussed in more detail. L-1 was selected to test a known mineralized horizon known as the "stringer zone". This mineralization is hosted in rhyolite flows and lapilli tuffs directly above an andesite tuffaceous unit. Samples were collected in detail every 10-30 meters and the following features appear signifigant. Na2O appears depleted in the alteration zone with a related increase in K2O which is typical with sericite development near VMS systems. Using Na2O as a ratio to K2O a value of less than 1:1 appears strongly anomalous in these Na rich tholeiitic volcanic rocks. Other useful elements include enhanced Cu (+100ppm) and enhanced Zn (+100ppm) which are shown to work effectively at the Kutcho Creek deposit. Other elements of possible signifigance but weak or erratic trends include enhanced Ba, LOI, MgO, Au, Pb, Mo, As and depletions in Al2O3 and CaO.

L-2 was the first reconassaince test line accross the volcanic sequence on grid area B and near its western edge detected similar alteration equivalent to the "stringer zone". The only area with a Na depletion with K, Zn and Cu enhancement occurs at the footwall of a mafic tuff unit and underlying siliceous rhyolite flows. On strike with this anomaly to the northwest previous trenching and drilling has outlined enhanced base and precious metal values. This supports the validity of the lithogeochemistry indicators and suggests further work on this horizon is warranted.

L-3 and L-4 cover sections of the sequence on grid area A. Widespread alteration on L-3 displays good Na depletion and K enhancement due to sericite development. Unfortunately this area also displays strong base metal depletion (ie Zn 1-6 ppm and Cu 2-6 ppm) suggesting this alteration is leaching metals over a large volume. While this downgrades this alteration zone it may bode well for other overlying horizons. It is interesting to note high silica content and sericite alteration indicated a felsic volcanic protolith but the high TiO2 content suggests an andesite/ dacite protolith is more likely. This area has very high LOI's perhaps reflecting a high water content in the clay material.

L-4 indicates a Na depletion and K enhancement in the rhyolite flow overlying the andesite FP flow to the west of the alteration zone. Base metal values (Cu,Zn) are generally depleted which does not enhance this target.

5.0- Real Section I.P. Survey (details see appendix 6)

During the period September 16 to 27th, 1997 Quantec conducted 12.5 km's of gradient array to test the "realsection" technique on potential VMS systems over a 0.48 square kilometer portion of grid A. Lines tested include 109N through 113N and tested a majority of the stratigraphic sequence.

Results have been compared to the geological mapping (for specifics of the survey see appendix 6). The survey was effective between 100-300 meters depth and must be projected to surface features. The most obvious target is a rhyolite flow striking NW along the western third of the grid area. This steep west dipping horizon has a good corresponding 100+ meter wide chareability high anomaly with a corresponding resistivity high anomaly. This response clearly reflects disseminated sulphides in the horizon within a very siliceous matrix.

The other anomalous area reflects the quartz-sericite alteration zone in the central eastern portion of the grid. Survey profiles in this area were restricted due to difficulties (not able to place cables over the Trans Canada Hwy.). Here profiles are only available at 300 meters depth and reflect a chargeability anomaly due to disseminated sulphides. Resistivity does not show a resistive high anomaly likely due to the high clay content in this alteration.

6.0-CONCLUSIONS & RECOMMENDATIONS

The property covers a large NW striking west dipping sequence of volcanics which has recently been correlated to the Kutcho assemblage by the MDRU. This high energy volcanic sequence is dominated by felsic volcanics dated at 242+/- 2 MYA in Na rich tholeiitic volcanics. Extensive gossans and sulphides are present over large portions of the property which is felt to have good VMS potential. Lithogeochemistry along detailed cross sections has been demonstrated to be an effective exploration tool. Na/K ratios of less than 1:1 reflect favorable alteration combined with the presence of enhanced Cu and Zn values (100's of ppm). Additional elements may enhance the use of the lithogeochemical alteration vectors but a larger database is required. Gradient-Realsection I.P. has also been shown to be effective in areas of overburden to outline favorable sulphide bearing felsic horizons. The most promising targets outlined in this program are the "stringer" and "trench" horizons outlined in grid area B. These horizons warrant additional work to develop drill targets.

Future work on the property should consist of continued lithogeochemical cross section traverses. This will allow the identification of favorable mineralized horizons and the selection of priority targets which has always been a difficult decision in this area. Once favorable horizons are defined grids could be established and detailed, mapping, lithogeochemical sampling and possibly I.P. will define drill targets.

7-References

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- Gamble, D.-1986 Summary Report Geology, Geochemistry, Geophysics, Diamond Drilling and Trenching, Private in house report for B.P. Selco.
- Ladd, J.H.- 1981 A Report on the Geology of the Cache Creek -Nicola Contact Southwest of Ashcroft, Geology in B.C. MEMPR, pp91-97.
- Monger, JWH, and McMillan, WJ 1984 Bedrock geology of Ashcroft (921) Map Area, GSC O.F. 980.

APPENDIX 1

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ROCK DESCRIPTION TABLE

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Sample #	Location	Rock Description
90001	Grid A L11180N, 500E	Very siliceous QP Rhyolite Flow w/ 5-8% very fine
		grained disseminated pyrite.
90002	Grid A L11500N, 480 E	as 90001 with 5-6% disseminated pyrite
90003	Grid A L11100N, 1050E	siliceous QFP rhyolite flow with moderate sericite
		development on foliation and 7-8% very fine
		grained disseminated pyrite.
90004	Grid A L10500N, 1270E	Massive white - buff crystalline gypsum on old
		dump pile 1-3% dissem. pyrite.
90005	Grid A 10550N, 1260E	Massive creamy gypsum w/ 15% disseminated
		pyrite in outcrop 0.5 m chip
90006	Grid A 11070N, 1070E	Massive fine grained pyrite 90% with 10% gypsum
		in matrix over .4 m's.
90007	Grid A 11090N, 1110E	as 90006 over .5 m's
90008	Grid A 11200N, 1230E	Quartz sericite schist with 6-8% dissem py and
	,	malachite or mariposite on fractures3.0 m chip.
90009	Grid A 11710N, 970E	Very siliceous QP rhyolite flow w/ strong limonite
		and 2-3% fine grained disseminated pyrite1.5 m
		chip.
90010	Grid A 11850N, 1050E	as 90009 w/ 5-6% disseminated pyrite in an old pit,
	,	chip accross 3.0 m's.
90011	Grid B 0+10E, 0+80N	3.0 m chip of heavily weathered outcrop, siliceous
		QP rhyolite flow w/ some chlorite altn, 5% dissem
		pyrite and malachite stain.
90012	Grid B 1+80W, 0+20N	representative sample of a 3.0X3.0 m area of
/		chlorite carbonate mafic volcanic subcrop. Heavy
		limonite w/ 5-8% dissem. pyrite.
90013	Grid B 3+50W, 3+60 S	Carbonate altered chlorite altered mafic tuff w/ 5%
		dissem. Pyrite trace malachite, chip accross 1.5 m's.
RW-01	Grid B Litho Line 1	QFP rhyolite fl-bx w/ moderate sericite altn and
		silicification, 10% 1-2 cm lapilli and 1-2% dissem
		py, 2.0 m chip.
RW-02	as above	QP rhyolite flow siliceous w/ only weak sericite, tr
		dissem py.
RW-03	as above	Fgr laminated mafic chlorite tuff, occas. Remnant
		px w/ strong carbonate altn.
RW-04	as above	Fp + Px Mafic tuff w/ minor epidote alteration.
RW-05	as above	2.0 m chip of strongly altered QP rhyolite flow w/
References	43 40070	strong quartz sericite schist development and 5-10%
		dissem fgr py.
RW-06	as above	4.0 m chip of the main sulphides in the stringer zone
N # -00		30-40 % sulphides (fgr py,cpy) in mod. Sericite
		altered QP rhyolite flow. Gypsum and Mn veinlets
		common.
RW-07	as above	QP rhyolite xtal tuff w/ mod. Sericite altn, lim w/ tr
TF 44 -0 1		dissem py.
RW-08	as above	QP rhyolite flow w/ moderate sericite alteration,
1711-00		occas. 1-2 cm lapilli present and weak limonite.
	as above	
DW/ 00	I AN ADOVE	QP rhyolite flow w/ moderate-strong sericite altn.
RW-09		
RW-09	Grid B litho Line 2	No limonite. QP rhyolite xtal tuff , siliceous w/ mod. Scricite,

REDHILL ROCK SAMPLE DESCRIPTIONS

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Sample #	Location	Rock Description
RW-11	as above	QP rhyolite xtal tuff moderately sericitic and
		siliceous w/ strong limonite.
RW-12	as above	QP rhyolite xtal tuff, mod. Sericite no limonite.
RW-13	as above	as RW-12
RW-14	as above	as RW-12
RW-15	as above	QFP rhyolite flow, siliceous w/ weak sericite, tr
		dissem py, weak limonite.
RW-16	as above	QP rhyolite flow, strong sericite and mod. Siliceous w/ mod limonite.
RW-17	as above	QP rhyolite flow w/ mod sericite and siliceous no limonite.
RW-18	as above	QP rhyolite flow mod sericite in a siliceous matrix w/ weak limonite.
RW-19	as above	as RW-17
RW-20	as above	as RW-18
RW-21	as above	QP rhyolite flow or xtal tuff, moderate limonite
RW-22	as above	as RW-21
RW-23	as above	Qp rhyolite lapiili tuff unit, mod. Sericite w/ a
		siliceous matrix, strong limonite.
RW-24	as above	QP rhyolite flow , very siliceous, mod sericite ,
		strongly limonitic w/ trace dissem. py.
RW-25	as above	QP rhyolite flow, siliceous matrix w/ mod sericite,
	43 46070	no limonite.
RW-26	as above	chlorite mafic tuff mixed w/QFP dacite no limonite
RW-27	as above	as RW-26 w/ some sericitic sections and strong
	45 45010	limonite w/ boxwork in sections.
RW-28	as above	QP rhyolite very siliceous w/ weak sericite and mod.
		limonite.
RW-29	as above	QFP rhyolite flow very siliceous w/ minor chlorite,
		strongly limonitic.
RW-30	as above	QP rhyolite flow, very siliceous and hematitic w/
		only weak sericite.
RW-31	as above	QP rhyolite flow, very siliceous w/ mod sericite and
		strong limonite +/- Mn stain and boxwork.
RW-32	as above	as RW-31
RW-33	as above	as RW-31
RW-34	as above	as RW-31
RW-35	as above	as RW-31
RW-36	as above	QP rhyolite flow, very siliceous w/ only weak
		limonite.
RW-37	Group A Litho Line 3	OFP Dacite? Flow Extremely siliceous, weak
		sericite alteration and strongly limonitic w/ boxwork
		and Mn stain.
RW-38	as above	same as RW-37
RW-39	as above	QFP dacite? light pink w/ intense sericite altn, clay
		rich w/ strong limonite dominated by yellow oxide.
RW-40	as above	silicified QFP dacite? Unit w/ remnant 1-3 cm felsic
		lapilli? Mod sericite, w/ strong limonite stain
RW-41	as above	fgr chlorite rich mafic dyke? W/ irregular contacts
		and strong Mn and limonite stain, 8-10% dissem py.

REDHILL ROCK SAMPLE DESCRIPTIONS

Sample #	Location	Rock Description
RW-42	as above	Strongly silicified QFP dacite? W/ moderate sericite altn and strong limonite stain w/ boxwork.
RW-43	as above	QFP dacite? W/ intense sericite altn and strong limonite red>yellow w/ 3-6% gypsum veins
RW-44	as above	as RW-43 w/ intense sericite altn
RW-45	as above	as RW-43
RW-46	as above	as RW-43
RW-47	as above	as RW-43 w/ 20-30% white gypsum veins
RW-48	as above	very siliceous QFP dacite? W/ moderate sericite and
		10% gypsum veins and 10-15% very fine grained disseminated pyrite.
RW-49	as above	as RW-48
RW-50	as above	QFP dacite? W/ intense sericite altn, 10-15% gypsum veins and strong red/yellow oxides.
RW-51	as above	QFP dacite? Blocky and very siliceous w/ 5-8% dissem py and yellow/red limonite
RW-52	as above	as RW-51 w/ only 2-3% very fine grained disseminated pyrite.
RW-53	Litho Line 4	chlorite altered mafic tuff? W/ 20% epidote veins and Mn on fractures.
RW-54	as above	QP rhyolite flow, strongly siliceous w/ wk sericite altn tr-2% dissem fgr py.
RW-55	as above	siliceous cherty-exhalite horizon w/ 5-6% very fine grained dissem py and mod red/orange limonite
RW-56	as above	as RW-55
RW-57	as above	QFP dacite, dark grey/green w/ weak chlorite and 2- 4% very fine grained disseminated pyrite
RW-58	as above	blocky QFP dacite, siliceous w/ minor chlorite in the matrix , weak limonite w/ trace dissem py.

APPENDIX 2

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CERTIFICATES OF ANALYSIS - ROCKS



ASSAYING GEOCHEMISTRY ANALYTICAL CHEMISTRY ENVIRONMENTAL TESTING

10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 6T4 Phone (250) 573-5700 Fax (250) 573-4557

WHOLE ROCK CERTIFICATE OF ANALYSIS AK98-49

TECK EXPLORATION LTD. #350-272 VICTORIA STREET KAMLOOPS, B.C. V2C 2A2

3-Mar-98

ATTENTION: GRAEME EVANS

No. of samples received: 58 Sample Type: ROCK PROJECT #: 1759 SHIPMENT #: NONE GIVEN Sample submitted by: G. EVANS

Values expressed in percent

ET #.	Tag #	BaO	P205	SiO2	MnO	Fe203	MgO	AI203	CaO	TIO2	Na2O	K20	L.O.I.
1	RW-01	0.06	0.09	73.93	0.07	4.38	2.24	11.56	0.23	0.31	3.31	1.02	2.79
2	RW-02	0.04	0.02	80.49	0.01	1.49	0.29	10.26	0.17	0.26	5.51	0.45	1.00
3	RW-03	0.02	0.06	52.79	0.19	8.96	8.75	14.02	6.44	0.44	2.98	0.06	5.29
4	RW-04	0.02	0.08	51.43	0.18	10.13	8.24	15.20	9.05	0.48	2.51	0.07	2.60
5	RW-05	0.07	0.09	75.55	0.07	5.39	5.33	7.15	0.24	0.20	0.16	0.67	5.09
_			• • •	~~ ~~	a a a	40.07		674	0.04	0.40	0.04	0.01	11.14
6	RW-06	0.02	0.01	60.10	0.07	16.67	6.06	5.74	0.04	0.13	0.01		
7	RW-07	0.14	0.08	75.89	0.06	2.44	5.82	10.44	0.01	0.25	0.44	1.15	3.29
8	RW-08	0.06	0.09	70.05	0.05	8.25	5.45	9.11	0.02	0.27	0.24	0.83	5.58
9	RW-09	0.03	0.17	52.94	0.15	4.34	6.43	16.18	5.89	0.39	5.39	0.38	7.70
10	RW-10	0.02	0.02	79.03	0.02	1.83	0.94	11.58	0.10	0.16	1.84	1.97	2.50
11	RW-11	0.05	0.04	79.10	0.01	1.63	0.90	11.38	0.02	0.17	0.91	2.49	3.30
12	RW-12	0.02	0.06	77.20	0.04	1.33	2.94	11.37	0.09	0.17	1.58	1.52	3.69
13	RW-13	0.01	0.06	74.95	0.07	1.99	3.51	12.53	0.06	0.16	3.69	0.98	2.00
14	RW-14	0.01	0.02	75.17	0.03	4.16	2.23	10.52	0.02	0.16	2.55	1.06	4.09
15	RW-15	0.01	0.10	74.97	0.05	2.50	1.04	11.95	0.08	0.40	5.78	0.33	2.80
16	RW-16	0.03	0.05	76.62	0.03	1.23	1.40	12.44	0.17	0.19	4.09	1.46	2.30
17	RW-17	0.02	0.01	79.75	0.05	1.60	1.02	10.34	0.47	0.14	3.83	0.87	1.89
18	RW-18	0.01	0.05	77.91	0.03	1.23	1.24	12.25	0.08	0.17	4.55	0.77	1.70
19	RW-19	0.02	0.06	76.66	0.06	1.87	0.73	12.80	0.14	0.19	5.36	0.91	1.19
20	RW-20	0.02	0.07	74.45	0.03	1.47	1.10	14.59	0.04	0.22	5.35	1.48	1.20
													.
21	RW-21	0.03	0.10	72.69	0.02	1.52	1.84	15.48	0.02	0.23	3.91	2.16	2.00
22	RW-22	0.05	0.05	73.34	0.03	1.84	2.58	14.35	0.09	0.22	1.72	2.75	2.99
23	RW-23	0.02	0.05	75.08	0.02	2.60	1.28	13.53	0.10	0.21	4.37	1.16	1.60
24	RW-24	0.01	0.06	79.76	0.02	1.33	0.55	11.48	0.16	0.16	4.59	0.78	1.10
25	RW-25	0.02	0.01	79.05	0.04	0.79	0.89	11.68	0.35	0.18	4.10	1.29	1.60

TECK EXPLORATION LTD. AK 98-49

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3-Mar-98

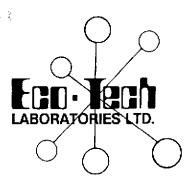
ET #.	Tag #	BaO	P205	SiO2	MnO	Fe203	MgO	A 203	CaO	TIO2	Na2O	K20	L0.I.
26	RW-26	0.01	0.19	71.33	0.08	4.14	1.87	13.42	0.37	0.69	6.26	0.14	1.50
27	RW-27	0.04	0.08	55.97	0.15	14.68	5.71	13.83	0.01	0.39	0.29	2.17	6.69
28	RW-28	0.02	0.30	68.93	0.13	4.32	2.81	13.88	0.21	0.76	5.18	0.56	2.89
29	RW-29	0.02	0.16	72.25	0.09	3.95	2.16	13.06	0.11	0.56	5.51	0.25	1.90
30	RW-30	0.01	0.08	72.51	0.04	2.90	1.79	14.04	0.30	0.39	5.61	0.95	1.40
31	RW-31	0.05	0.05	78.56	0.01	2.51	0.70	10.95	0.14	0.19	1.57	2.65	2.61
32	RW-32	0.04	0.01	81.16	0.02	1.07	0.45	10.71	0.18	0.16	4.13	0.88	1.20
33	RW-33	0.03	0.07	76.87	0.03	1.76	0.84	12.66	0.16	0.19	3.85	1.62	1.90
34	RW-34	0.01	0.03	76.27	0.01	2.21	0.20	13.16	0.07	0.19	3.80	1.76	2.30
35	RW- 35	0.02	0.02	78.47	0.01	1.39	0.41	12.18	0.11	0.18	4.67	1.35	1.19
36	RW-36	0.03	0.11	73.51	0.01	2.08	1.70	13.96	0.21	0.23	3.42	2.15	2.58
37	RW-37	0.02	0.07	72.51	0.01	2.95	0.65	13.97	0.34	0.52	5.51	0.76	2.70
38	RW-38	0.02	0.10	73.27	0.01	2.90	0.77	13.69	0.25	0.50	5.31	0.60	2.58
39	RW-39	0.02	0.09	79.49	0.01	0.25	0.01	15.07	0.41	0.52	0.15	0.12	3.89
40	RW-40	0.05	0.17	68.52	0.01	0.23	0.01	13.83	0.23	0.57	1.85	0.56	13.99
41	RW-41	0.03	0.12	61.48	0.07	8.46	4.45	15.79	0.39	0.61	0.73	0.72	7.14
42	RW-42	0.06	0.16	80.28	0.01	0.29	0.01	13.70	0.43	0.47	0.20	0.16	4.27
43	RW-43	0.01	0.13	79.10	0.01	0.62	0.03	13.69	1.16	0.56	0.24	0.26	4.21
4 4	RW-44	0.01	0.12	71.01	0,01	4.41	0.10	13.50	0.41	0.75	2.15	0.62	6.90
45	RW-45	0.03	0.11	68.89	0.01	0.18	0.01	14.25	0.09	0.55	1.68	0.31	13.93
46	RW-46	0.02	0.06	69.31	0.01	0.41	0.01	13.93	5.66	0.49	1.92	0.66	7.59
47	RW-47	0.03	0.15	59.32	0.01	0.44	0.03	13.88	9.27	0.48	1.80	0.53	14.06
48	RW-48	0.05	0.11	60.50	0.15	8.19	4.50	12.86	2.02	0.69	1.03	0.70	9.20
49	RW-49	0.01	0.11	63.00	0.20	6.44	2.92	12.82	3.36	0.64	4.09	0.16	6.26
50	RW-50	0.02	0.11	58.38	0.07	6.44	2.28	12.90	4.50	0.58	1.26	0.84	12.61
51	RW-51	0.03	0.10	73.13	0.02	1.80	1.66	14.61	0.33	0.49	4.40	0.93	2.49
52	RW-52	0.03	0.04	78.24	0.01	3.52	0.23	9 .89	0.61	0.35	2.21	0.66	4.21
53	RW-53	0.01	0.11	50.15	0.37	9.51	8.21	15.23	10.13	0.65	2.62	0.12	2.89
54	RW-54	0.07	0.05	79.47	0.01	1.66	0.69	11.51	0.19	0.15	1.39	2.53	2.29
55	RW-55	0.01	0.09	72.06	0.01	3.60	1.20	13.33	0.34	0.56	6.51	0.38	1.89
56	RW-56	0.03	0.09	72.12	0.01	4.51	0.64	13.33	0.13	0.54	4.72	1.13	2.76
57	RW-57	0.01	0.11	72.85	0.05	4.28	1.17	13.09	0.29	0.43	5.31	0.31	2.09
58	RW-58	0.02	0.12	69.34	0.25	3.80	1.90	13.89	1.63	0.51	6.16	0.07	2.30

TECK EXPLORATION LTD. AK 98-49

3-Mar-98

<u>ET #.</u>	Tag #	BaO	P205	SiO2	MnO	Fe203	MgO	AI203	CaO	TiO2	Na2O	K20	L.O.I.
QC/DA	TA:												
Repea	t:												
10	RW-10	0.03	0.03	78.20	0.02	1.96	0.79	12.26	0.01	0.17	2.12	2.43	2.00
20	RW-20	0.03	0.05	75.60	0.03	1.39	0.99	13.53	0.01	0.20	5.48	1.67	1.00
30	RW-30	0.03	0.02	77.62	0.03	2.30	1.39	11.56	0.08	0.35	4.82	0.79	1.00
40	RW-40	0.04	0.15	68.53	0.01	0.22	0.01	14.14	0.20	0.58	1.73	0,56	13.86
50	RW-50	0.03	0.12	58.43	0.07	6.40	2.09	12.84	4.42	0.58	1.14	0.88	13.00
Standa	ard:												
SY2		0.05	0.43	60.38	0.32	6.08	2.52	11.98	7,59	0.15	4.24	4.42	1.84
MRG1		0.04	0.03	40.19	0.17	17.04	13.00	8.61	14.20	3.57	0.74	0.18	2.22

XLS/98Teck df/wr49 fax: @ 372-1285 ECO-TECH LABORATORIES LTD. Prank J. Pezzotti, A.Sc.T. B.C. Certified Assayer



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10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 6T4 Phone (250) 573-5700 Fax (250) 573-4557

「東朝湖北市」「井戸市」とした。

CERTIFICATE OF ASSAY AK 98-49

TECK EXPLORATION LTD. #350-272 VICTORIA STREET KAMLOOPS, B.C. V2C 2A2

ATTENTION: GRAEME EVANS

No. of samples received: 58 Sample Type: ROCK PROJECT #: 1759 SHIPMENT #: NONE GIVEN Sample submitted by: G. EVANS

		Ag	Ag	
ET #.	Tag #	(g/t)	(oz/t)	<u></u>
6	R\/_06	34.6	1.01	

QUIDATA:	
Repeat:	

6 RW-06

Standard:

Mp-IA

69.7 2.03

1.01

34.6

ECO-TECH LABORATORIES LTD. Prank J. Pezzotti, A.Sc.T. **B.C. Certified Assayer**

XLS/98

3-Mar-98

25-Feb-98

ECO-TECH LABORATORIES LTD. 10041 East Trans Canada Highway KAMLOOPS, B.C. V2C 6T4

Phone: 604-573-5700 Fax : 604-573-4557

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TECK EXPLORATION LTD. #350-272 VICTORIA STREET KAMLOOPS, B.C. V2C 2A2

ATTENTION: GRAEME EVANS

No. of samples received: 58 Sample Type: ROCK PROJECT #: 1759 SHIPMENT #: NONE GIVEN Sample submitted by: G. EVANS

Values in ppm unless otherwise reported

Et #.	Tag #	Au(ppb)	Ag	AI %	At	Ba	Bi	Ca %	Cd	Co	Çr	Cu	Fe %	La	Mg %	Mn	Мо	Na %	Ni	Р	Pb	Sb	Sn	Sr TI%	U	v	w	Y	Zn
1	RW-01	15	1.6	1.09	20	35	<5	0.03	<1	2	60	60	2.99	<10	1.04	389	6	0.05	- <1	240	42	<5	<20	<1 0.01	<10	22	<10	<1	219
2	RW-02	15	<0.2	0.13	5	60	<5	0.02	<1	<1	120	5	1.13	<10	0.05	60	5	0.08	2	100	4	<5	<20	2 <0.01	<10	5	<10	<1	4
3	RW-03	5	<0.2	3.08	<5	15	-<5	2.11	<1	25	193	69	4.46	<10	3,45	872	<1	0.03	29	190	<2	<5	<20	8 0.10	<10	142	<10	<1	50
4	RW-04	5	<0.2	2.25	5	10	<5	0.49	<1	26	176	79	3.64	<10	2.28	627	<1	0.03	30	200	<2	<5	<20	22 0.13	<10	74	<10	<1	49
5	RW-05	20	3.4	1.86	25	35	<5	0.05	<1	8	79	52Z	3.51	<10	2.28	361	47	0.02	<1	140	50	<5	<20	3 <0.D1	<10	22	<10	<1	63
6	RW-05	220	>30	1.98	55	25	-<5	0.01	<1	34	57	408	>10	<10	2.57	352	102	0.01	3	<10	28	<5	<20	<1 <0.01	<10	27	<10	<1	47
7	RW-07	20	0.6	1.59	<5	85	-5	<0.01	<1	1	66	31	1.33	<10	2.03	266	7	0.02	</td <td>170</td> <td>4</td> <td>15</td> <td><20</td> <td><1 <0.01</td> <td><10</td> <td>9</td> <td><10</td> <td><1</td> <td>58</td>	170	4	15	<20	<1 <0.01	<10	9	<10	<1	58
8	RW-08	25	1.4	1.86	5	55	<5	<0.01	<1	4	55	44	6.17	<10	2.05	210	20	0.03	<1	230	16	<5	<20	6 < 0.01	<10	31	10	<1	56
9	RW-09	5	0.4	2.11	<5	25	-5	4.28	<1	11	45	42	2.42	<10	2.61	959	2	0.04	4	560	2	15	<20	27 < 0.01	<10	59	<10	4	37
10	RW-10	10	0.2	0.40	<5	25	<5	0.03	<1	<1	74	3	1.27	<10	0.26	77	4	0.03	2	100	<2	<5	<20	<1 <0.01	<10	2	<10	<1	7
11	RW-11	10	0.2	0.37	<5	50	<5	0.03	<1	≺1	115	3	1.13	<10	0.18	44	8	0.03	<1	100	<2	<5	<20	<1 <0.01	<10	1	<10	<1	8
12	FW-12	85	<0.2	0.99	<5	<5	<5	0.04	<1	<1	73	2	0.64	<10	1.06	167	3	0.03	<1	150	<2	10	<20	<1 <0.01	<10	1	10	<1	23
13	RW-13	10	Q.2	1.23	<5	10	<5	0.04	<1	1	76	4	1.01	<10	1.40	362	3	0.04	<1	130	<2	10	<20	<1 <0.01	<10	2	<10	<1	48
14	RW-14	15	<0.2	0.72	<5	10	<5	0.01	<1	2	64	3	2.88	<10	0.70	124	5	0.04	<1	50	2	<5	<20	<1 <0.01	<10	2	<10	<1	15
15	RW-15	10	<0.2	0.79	<5	<5	<5	0.05	<1	1	98	3	1.90	<10	0.67	366	5	0.06	<1	370	2	<5	<20	<1 <0.01	<10	6	<10	<1	41
16	RW-16	10	<0.2	0.46	<5	10	<5	0.02	<1	<1	68	3	0.77	<10	0.40	150	з	0.05	<1	100	2	<5	<20	<1 <0.01	<10	1	<10	<1	27
17	RW-17	10	0.4	0.48	<5	15	<5	0.32	<1	2	116	4	1.10	<10	0.57	310	6	0.05	<1	110	<2	<5	<20	<1 <0.01	<10	1	<10	<1	15
18	RW-18	65	<0.2	0.58	<5	10		0.01	<1	<1	66	4	0.76	<10	0.56	178	2	0.05	<1	50	<2	<5	<20	<1 <0.01	<10	1	<10	<1	26
19	RW-19	15	0.2	0.45	<5	10	<5	0.06	1	2	111	27	1.23	<10	0.35	391	6	0.05	<1	100	<2	<5	<20	<1 <0.01	<10	1	<10	<1	119
20	RW-20	15	0.2	0.46	<5	10	<5	0.01	<1	<1	68	6	0.86	<10	0.38	158	3	0.05	1	110	4	<5	<20	2 <0.01	<10	t	<10	<1	34
21	RW-21	15	0.2	0.60	<5	10	<5	0.02	<1	<1	92	з	0.95	<10	0.54	91	4	0.05	<1	80	<2	<5	<20	<1 <0.01	<10	1	<10	<1	16
22	RW-22	10	<0.2	0.79	<5	20	<5	<0.01	<1	<1	56	4	1.08	<10	0.77	124	4	0.03	<1	60	<2	<5	<20	<1 <0.01	<10	2	<10	<1	20
23	RW-23	20	<0.2	0.52	<5	20	<5	0.02	<1	1	86	6	1.78	<10	0.42	110	9	0.06	<1	80	<2	<5	<20	<1 <0.01	<10	2	<10	<1	19
24	RW-24	20	<0.2	0.28	<5	10	<5	0.02	<1	1	77	5	0.94	<10	0.16	98	4	0.05	1	80	<2	<5	<20	<1 <0.01	<10	1	<10	-1	21
25	RW-25	15	<0.2	0.32	<5	25	<5	0.23	<1	<1	89	2	0.46	<10		283	4	0.05	<1	70	-2	<5	<20	3 <0.01	<10	1	<10	3	8

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ECO-TECH LABORATORIES LTD.

<u> </u>	Tag #	Au(ppb)	Ag	AI %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Ma	Мо	Na %	Ni	P	Pb	Şb	Şn	Sr	TI %	U	v	w	<u> </u>	Zn
QC DAT/	\:																													
Resplit:																														
R/S 1	RW-01	15	1.6	1 19	20	30	<5	0.02	<1	2	70	84	3.22	<10	1.15	423	7	0.05	<1	250	42	<5	<20	<1	0.01	<10	23	<10	<1	224
Repeat:																														
1	RW-01	15	16	1.21	20	35	<5	0.03	<1	2	65	63	3,15	<10	1,15	427	7	0.05	<1	250	42	<5	<20	<1	0.01	<10	24	< 10	<1	230
10	RW-10	10	0.4	0.46	<5	25	<5	0.03	<1	1	79	3	1.29	<10	0.30	85	Å	0.04	<1	100	<2	<5	<20		<0.01	<10	2	<10	<1	230
19	RW-19	10	0.2	0.51	<5	10	<5	0.06	1	2	113	28	1.32	<10	0.38	417		0.06	<1	110	~2	<5	<20		< 0.01	<10	2	<10	<1	127
31	RW-31	15		-	-	-		-	-	•			-		0.00		-	- 0.00	-		~2	~3	~20		-0.01	~10	<u></u> .	×10 -	<u>د</u> ا	127
36	RW-36	-	<0.2	0.64	<5	15	<5	0.02	<1	<1	45	3	1.11	<10	0.61	69	4	0.03	<1	150	<2	<5	<20	<1	<0.01	<10	2	<10	<1	11
40	RW-40	20		-	-		-		-	-	-		-	-				-	-	-	_	-				-				•••
45	RW-45	-	<0.2	0.25	<5	<5	<5	0.01	<1	<1	82	1	0.14	<10	0.02	18	3	0.05	1	10	<2	<5	<20	13	<0.01	<10	4	<10	<1	<1
49	RW-49	10	-	•	•	•	•	-	-	-	-		-	-	-	•	•	-	-	-	-		-	-	-	-	-	-		-
Standaro																														
GEO'98	•	160	1.4	1.69	65	145	≺5	1.85	<1	17	61	78	3.91	<10	0.90	710	~1	0.03		050			-20		0.10	-40	~~		~	
GEO'98		130	14	1.74	70	150	~5		<1			78					<1		22	650	19	<5	<20	53	0.10	<10	69	<10	3	69
020 30		130	1.4	1.(4	10	190	~9	1.88	-	18	64	78	3.81	<10	0.91	657	<1	0.03	23	610	18	<5	<20	53	0.10	<10	71	<10	3	73

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TECK EXPLORATION LTD.

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ICP CERTIFICATE OF ANALYSIS AK 98-49

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	26	RW-26	5	<0.2	1.43	<5	10	<5 0.	27	-	4	40	2	3.12	<10 1.	24	617	2	0.07	<1	770	<2	<5	<20	<1 <0.01	<10	15	10	8	28
	27	RW-27	75	0.6	3.21	35	40	<5 0.	03	<1	9	120	179	>10	<10 3.	02	940	9	0.02	10	160	2	<5	<20	1 <0.01	<10	104	<10	<1	703
	28	RW-28	20	0.2	1.50	<5	10	<5 0.	13	<1	2	36	15	2.76	<10 1.	45	801	3	0.06	<1	910	2	<5	<20	2 <0.01	<10	12	<10	<1	79
	29	RW-29	25	0.2	1.55	<5	<5	<5 0.	D8	<1	2	39	37	2.83	<10 1.	30	608	4	0.04	<1	540	<2	<5	<20	<1 <0.01	<10	10	<10	<1	53
	30	RW-30	15	0.2	0.90	<5	5	<5 0.	01	<1	<1	58	10	1.49	<10 0.	71	216		0.05	<1	130	<2	<5	<20	<1 <0.01	<10	3	<10	<1	17
	31	RW-31	15	<0.2		<5	65	<5 Q.	07	<1	~ 1	41	46	1.75	<10 0.	16	64	4	0.03	<1	60	<2	<5	<20	2 <0.01	<10	1	<10	<1	15
	32	RW-32	35	<0.2	0.23	<5	10	<5 0.	04	<1	<1	70	6	0.71	<10 0.	13	77	4	0.04	<1	40	<2	<5	<20	<1 <0.01	<10	<1	<10	<1	9
' 2	33	RW-33	10	<0.2	0.47	<5	15	<5 0.	02	<1	<1	49	13	1.17	<10 0.	37	192	4	0.04	<1	100	<2	<5	<20	<1 <0.01	<10	1	<10	<1	73
	34	RW-34	20	0.4	0.22	<5	10	<5 <0.	01	<1	2	56	3	1.68	<10 0.	05	57	6	0.03	<1	110	<2	<5	<20	<1 <0.01	<10	1	<10	<1	15
	35	RW-35	10	<0.2	0.25	<5	15	<5 <0.	01	<1	<1	64	2	0.94	<10 0		39	4	0.05	<1	60	<2	<5	<20	<1 <0.01	<10	1	<10	<1	3
	36	RW-36	25	<0.2	0.56	<5	15	<5 0.	03	<1	<1	45	Э	1.04	<10 0	53	64	3	0.02	<1	140	<2	<5	<20	4 <0.01	<10	z	<10	<1	10
	37	RW-37	50	<0.2	0.30	<5	10	<5 0.	07	<1	1	67	4	2.35	<10 0	11	33	4	0.13	<1	110	<2	<5	<20	2 <0.01	<10	7	<10	<1	1
	38	RW-38	25	<0.2	0.20	<5	10	<5 0.	04	<1	1	49	2	1.96	<10 0	11	30	3	0.07	<1	170	<2	<5	<20	5 <0.01	<10	5	<10	<1	2
	39	RW-39	10	<0.2	0.08	<5	15	<5 0.	19	<1	<1	66	2	0.17	<10 <0	01	11	3	0.04	<1	20	<2	<5	<20	4 <0.01	<10	<1	<10	<1	<1
	40	RW-40	15	<0.2	0.20	<5	<5	<5 <0.	Q1	~ 1	<1	60	1	0.18	<10 <0	.01	30	4	0.05	<1	20	<2	<5	<20	10 <0.01	<10	2	<10	<1	< 1
	41	RW-41	10			<5	25		-	-1	9	26		5.77		74	479	5	0.03	<1	<10	<2	<5	<20	<† <0.01	<10	117	<10	-1	77
	42	RW-42	55	0.2	0.10	<5	185			<1	<1	52	3	0.19	<10 0	.02	19	3	0.04	<1	10	<2	<5	<20	4 < 0.01	<10	2	<10	<1	4
	43	RW-43	20			<5	20	<5 Q.	89	<1	<1	59	5	0.48	<10 <0	.01	12	5	0.05	<1	<10	<2	<5	<20	48 <0.01	<10	2	<10	<1	<1
	44	RW-44	5	0.4	0.21	<5	25	<5 0.	25	<1	2	25	4	3.37	<10 0	.02	13	4	0.24	<1	350	<2	<5	<20	22 < 0.01	<10	5	<10	<1	6
	45	RW-45	5	<0.2	0.21	<5	<5	<5 Q.	01	<1	<1	80	≺1	0.15	<10 0	.02	17	3	0.05	<1	10	≺2	×5	<20	8 <0.01	<10	3	<1 0	<1	<1
	46	RW-46	5	<0.2	0.21	<5	10	<5 4	40	<1	1	48	5	0.33	<10 0	.Q2	17	2	0.08	<1	20	<2	<5	<20	208 <0.01	<10	2	10	<1	<1
	47	RW-47	10	<0.2	0.08	<5	<5	<5 6.	38	<1	<1	53	<1	0.33	<10 <0	.01	9	2	0.04	<1	20	<2	<5	<20	35 <0.01	<10	3	<10	<1	<1
	48	RW-48	5	<0.2	1.97	<5	15	51.	49	<1	10	19	6	5.64	<10 2	.00	657	4	0.04	<1	290	2	<5	<20	66 < 0.01	<10	37	<10	<1	49
	49	RW-49	10	0.2	2.28	<5	20	<5 2.	37	<1	5	27	6	4.59	<10 1	.72	1451	3	0.05	<1	430	4	<5	<20	77 <0.01	<10	51	<10	<1	120
	50	RW-50	10	<0.2	1.20	<5	15	53.	45	<1	10	11	5	4.83	<10 1	.06	476	4	0.05	<1	360	6	<5	<20	118 <0.01	<10	22	20	<1	56
	51	RW-51	5	<0.2	0.75	<5	20	<5 0.	11	<1	4	5 9	24	1.42	10 0	.76	107	4	0.06	2	270	2	10	<20	5 <0.01	<10	17	<10	<1	94
	52	RW-52	5	<0.2	0.20	<5	10	<5 0.	42	<1	5	75	6	2.67	<10 Q	.05	32	6	0.08	1	60	<2	<5	<20	7 <0.01	<10	7	<10	<1	2
	53	RW-53	5	<0.2	1.95	<5	15	5 0.	58	<1	23	304	3	2.44			1253	<1	0.03	92	280	6	10	<20	7 0.21	<10	55	10	<1	63
	54	RW-54	5	<0.2	0.33	<5	25	<5 0.	04	<1	<1	87	2	1,18		.20	68		0.03	<1	120	<2	∹5	-20	7 < 0.01	<10	1	10	<1	2
	55	RW-55	5	0.2		<5	<5	5 0.		<1	2	46		2.82	<10 0		85		0.08	<1	320	<2	<5	<20	<1 <0.01	10	27	<10	<1	4
	56	RW-56	5	<0.2	0.28	<5	15	5 0.	01	<1	2	64	3	3.67	<10 0	.11	20	6	0.08	<1	410	<2	<5	<20	4 <0.01	<10	9	<10	<1	1
	57	RW-57	5	<0.2	1.13	<5	10	<5 0.	13	<1	4	43	3	3.40	≺10 0	.80	398	4	0.06	<1	430	4	<5	<20	<1 <0.01	<10	19	20	<1	22
	58	RW-58	10	<0.2	1.74	<5	10	<5 1.	27	< 1	3	42	2		<10 1				0.05	<1	570	4	5	<20	2 <0.01	<10	45	<10	1	85

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ICP CERTIFICATE OF ANALYSIS AK 98-48

25-Feb-98

ECO-TECH LABORATORIES LTD. 10041 East Trans Canada Highway KAMLOOPS, B.C. V2C 6T4

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Phone: 604-573-5700 Fax : 604-573-4557

Values in ppm unless otherwise reported

Et #. Tag # Au(ppb) Ag AI% As Ba Bi Ca% Cd Co Cr Cu Fe % La Mg % Mn Mo Na % Ni Р Pb Sb Sπ Sr Ti% U ٧ W Y Zn 90001 5 < 0.2 0.83 1 <5 10 5 0.07 70 <1 2 <10 3 3.18 0.87 3 107 0.08 <1 340 <2 <5 <20 1 <0.01 <10 38 <10 <1 7 2 90002 5 <0.2 1.49 <5 20 10 0.04 51 <1 6 2 4.77 <10 1.70 173 4 0.10 <1 390 49 < 0.01 4 <5 <20 <10 29 <10 <1 10 3 90003 <5 0.03 5 <0.2 0.15 <5 20 <1 3 115 10 2.51 <10 <0.01 21 8 0.13 4 60 <2 <5 <20 12 < 0.01 <10 4 <10 <1 <1 4 90004 5 <0.2 20 2.30 <5 <5 0.42 <1 23 59 30 5.43 <10 1.93 152 4 0.04 8 250 5 <5 <20 29 < 0.01 <10 74 <10 <1 43 5 90005 5 <0.2 <5 0.03 <5 <5 >10 <1 <1 34 3 0.21 <10 <0.01 105 <1 0.02 <1 <10 6 5 <20 330 < 0.01 <10 <1 10 23 <1 6 90006 10 9.2 0.04 <5 15 20 4.58 <1 8 37 74 >10 <10 < 0.01 8 10 0.02 <1 <10 14 <5 <20 178 <0.01 <10 <1 20 <1 5 7 90007 5 0.6 0.12 <5 40 10 4.46 9 34 86 -1 >10 <10 <0.01 18 11 0.02 <10 1 6 <5 <20 131 < 0.01 30 2 <10 <1 6 8 90008 5 <0.2 0.07 <5 40 <5 0.16 <1 <1 17 <1 0.26 <10 <0.01 3 <1 0.01 <1 <10 2 <5 <20 <1 <0.01 <10 3 <10 <1 <1 9 90009 5 <0.2 0.59 <5 20 <5 0.17 <1 1 88 5 2.01 <10 0.39 438 3 0.05 2 100 4 <5 <20 3 < 0.01 <10 4 <10 <1 31 10 90010 5 <0.2 0.15 <5 35 <5 0.04 <1 2 86 2 2.03 <10 <0.01 18 2 0.05 1 50 2 <5 <20 8 < 0.01 <10 <1 <10 <1 <1 11 90011 30 2.0 2.24 <5 10 <5 >10 14 13 24 879 3.19 <10 7822 4 4 7 3 0.08 3 110 12 15 <20 76 0.02 <10 50 <10 6 1729 12 90012 15 2.0 1.50 <5 40 <\$ 0.17 <1 10 201 403 9.64 <10 1.43 830 33 0.03 8 53 10 <5 <20 7 0.07 <10 178 <10 <1 107 13 90013 120 0.6 0.31 <5 10 <5 2.10 <1 4 45 28 3.28 <10 0.78 1834 3 0.07 <1 610 <5 17 <0.01 4 < 20 <10 6 <10 <1 60 QC DATA: Resolic R/\$ 1 90001 5 < 0.2 0.85 <5 5 <5 0.07 <1 2 62 3 3.05 <10 0.91 119 4 0.08 <1 330 <2 <5 <20 <1 <0.01 <10 38 <10 7 <1 Repeat: 1 90001 <0.2 10 0.84 <5 <5 0.07 <1 2 67 2 3.00 <10 0.89 106 2 0.08 <1 310 <2 <\$ <20 <1 <0.01 <10 37 <10 <1 6 7 90007 5 . Standard: GEO*98 130 1.2 1.80 65 145 <5 1.81 <1 18 63 79 3.78 <10 0.92 647 <1 0.03 24 690 18 <5 <20 52 0.10 <10 71 <10 71 4

df/48B XLS/97Teck fax: 372-1285 Frank J. Pezzotti, A.Sc.T. B.C. Certified Assayer

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TECK EXPLORATION LTD.

KAMLOOPS, B.C.

V2C 2A2

#350-272 VICTORIA STREET

ATTENTION: GRAEME EVANS

Sample submitted by: G. EVANS

No. of samples received: 13 Sample Type: ROCK PROJECT #: 1759 SHIPMENT #: NONE GIVEN

APPENDIX 3

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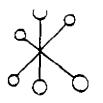
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ANALYTICAL PROCEDURES



ECO-TECH LABORATORIES LTI

ASSAYING - ENVIRONMENTAL TESTING 10041 East Trans Canada Hwy., Kastioops, B.C. V2C 2.13 (604) 573-5700 Fex 573

GEOCHEMICAL LABORATORY METHODS

SAMPLE PREPARATION (STANDARD)

1.	Soil or Sediment:	Samples are dried and then sieved through 80 mesh sieves.
2.	Rock, Core:	Samples dried (if necessary), crushed, riffled to pulp size and pulverized to approximately -140 mesh.

Humus/Vegetation: The dry sample is ashed at 550 C. for 5 hours. 3.

METHODS OF ANALYSIS

(b)

All methods have either canmet certified or in-house standards carrie through entire procedure to ensure validity of results.

1. MULTI ELEMENT ANALYSES

(a) ICP Packages (6,12,30 element).

Digestion	Finish
Hot Aqua Regin	ICP
ICP - Total Digestion ((24 element).
Digestion	Finish

Digestion ____ ICP

(c) Atomic Absorption (Acid Soluble) Ag*, Cd*, Cr, Co*, Cu, Fe, Pb*, Mn, Ho, Mi*, Zn.

Finish

Atomic Absorption

* = Background corrected

Digestion -----

Hot Aqua Regia

Hot HC104/HN03/HF

(d) Whole Rock Analyses.

Digestion	Finish				
Lithium Metaborate fusion	ICP				



ECO-TECH LABORATORIES L'

ASSAVING - ENVIRONMENTAL TESTING 10041 East Trans Canada Hwy., Kamboore, B.C. V2C 2J3 (804) 673-6700 Fax

Hydride generation - A.A.S.

2. Antimony

-

Digestion

Finish

Finish

Finish

Finish

Finish

Atomic Absorption

Atomic Absorption

(Background Corrected)

ICP

Hot aqua regia ICP

3. Arsenic

Digestion

Hot aqua regia

4. Barium

Digestion

- Lithium Hetaborate
- 5. Beryllium

Digestion

Hot aqua regia

6. Bismuth

-_ *

Digestion

Hot aqua regia

7. Chromium

Digestion

Sodium Peroxide Fusion

8. Flourine

Digestion

Finish

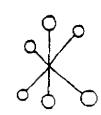
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Atomic Absorption

مريان الممار للمدرستين مراجع المرسمين

Finish

Lithium Metaborate Ion Selective Electrode Fusion



ECO-TECH LABORATORIES L

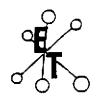
ASSAYING - ENVIRONMENTAL TESTING 10041 East Trans Canada Hwy., Kamiogos, B.C. V2C 2J3 (804) 573-5700 Fax

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9. Gallium Digestion Finish _____ ----Atomic Absorption Hot HC104/HN03/HF Germanium 10. Digestion Finish ______ ____ Atomic Absorption Hot HC104/HN03/HF 11. Mercury Finish Digestion cold vapor generation -Hot aqua regia L.A.S. 12. Phosphorus Digestion Finish _____ _____ ICP finish Lithium Metaborate Fusion 13. Selenium Digestion Finish -----_____ Hydride generation -Hot aqua regia A.A.S. Tellurium 14. Digestion Finish --------_____ Hot aqua regia Hydride generation - A.A.S. Potassium Bisulphate Colorimetric or I.C.P. Fusion

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GEOCHEMICAL LABORATORY METHODS

Multi Element ICP Analyses

Digestion: 1 gram sample is digested with 6 ml dilute aqua regia in a waterbath at 90°C for 90 minutes and diluted to 20 ml.

Analysis:

Inductively coupled Plasma.

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APPENDIX 4

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STATEMENT OF COSTS

STATEMENT OF COSTS REDHILL GROUP A

1. Wages

Graeme Evans -Geologist @ \$250/day for 6 days (Oct.5,1997-Feb20,1998) \$1500.00

2. Transportation And Field Suplies	
Truck and fuel 7 days @ \$80/day	\$560.00
Pickets, bags, flagging etc.	\$350.00
3.0 Grid Costs	
20.325 Line Kilometers @ \$500/ per line km	\$10,162.00
4. Rock Analyses	
23 rocks analyzed for Au geochem & 30 element ICP and major element wholerock @ 38.25/sample	\$ 879.75
10 rocks analyzed for Au geochem & 30 element ICP @ \$18.26/sample	\$ 182.60
5. T.D.I.P. Survey	
12.5 Line Kilometers of TDIP survey by Quantec	\$ 15,452.13
6. Report Writing & Compiling	
G. Evans 3 days @ \$250/day	\$750.00
S. Archibald -Draftsman 4 days @ \$170/day	\$ 680.00
Materials & Copy Costs	\$ 120.00

TOTAL COST \$30,516.48

STATEMENT OF COSTS REDHILL GROUP B

1. Wages

Graeme Evans -Geologist @ \$250/day for 7 days (Oct.5,1997-Feb20,1998) \$1750.00

2. Transportation And Field Suplies	
Truck and fuel 7 days @ \$80/day	\$560.00
Pickets, bags, flagging etc.	\$350.00
3.0 Grid Costs	
12.3 Line Kilometers @ \$500/ per line km	\$5,150.00
4. Rock Analyses	
35 rocks analyzed for Au geochem & 30 element ICP and major element wholerock @ 38.25/sample	\$1338.75
3 rocks analyzed for Au geochem & 30 element ICP @ \$18.26/sample	\$ 54.78
5. Report Writing & Compiling	
G. Evans 4 days @ \$250/day	\$1000.00
S. Archibald -Draftsman 4 days @ \$170/day	\$ 680.00
Materials & Copy Costs	S 120.00

TOTAL COST

\$11,003.53

APPENDIX 5

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STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

- I, Graeme Evans, do certify that:
- 1) I am a geologist and have practiced my profession for the last fifteen years.
- 2) I graduated from the University of British Columbia, Vancouver, British Columbia with a Bachelor of Science degree in Geology (1983).
- 3) I am a member in good standing with the APEGBC as a professional geoscientist.
- 4) I was actively involved and supervised the Redhill program and authored the report herein.
- 5) All data contained in this report and conclusions drawn from it are true and accurate to the best of my knowledge.
- 6) I hold no direct or indirect personal interest, in the Redhill property which is the subject of this report.



Junum Enn

Graeme Evans Senior Project Geologist May, 1998

APPENDIX 6

I.P. Survey Logistical Report

Quantec IP Inc. P.O Box 580, 101 King Street Porcupine, ON P0N 1C0 Phone (705) 235-2166 Fax (705) 235-2255

Quantec IP Incorporated

Geophysical Survey Logistical Report



Quantec

Regarding the GRADIENT-REALSECTION TDIP INDUCED POLARIZATION SURVEY at the RH1 PROPERTY, near Cache Creek, BC, on behalf of TECK EXPLORATION LTD., Kamloops, BC

QIP QIP QIP QIP QIP QIP

GRJ Wame JM Legault A. Oswald, D. Eastcott November, 1997 QIP Project P201 L

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1. PRODUCTION

QIP Project No:	P-201
Project Name:	RH1 Property
General Location:	Cache Creek British Columbia
Survey Period:	Sept. 16 th To Sept 27 th , 1997
• Survey Type:	Time Domain Induced Polarization
Client:	Teck Exploration Ltd. 350-272 Victoria Street Kamloops, B.C. V2C 1A2

- Representative: Mr. Randy Farmer
- Objectives:
 - 1. To test the capability of the Gradient "Realsection" technique to delineate known massive lead zinc mineralization on the property.
 - 2. Using this information to locate and delineate other potential zones of metallic sulphides mineralization, located elsewhere on the property, to depths up to 200m.
- Report Type:

Logistical

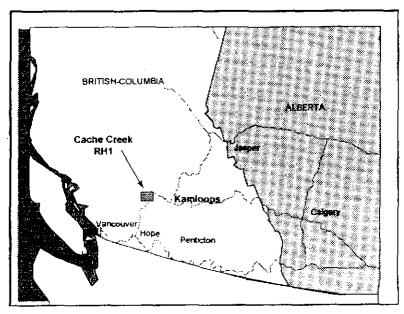


Figure 1: RH1 Property Location

2. GENERAL SURVEY DETAILS

2.1 LOCATION

Province or State: British Columbia	
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Country:	Canada
Nearest Settlement:	Cache Creek British Columbia
Nearest Highway:	Trans Canada Highway 1
NTS Map Number:	92 /11

2.2 ACCESS

•	Base of Operations:	Sandman Inn, Cache Creek
٠	Mode of Access:	The grid was accessed by truck, from Cache Creek, traveling 30km south along the Trans Canada Highway.

2.3 SURVEY GRID

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•	Coordinate Reference System:	Local cut and picket survey grids
•	Line Direction:	True east-west.
•	Line Separation:	100 meters
•	Station Interval:	25 meters

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3. SURVEY WORK UNDERTAKEN

3.1 GENERALITIES

Survey Dates:	Sept 16 th To Sept 27 th , 1997
Survey Period:	12 days
Survey Days:	7 days
Standby Days:	1
Mob Days:	1
Demob Days:	3
Total km Surveyed:	12.5 line kilometers

3.2 PERSONNEL

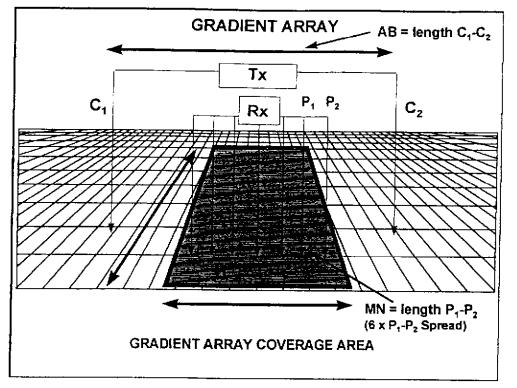
 Project Supervisor(s): 	G.R. Jeff Warne, Geophysicist, Porcupine, ON Kevin Blackshaw, Geophysical Technician Owen Sound, ON
Field Supervisor:	David Eastcott, Thunder Bay, ON
Operators:	Evan Stavre, Porcupine, ON
 Field Assistant(s): 	1 assistants provided by Teck Exploration Dennis George, Porcupine, ON

3.3 SPECIFICATIONS

Artay:	Gradient (see also Figure 2)
MN (Rx dipole spacing):	25, 50 meters
Sampling Interval:	25 meters
Total Gradient AB Blocks:	1
Total Realsections:	5
	2 12 1 2

• Approximate Arial Coverage: 0.48 km²

Teck Exploration Ltd. RH1 RSIP Survey



Eigure 2 Gradient Array Layout

3.4 SURVEY COVERAGE:

- 1. Reconnaissance: 5.95 line kilometers
- 2. Detail follow-up: 6.12 line kilometers

LINE	MIN EXTENT	MAX EXTENT	Length (m)
9+00N	100E	1250E	1150
10+00N	100E	1300E	1200
11+00N	100E	1300E	1200
12+00N	100E	1300E	1200
13+00E	100E	1300E	1200
		Total	5950

<u>Table I:</u>	Reconn	aissance	Survey	Coverage

Line	# of Depths	MAX EXTENT	MAX EXTENT	Length (m)
9+00N	2	100E	700E	1050
10+00N	2	100E	700E	1050
11+00N	4	100E	700E	1600
12+00N	4	100E	700E	1650
13+00N	3	100E	700E	1500
			Total Detail	6850

Table II: Detailed Survey Coverage

3.5 INSTRUMENTATION

٠	Receiver:	BRGM/IRIS ELREC IP-6 (6 channel / Time Domain)
•	Transmitter:	Phoenix IPT-1 (2.5 kW / 200-1200V out)
•	Power Supply:	Honda MG (1 cyl / 5.5 HP) with three phase alternator (400 Hz / 82V output)

3.6 PARAMETERS

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- Input Waveform: 0.125 Hz square wave at 50% duty cycle (2 seconds On/Off)
- Receiver Sampling Parameters: QIP custom windows (see Table III)
- Measured Parameters:
 - 1) Chargeability in millivolts/Volt (10 time slices + total area under decay curve)
 - 2) Primary Voltage in millivolts and Input Current in amperes for Resistivity calculation according to the gradient array geometry factor.

Slice	Duration (msec)	Start (msec)	End (msec)	Mid-Point (msec)
Td	40	0	40	····
T ₁	20	40	60	50
т2	30	60	90	75
Τ3	30	90	120	105
Τ4	30	120	150	135
Т5	180	150	330	240
Т6	180	330	510	420
T ₇	180	510	690	600
Т8	360	690	1050	870
Тэ	360	1050	1410	1230
T ₁₀	360	1410	1820	1590
Total To	1770			

Table III: Decay Curve Sampling

3.7 MEASUREMENT ACCURACY AND REPEATABILITY

Chargeability:

generally less than $\pm\,0.5$ mV/V but acceptable to ±1.0 mV/V.

 Resistivity: less than 5% cumulative error from Primary voltage and Input current measurements.

3.8 DATA PRESENTATION

Maps:

Reconnaissance Coverage:	Posted and contoured plan maps of Total Chargeability and Resistivity at a scale of 1:5000 meters
"Realsection" Detail follow-up:	Posted and contoured depth section maps of Total Chargeability and Resistivity at a scale of 1:5000 meters

Digital:

Raw data:

IP-6 digital dump file (See also Appendix C).

Processed data:

Geosoft .XYZ format.

using the following format:

Column 1 = Line (X Position), in meters Column 2 = Station (Y Position), in meters Column 3 = Total Chargeability, in m V/V Column 4 = Apparent Resistivity, in Ω-m Column >5 = TDIP Spectral Estimates, derived using IPREDC[™]

RESPECTFULLY SUBMITTED

QUANTEC IP INC.

Jean M. Legault, P.Eng. (ON) Senior Geophysicist

Ø

Andrew Oswald Junior Geophysicist

En D.E.

David Eastcott Project Manager

Porcupine, ON November, 1997.

APPENDIX A

STATEMENT OF QUALIFICATIONS:

I, G.R. Jeffrey Warne, hereby declare that:

- 1. I am a geophysicist with residence in South Porcupine, Ontario and am presently employed in this capacity with Quantec IP Inc. of Waterdown, Ontario.
- I studied Engineering Geophysics in the Faculty of Applied Science at Queen's University in Kingston, Ontario, completing all but two of the course requirements for a B.Sc.(Eng.) in 1981.
- 3. I have practiced my profession continuously since May, 1981 in Canada, the United States and Chile.
- 4. I have no interest, nor do I expect to receive any interest in the properties or securities of Teck Exploration Ltd.
- 5. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Porcupine, Canada November, 1997

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G/R/ Jeffrey Warne Servor Geophysicist General Manager - QIP

APPENDIX A:

STATEMENT OF QUALIFICATIONS:

I, Jean M. Legault, declare that:

- 1. I am a consulting geophysicist with residence in South Porcupine, Ontario and am presently employed in this capacity with Quantec IP Inc. of Waterdown, Ontario.
- 2. I obtained a Bachelor's Degree, with Honors, in Applied Science (B.A.Sc.), Geological Engineering (Geophysics Option), from Queen's University at Kingston, Ontario, in Spring 1982.
- 3. 1 am a registered professional engineer since 1985, with license to practice in the Province of Ontario.
- 4. I have practiced my profession continuously since May, 1982, in North-America, South-America and North-Africa.
- 5. I am a member of the Association of Professional Engineers of Ontario, the Quebec Prospectors Association, the Prospectors and Developers Association of Canada, and the Society of Exploration Geophysicists.
- 6. I have no interest, nor do I expect to receive any interest in the properties or securities of Teck Exploration Ltd..
- 7. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Porcupine, Ontario November., 1997

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Jean M. Legault, P.Eng. (ON) Chief Geophysicist Dir, Technical Services Quantec Group

APPENDIXA

STATEMENT OF QUALIFICATIONS:

i, Andrew Oswald, declare that:

- 1. I am currently employed by Quantec Consulting Inc. of Porcupine, Ontario as a processing geophysicist.
- 2. I am a graduate of Cambrian College, Sudbury, ON, on May, 22,1996 with a Diploma in Geological Engineering Technology.
- 3. I have no interest nor do I expect to receive any interest in the properties or securities of Teck Exploration Ltd.
- 4. I am the technical writer for this report; I constructed this report and generated plots to the best of my ability with my current level of understanding.

Porcupine, Ontario November., 1997

WMD

Andrew Oswald Processing Geophysicist Quantec Technical Services

APPENDIX C

INSTRUMENT SPECIFICATIONS:

IRIS ELREC 6 Receiver (from IRIS Instruments IP 6 Operating Manual)

Weather proof case

Dimensions: Weight:

Operating temperature:

Storage: Power supply:

Input channels; Input impedance: Input overvoltage protection; Input voltage range:

SP compensation: Noise rejection:

Primary voltage resolution: accuracy:

Secondary voltage windows:

Sampling rate: Synchronization accuracy: Chargeability resolution: accuracy:

Battery test: Grounding resistance: Memory capacity: Data transfer:

31 cm x 21 cm x 21 cm 6 kg with dry cells 7.8 kg with rechargeable bat. -20°C to 70°C (-40°C to 70°C with optional screen heater) (-40°C to 70°C) 6 x 1.5 V dry cells (100 hr. @ 20°C) or 2 x 6 V NiCad rechargeable (in series) (50 hr. @ 20°C) or 1 x 12 V external 6 10 Mohm up to 1000 volts 10 V maximum on each dipole 15 V maximum sum over ch. 2 to 6 6 automatic ± 10 V with linear drift correction up to 1 mV/s 50 to 60 Hz powerline rejection 100 dB common mode rejection (for Rs= 0) automatic stacking 1 µV after stacking 0.3% typically; maximum 1 over whole temperature range up to 10 windows; 3 preset window specs plus fully programmable sampling. 10 ms 10 ms, minimum 40 µV 0.1 mV/V typically 0.6%, maximum 2% of reading ± 1 mV/V for $V_p > 10 \text{ mV}$ manual and automatic before each measurement 0.1 to 467 kohm 2505 records, 1 dipole/record serial link @ 300 to 19200 baud

Lightweight: 12 kg

FRANSMITTER

Low cost

Wide range of power Sources: 50Hz, 60Hz or 400Hz motor generators or mains ower; or 12V batteries

Domain), CSAMT, Time Domain EM, Resistivity

Induced Polarization (Time Domain or Frequency

PC-8192Hz, Time Domain or Frequency Domain

The most versatile geophysical transmitter Ever made



Applications

The IPT-1 is a highly versatile, multipurpose geophysical power source which may be used for several different geophysical techniques. The IPT-1 accommodates either inductive loads (loops) used in the TDEM, or FDEM techniques, or grounded dipoles as used in IP and CSAMT techniques.

The IPT-1 design is based on more than 35 years experience of Phoenix transmitter designers, and it has been used in countless field surveys under every climatic condition worldwide.

The IPT-1 may be equipped with three different internal power modules. The BPS-3 module utilizes rechargeable gel-cell batteries. The AC3006 and AC3007 modules utilize AC power provided by motor generators or mains power supply. When equipped with an optional inverter, the AC3006 and AC3007 may also utilize 12V batteries. One of the most beneficial features of the IPT-1 is its ability to use a wide range of input power sources. These include standard geophysical 3-phase 400Hz motor genefators, such as Phoenix MG-1, MG-2 or MG-3 units; commercially available single-phase 50Hz or 60Hz motor generators; 50Hz or 60Hz mains power supply; or 12V batteries. The ability to use commercially available 50Hz/60Hz motor generators means that the user can easily obtain spare parts/service for the motor generator almost anywhere in the world.

The motor generators may be of any power up to 3.5KVA, with output frequency in the range 50Hz to 1,000Hz. The actual output power of the IPT-1 is limited by the input power.

The IPT-1 is lightweight and highly portable: 13 kG with BPS-3 power module; 12 kg with either AC3006 or AC3007 power modules.

Specifications

Dimensions	20 x 40 x 55 cm (9 x 16 x 22 in.)	Output power	Maximum 3 Kw (AC3006, AC3007); 250 W
Weight	13 Kg (29 lb) with internal battery pack 12 Kg (27 lb) with AC3006 or AC3007 power modules		(BPS-3) Limited by maximum available input power
Environmental	Operable over the temperature range -40°C to +50°C	Output current	3mA to 3A (BPS-3); 20mA to 10A (AC3006, AC3007)
	Thermal protection for over-temperature Note: BPS-3 battery capacity is significantly reduced at lower ambient temperatures	Timing options	A wide range of internal and external timing options is available, for both frequency domain waveforms (square wave) or time domain waveforms (50%
	CONTROLS, METERS, REGULATION		duty cycle square wave). The time domain
Ammeter	6 ranges 30mA, 100mA, 300mA, 1A, 3A, 10A full scale		waveforms are suitable for Time Domain IP and (in AC3007) for Time Domain EM Standard internal timing is based on crystal oscillators with frequency stability of
Meter display	A function switch selects display of: current, regulation status, input frequency, output voltage, control voltage, line voltage		nominal \pm 50 ppm. The IPT-1 may also be slaved to an external timing source. This may be accomplished by cable link to any suitable geophysical
Current regulation	Output current change is controlled to $\pm 0.2\%$ for $\pm 10\%$ change in input voltage or electrode impedance. Regulation is done internally, without connection to MG unit		receiver. For receiver operation without connection to the transmitter, any suitable "transmitter controller" may be utilized, with or without precision oscillators, as required. Contact Phoenix for details of
Protection	Overcurrent (150% of full scale) Undercurrent (5% of full scale) Overvoltage (130% of full scale) Undervoltage (10% of full scale)	TDEM operation	timing options. The turn-off time of AC3007 into a resistive load is approximately 3 microseconds. The turnoff time into a typical 100m x 100m loop as used in TDEM
Output voltage:	100, 200, 300, 500, 800 V nominal (8P5-3) 300, 600, 1200V nominal (AC3006) 200, 400, 000Vi-ol (AC3007)		is a linear ramp of duration approximately 100 microseconds.
	200, 400, 800V nominal (AC3007)	Frequency range	DC-8192Hz (AC3007) DC-4HZ (8PS-3, AC3006)



APPENDIX D

THEORETICAL BASIS

The "RealSection" survey design uses multiple gradient arrays - with variable depths of investigation controlled by successive changes in array size/geometry. The method of data acquisition and the "RealSection" presentation are based on the specifications developed by Dr. Perparim Alikaj, of the Polytechnic University of Tirana, Albania, over the course of 10 years of application. This technique has been further developed for application in Canada during the past four years, in association with Mr. Dennis Morrison, president of Quantec IP Inc.

The Gradient Array measurements are unique in that they best represent a bulk average of the surrounding physical properties within a relatively focused sphere of influence, roughly equal to the width of the receiver dipole, penetrating vertically downward from surface to great depths. These depth of penetration and lateral resolution characteristics are showcased when presented in plan, however through the use of multiple-spaced and focused arrays, the advantages of the gradient array are further highlighted when the IP/Resistivity data are fully developed in cross-section, using RealSections.

The resistivity is among the most variable of all geophysical parameters, with a range exceeding 10⁶. Because most minerals are fundamentally insulators, with the exception of massive accumulations of metallic and submetallic ores (electronic conductors) which are rare occurrences, the resistivity of rocks depends primarily on their porosity, permeability and particularly the salinity of fluids contained (ionic conduction), according to Archie's Law. In contrast, the chargeability responds to the presence of polarizeable minerals (metals, submetallic sulphides and oxides, and graphite), in amounts as minute as parts per hundred. Both the quantity of individual chargeable grains present, and their distribution with in subsurface current flow paths are significant in controlling the level of response. The relationship of chargeability to metallic content is straightforward, and the influence of mineral distribution can be understood in geologic terms by considering two similar, hypothetical volumes of rock in which fractures constitute the primary current flow paths. In one, sulphides occur predominantly along fracture surfaces. In the second, the same volume percent of sulphides are disseminated throughout the rock. The second example will, in general, have significantly lower intrinsic chargeability.

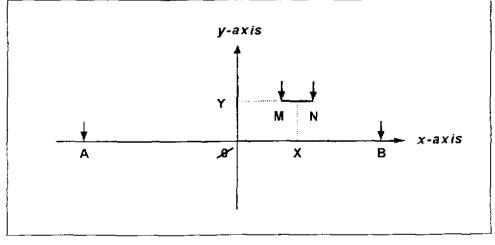


Figure D1:: Gradient array configuration

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Using the diagram in Figure D1 for the gradient array electrode configuration and nomenclature:¹, the gradient array apparent resistivity is calculated:

where: the origin **0** is selected at the center of **AB** the geometric parameters are in addition to **a** = **AB**/2 and **b** = **MN**/2 **X** is the abscissa of the mid-point of **MN** (positive or negative) **Y** is the ordinate of the mid-point of **MN** (positive or negative)

Gradient Array Apparent Resistivity:

$$\rho a = K \frac{VP}{I} \quad ohm \text{-} metres$$
where:
$$K = \frac{2\pi}{(AM^{-1} - AN^{-1} - BM^{-1} + BN^{-1})}$$

$$AM = \sqrt{(a + x - b)^2 + y^2}$$

$$AN = \sqrt{(a + x + b)^2 + y^2}$$

$$BM = \sqrt{(x - b - a)^2 + y^2}$$

$$BN = \sqrt{(x + b - a)^2 + y^2}$$

Using the diagram in Figure D2 for the Total Chargeability:

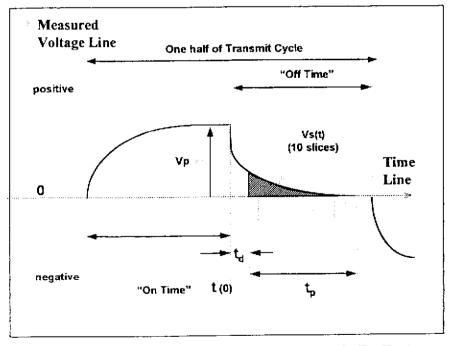


Figure D2 The measurement of the time-domain IP effect

¹ From Terrapius\BRGM, <u>IP-6 Operating Manual</u>, Toronto, 1987.

the total apparent chargeability is given by:

Total Apparent Chargeability:²

$$M_T = \frac{1}{t_p V_p} \sum_{i=1 \text{ to } 10} \int_{t_i}^{t_{i+1}} V_s \quad (t) \text{ } dt \qquad \text{millivolts per volt}$$

where t_{i_1} t_{i+1} are the beginning and ending times for each of the chargeability slices,

More detailed descriptions on the theory and application of the IP/Resistivity method can be found in the following reference papers:

Cogan, H., 1973, Comparison of IP electrode arrays, Geophysics, 38, p 737 - 761.

Langore, L., Alikaj, P., Gjovreku, D., 1989, Achievements in copper sulphide exploration in Albania with IP and EM methods, Geophysical Prospecting, 37, p 925 - 941.

² From Telford, et al., <u>Applied Geophysics</u>, Cambridge U Press, New York, 1983...

APPENDIX E

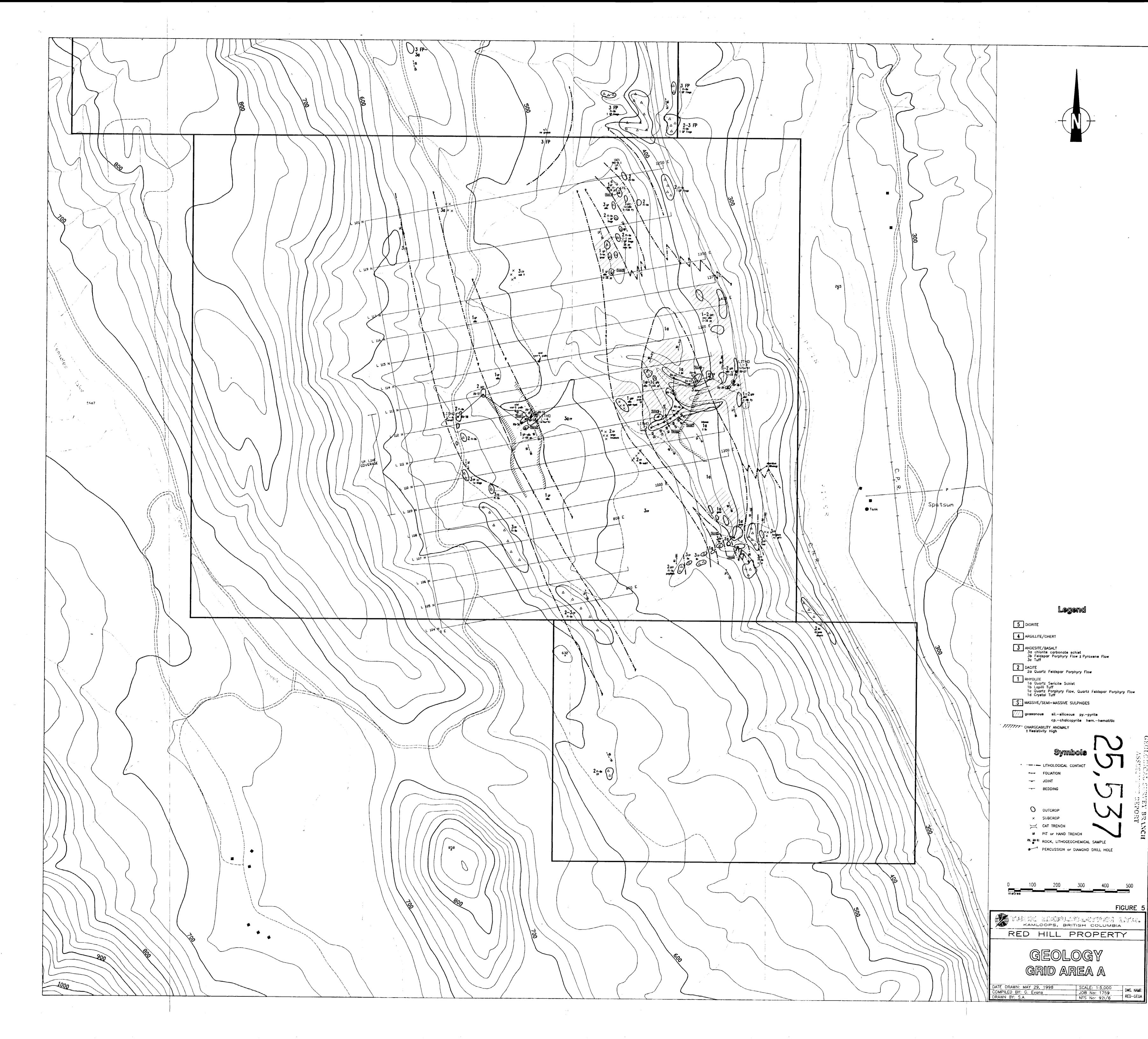
OPERATOR COMMENTS

The execution of this project was complicated by low signal to noise which was spatially related to the topology and, potentially, associated geological structures. Once the survey moved away from these areas and above the deeper reconnaissance level, the signal to noise improved. Current electrodes were constructed to maximize and stabilize the transmitted signal and measurement time was increased to average out random noise. The two lower levels of the survey were read with a 50 meter MN in order to increase the signal to noise ratio, with readings being taken every 25 meters to maximize resolution. The subsequent detailing levels were read with a 25 meter MN, with readings every 25 meters to take full advantage of the sampling resolution. These measures were successful in allowing acquisition of measurements within the tolerances stated in this report..

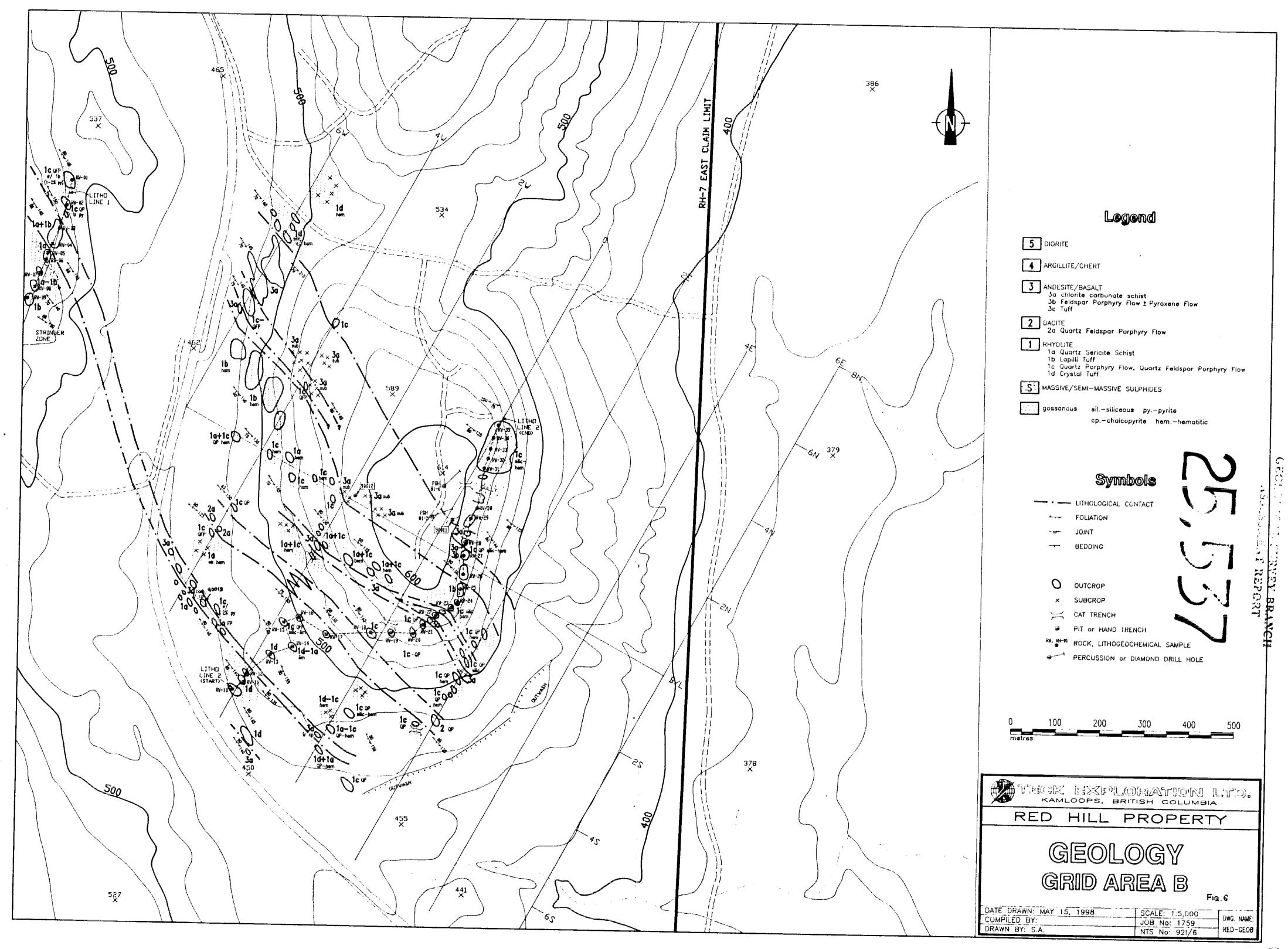
Another source of noise was found to be the CN mainline just of the eastern edge of the grid in the Thompson River valley gorge. Passing trains would cause vibrations in power electrodes placed within several hundred meters of the tracks. This required that the survey be stopped when trains were passing.

To eliminate poor signal to noise complications, a high power system (15kW) transmitter system is recommended for future surveys on this property,.

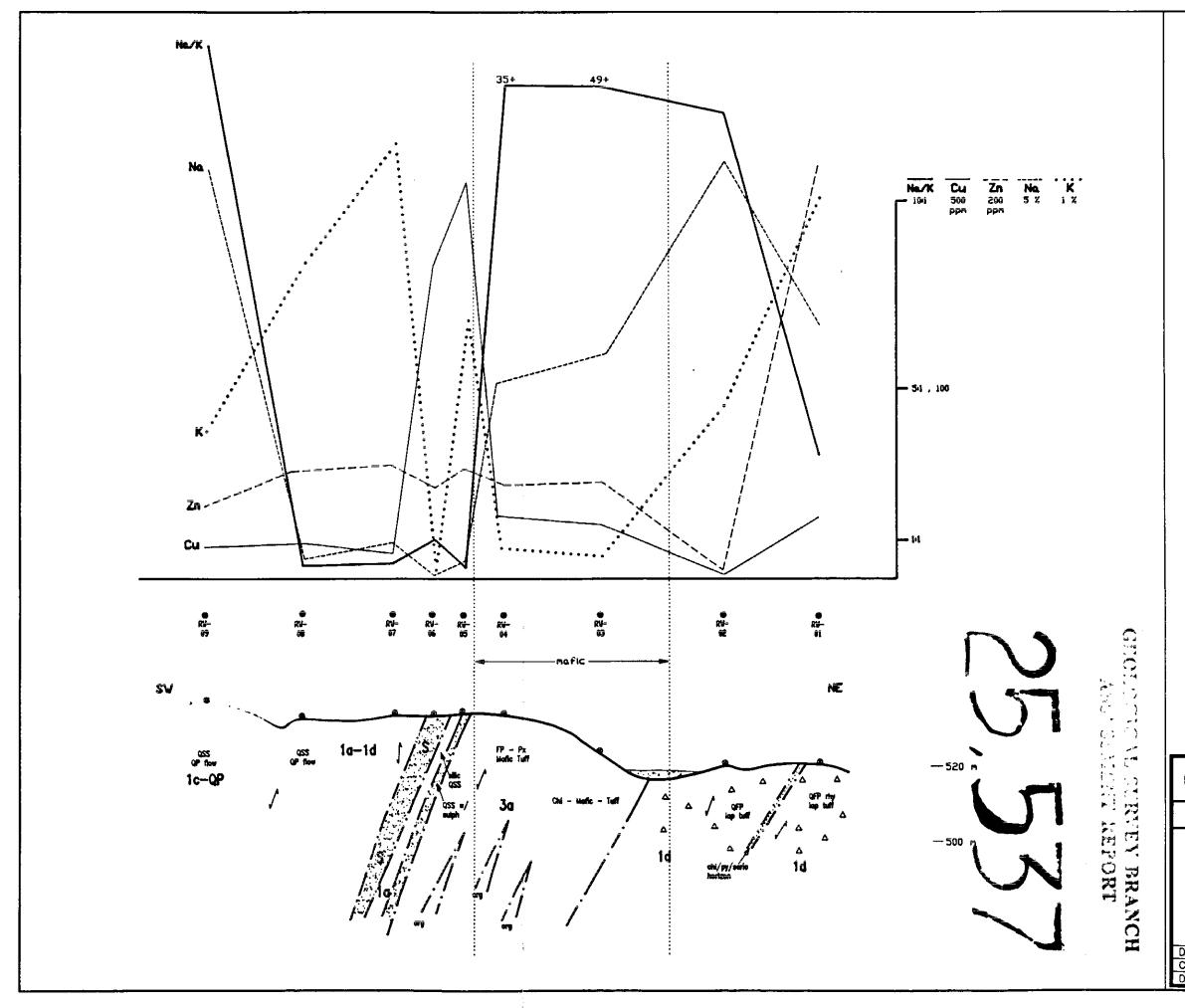
David Eastcott Project Manager







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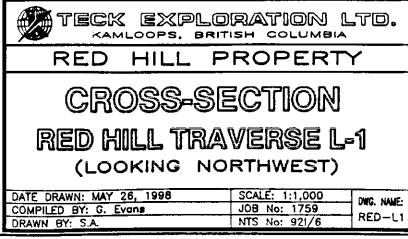
Legend

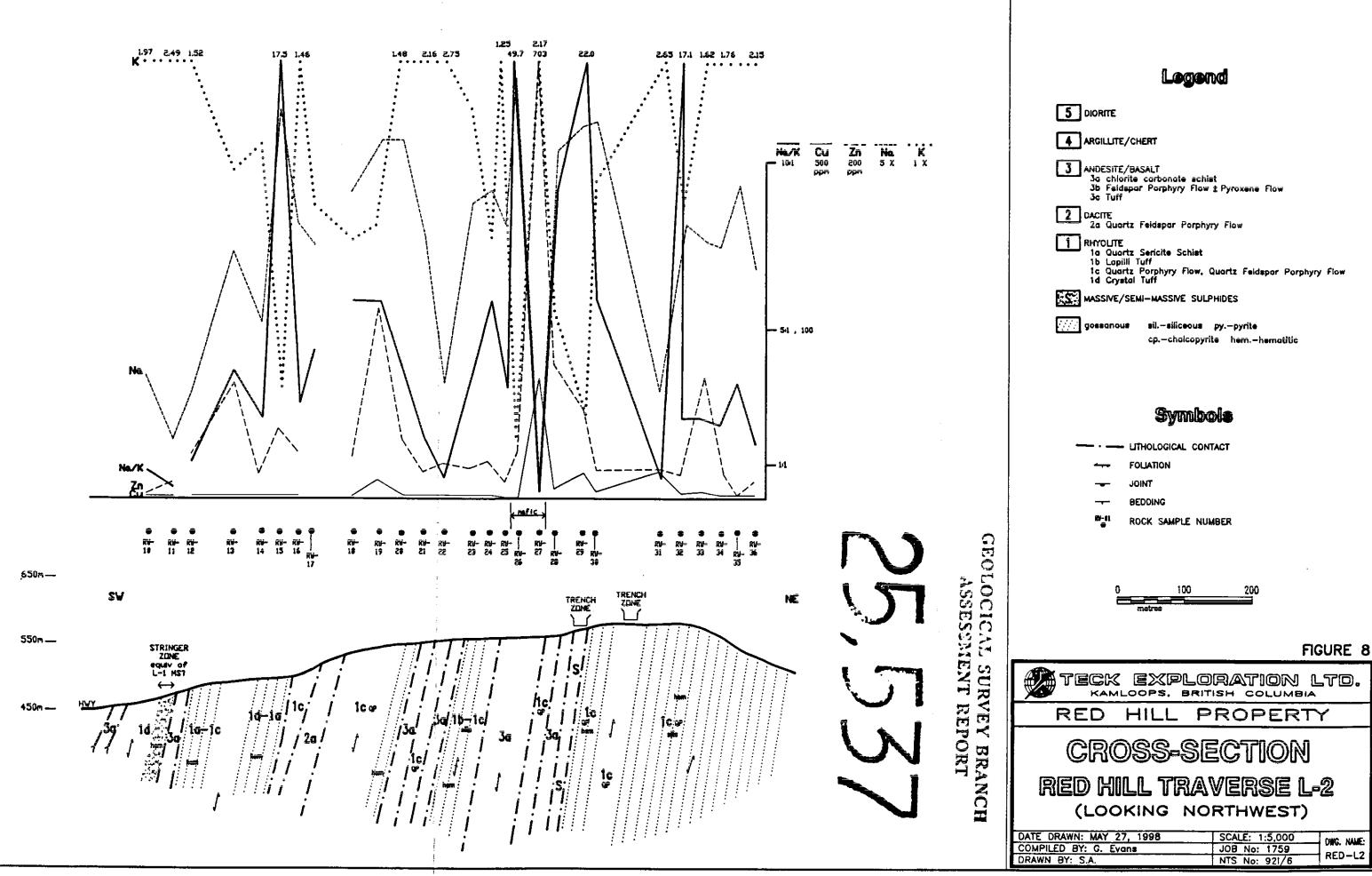
5 DIORITE
ARGILLITE/CHERT
3 ANDESITE/BASALT Ja chlorite carbonate schist Jb Feldspar Porphyry Flow ± Pyroxene Flow Jc Tuff
2 DACITE 2a Quartz Feidapar Porphyry Flow
I RHYOLITE 1a Quartz Sericite Schist 1b Lapilli Tuff It It Quartz Porphyry Flow, Quartz Feldspar Porphyry Flow, 1d Grystal Tuff Tuff
MASSIVE/SEMI-MASSIVE SULPHIDES
gossanous sil.—siliceous py.—pyrite cp.—chalcopyrite hem.—hematitic

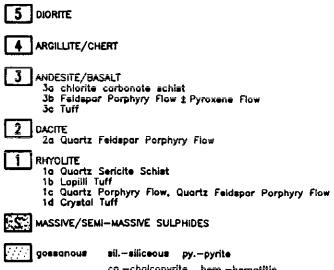
Symbols

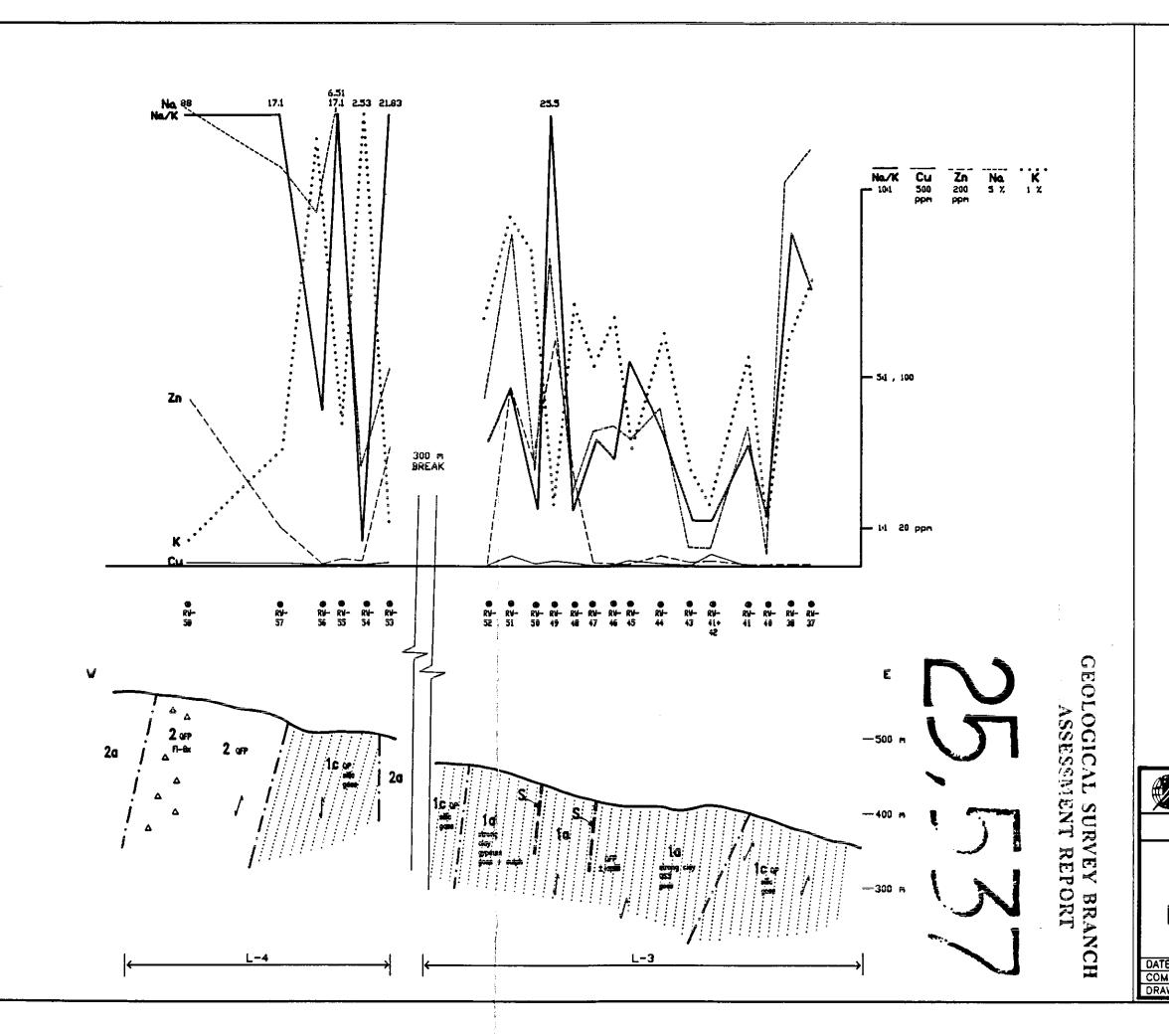
·	LITHOLOGICAL CONTACT
	FOLIATION
	JOINT
	BEDDING
RH-41	ROCK SAMPLE NUMBER

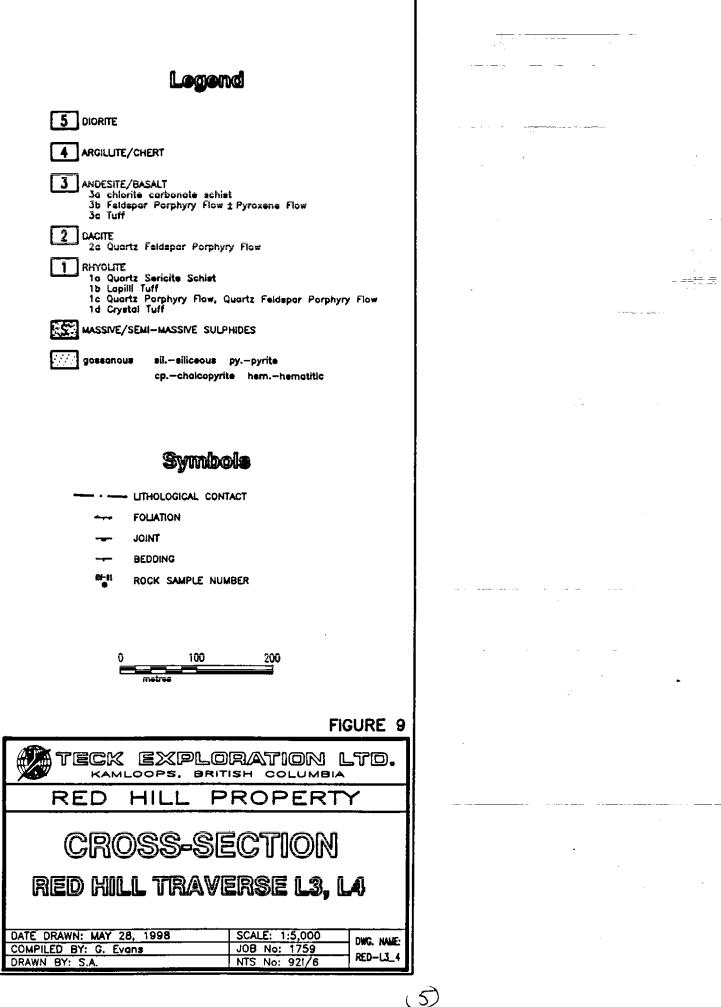
FIGURE 7

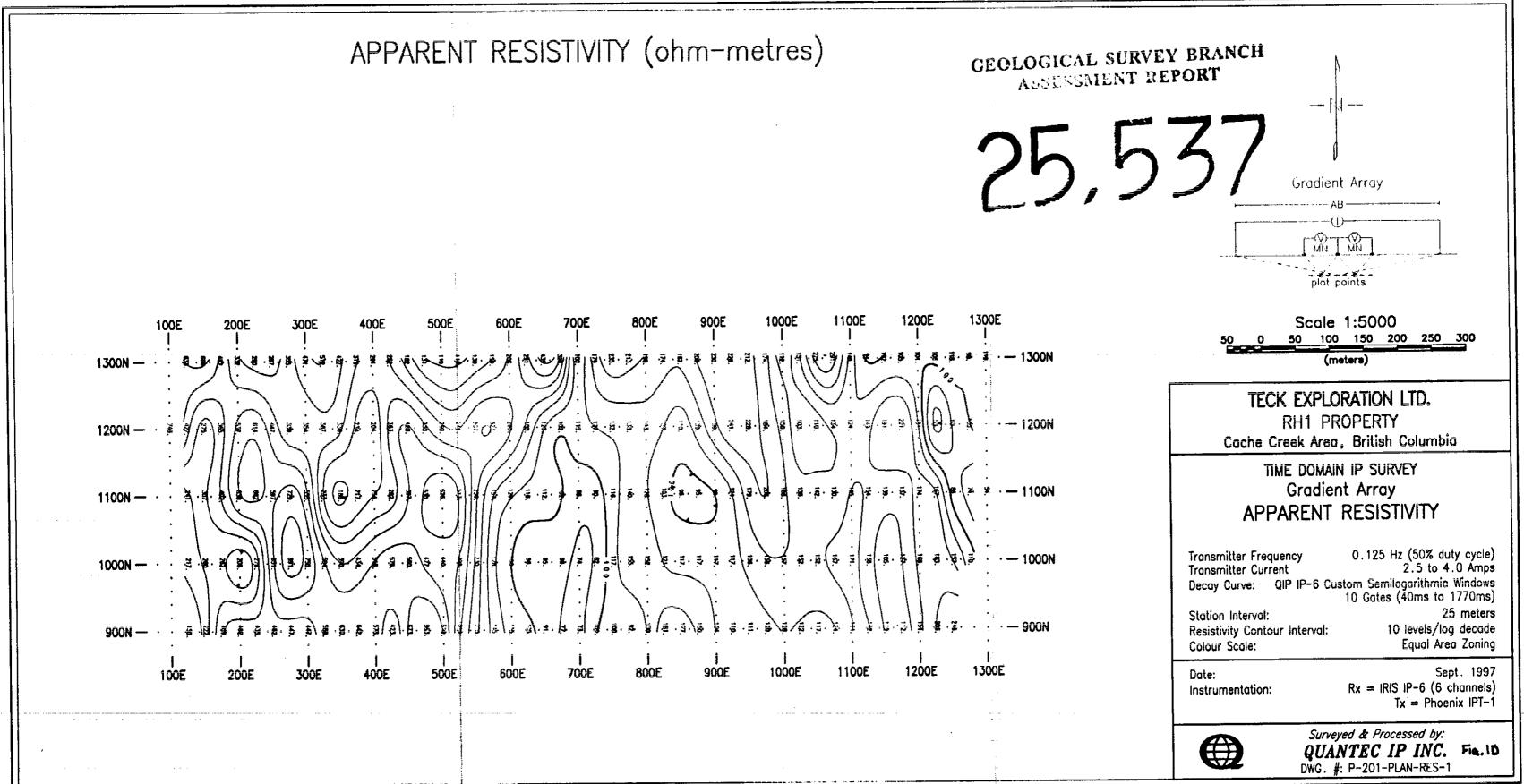


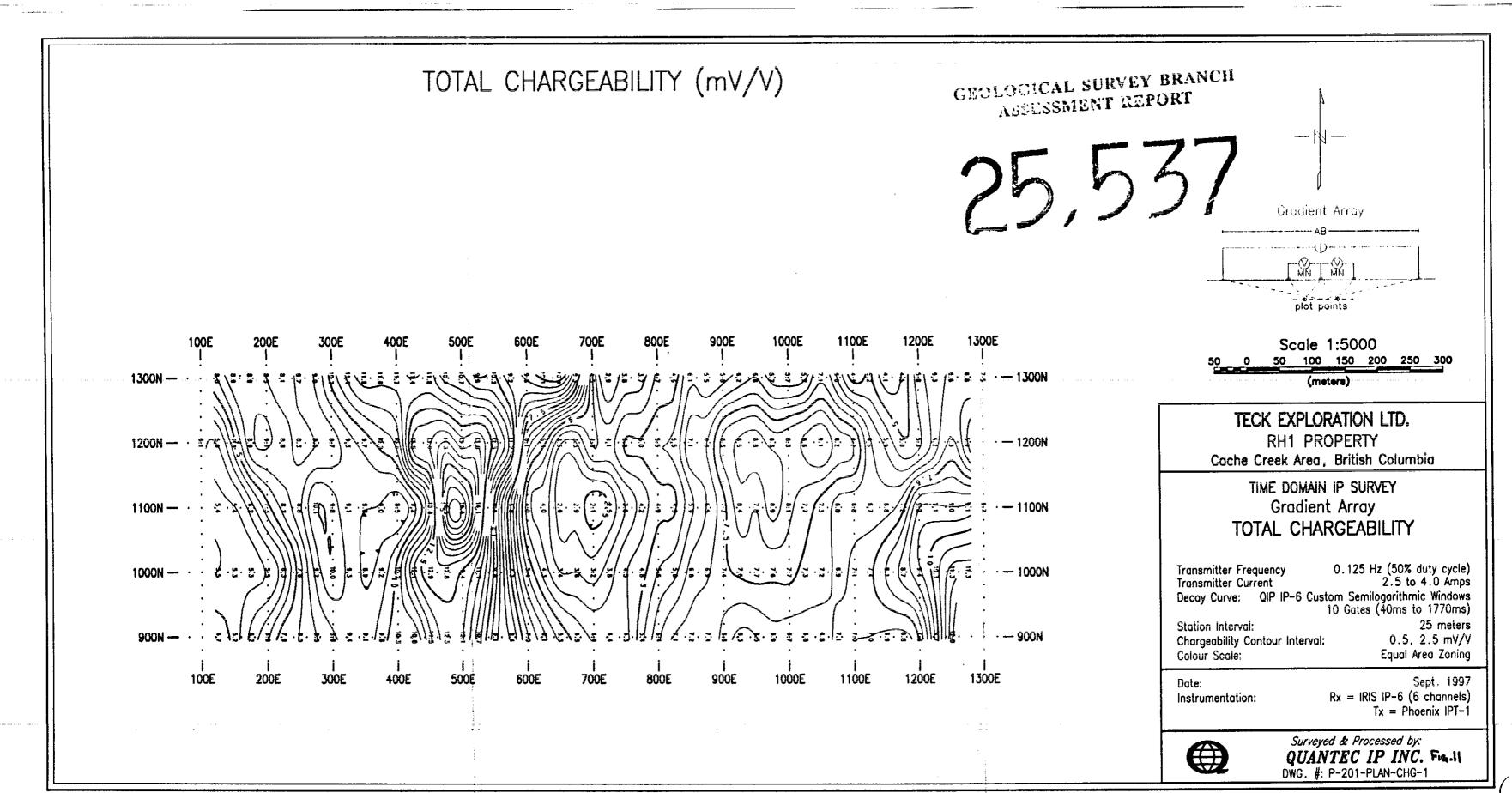




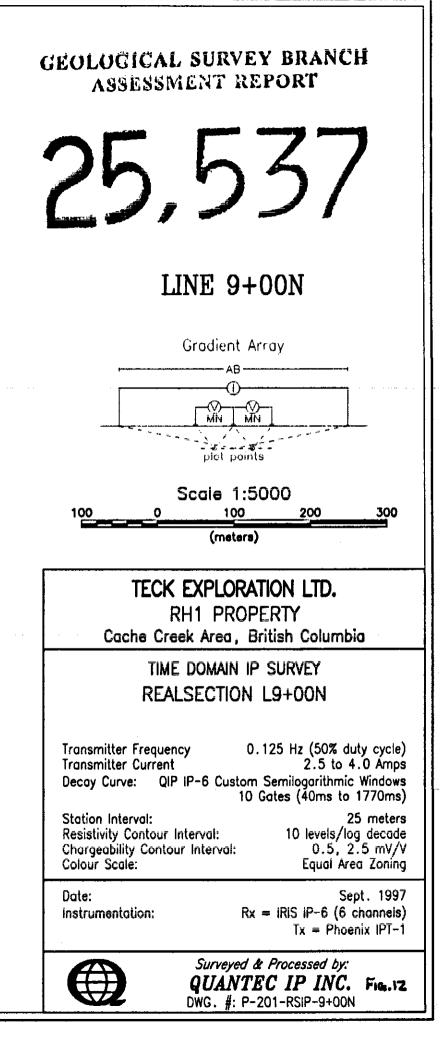






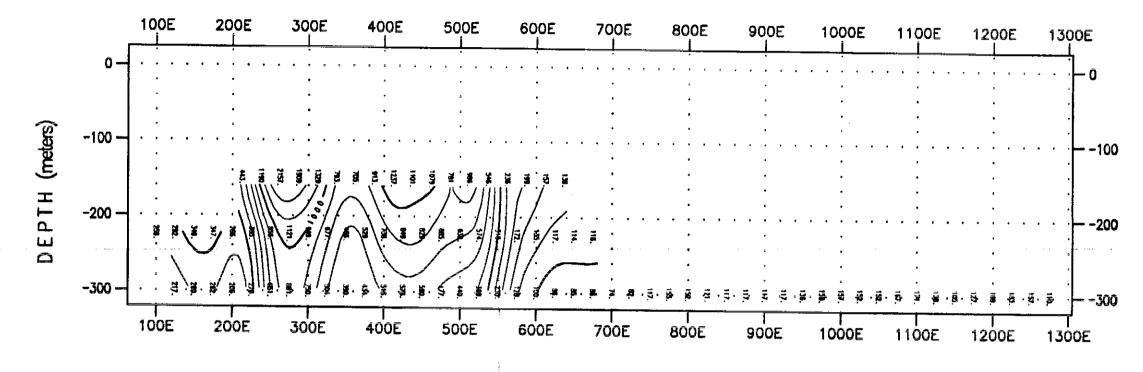


APPARENT RESISTIVITY (ohm-metres) 100E 200E 300E 400E 500E 600E 700E 800E 900E 1000E 1100E 1200E Ō 0 DEPTH DEPTH (meters) -100 100 (meters) -200 -200 -300 - 2 · 2 · 2 · - -300 100E 200E 300E 400E 500E 600E 700E 800E 900E 1000E 1100E 1200E TOTAL CHARGEABILITY (mV/V) 100E 200E 300E 400E 500E 1100E 1200E 600E 700E 800E 900E 1000E n Ō DEPTH (meters) DEPTH (meters) -100 --100 -200 --200 -300 -300 1 - 2 100E 200E 300E 400E 500E 600E 700E 800E 1000E 1100E 1200E 900Ē

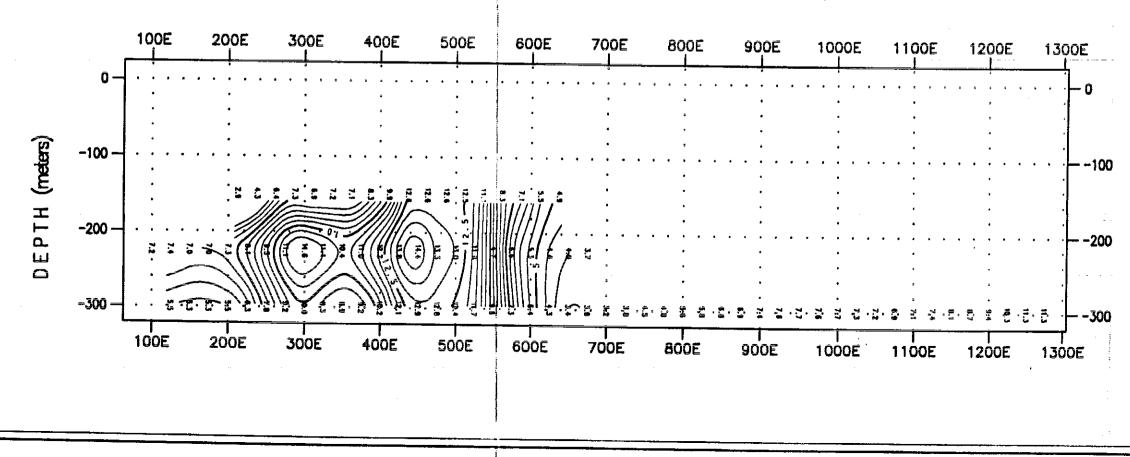


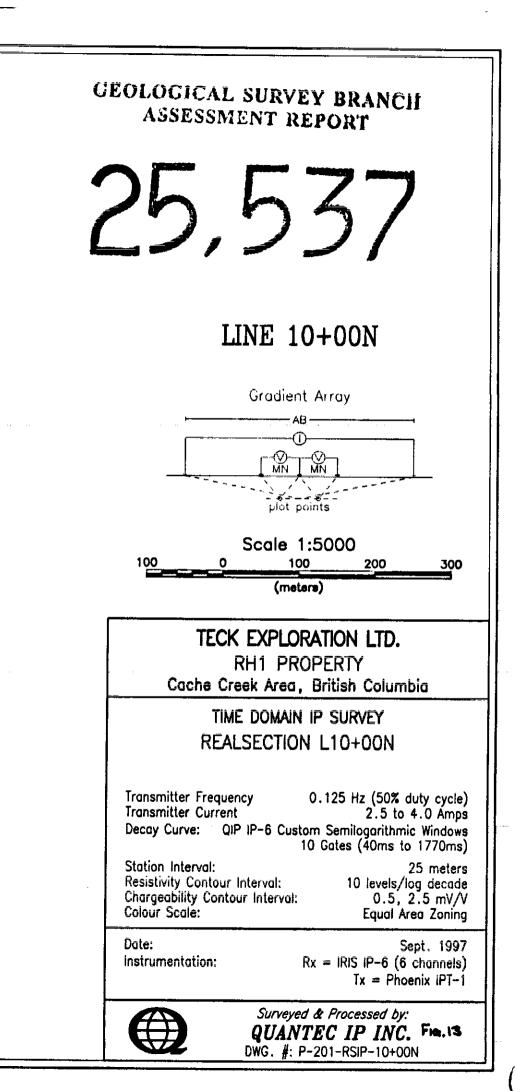
8

APPARENT RESISTIVITY (ohm-metres)



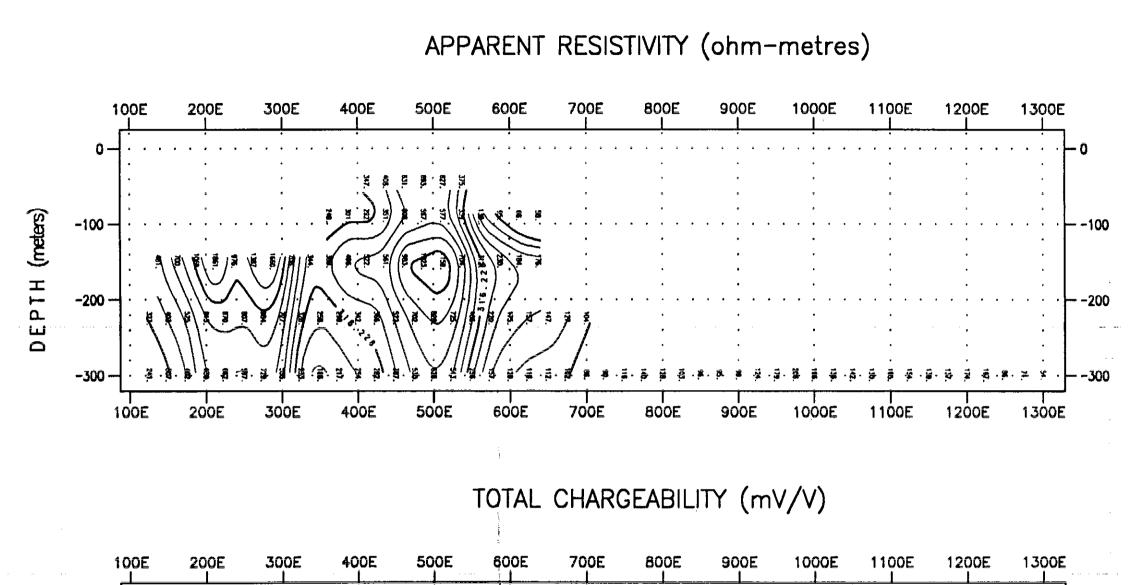
TOTAL CHARGEABILITY (mV/V)

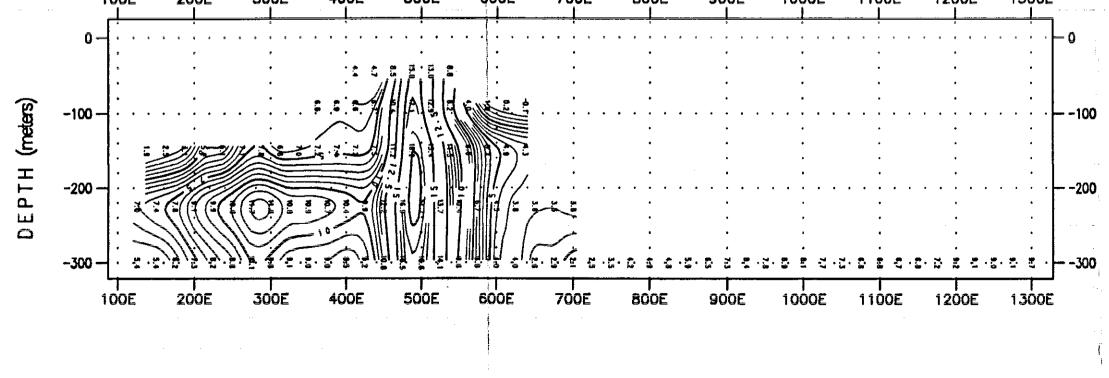


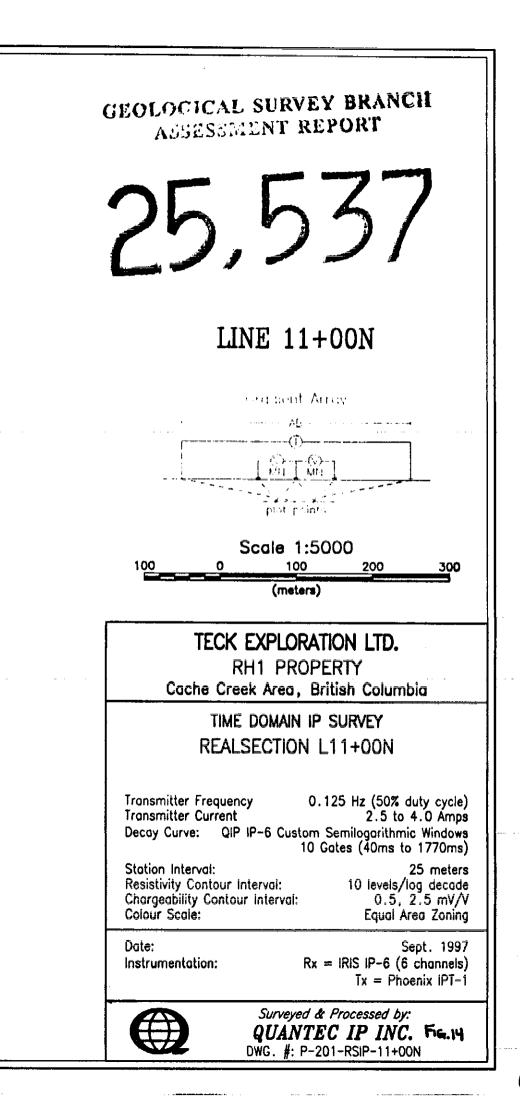


DEPTH (meters)

DEPTH (meters)

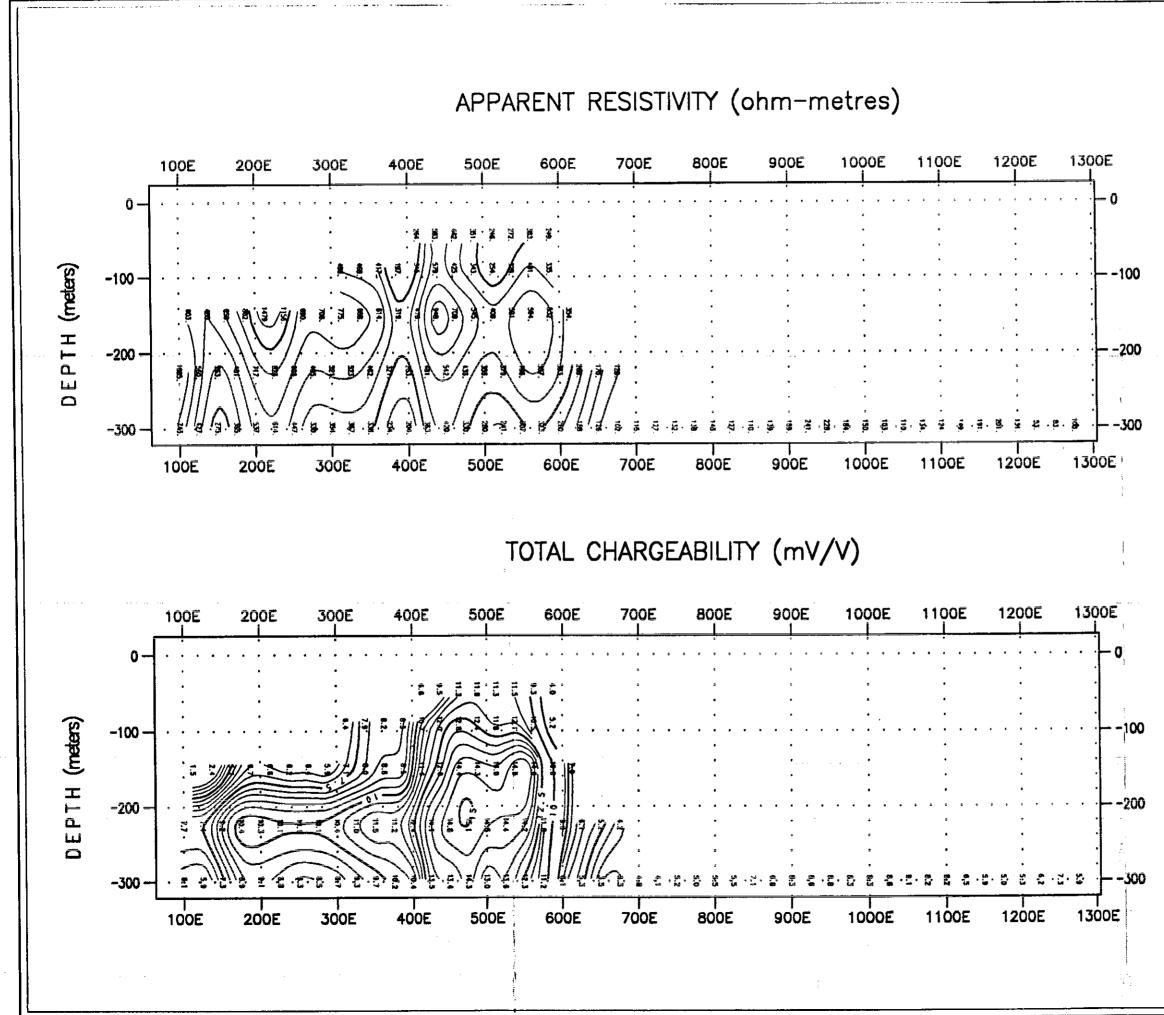


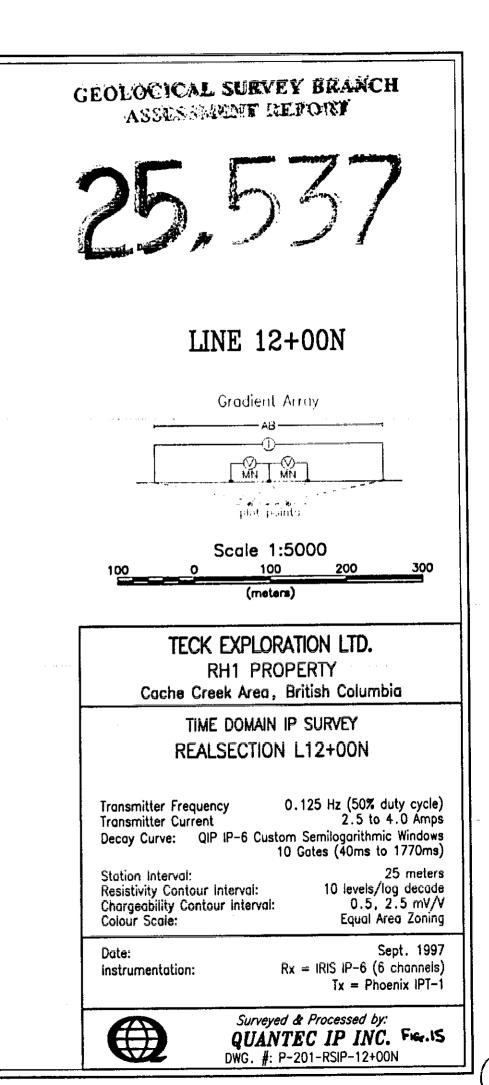




EPTH (meters)

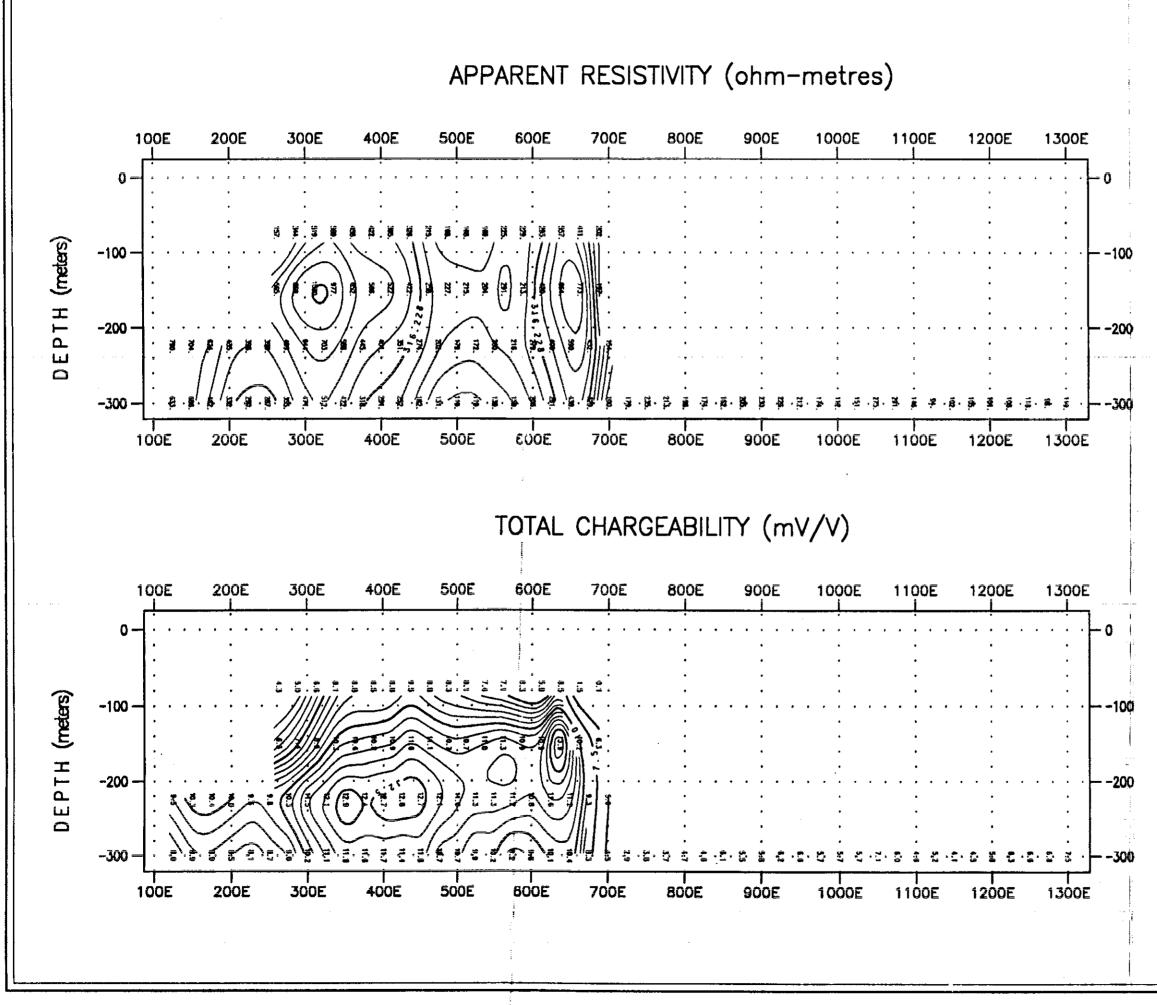
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DEPTH (meters)

DEPTH (meters)



GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT 25,537
LINE 13+00N
Gradient Arroy AB MN MN plot points
Scale 1:5000 100 0 100 200 300 (metere)
TECK EXPLORATION LTD. RH1 PROPERTY Cache Creek Area, British Columbia
TIME DOMAIN IP SURVEY REALSECTION L13+00N
Transmitter Frequency 0.125 Hz (50% duty cycle) Transmitter Current 2.5 to 4.0 Amps Decay Curve: QIP IP-6 Custom Semilogarithmic Windows 10 Gates (40ms to 1770ms)
Station Interval:25 metersResistivity Contour Interval:10 levels/log decadeChargeability Contour Interval:0.5, 2.5 mV/VColour Scale:Equal Area Zoning
Date: Sept. 1997 Instrumentation: Rx = IRIS IP-6 (6 channels) Tx = Phoenix IPT-1
Surveyed & Processed by: QUANTEC IP INC. Fig.16 DWG. #: P-201-RSIP-13+00N