

LOG NO: DEC 04 1991	RD.
ACTION:	
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**GEOCHEMICAL  
ASSESSMENT REPORT  
ON THE  
SHAG PROPERTY**

Golden Mining Division  
NTS 82 J/11W,12E  
Latitude 50°38'N Longitude 115°30'W

307 TECK CORP  
RECEIVED  
NOV 25 1991

R.# .....  
DATE

**OWNER :** ECSTALL MINING CORPORATION  
307-475 Howe Street  
Vancouver, B.C.  
V6C 2B3

**OPERATOR :** TECK CORPORATION  
1199 West Hastings Street  
Vancouver, B.C.  
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**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

S. Jensen  
September, 1991  
Kamloops, B.C.

**21,885**

## SUMMARY

The Shag property consists of the Shag 1-7 mineral claims totalling 82 units. The property is located within the Rocky Mountains, roughly 40 kilometres east of Radium Hot Springs, B.C.

The 1991 program consisted of grid expansion and concurrent soil sampling followed by limited prospecting and 1:5,000 scale mapping. The purpose of the program was to delineate the full extent of the zinc soil anomaly identified in 1990. Prospecting and mapping was carried out in the areas of the four main, previously identified IP anomalies, and along a favourable geological contact. In addition, three rock samples were collected to test for potential economic gallium and germanium.

The expanded grid soil survey failed to trace the existing zinc anomaly northwestward. Only local, weak zinc soil results were returned, except for a high contrast two sample zinc anomaly (4000+ ppm).

The western grid line expansion returned two weakly anomalous zinc zones, one of which correlates with an IP anomaly. These two zones remain open upslope to the southwest. The erratic soil responses could be due to the characteristic discontinuous and poddy mineralization (Pb-Zn) commonly encountered on the property.

Prospecting and mapping in the anomalous IP and soil areas failed to reveal any surface mineralization. Investigation of the favourable dolostone/limestone contact (C5-C6) also failed to identify Pb-Zn mineralization.

Three rock samples collected from known Pb-Zn showings returned non-economic gallium and germanium values. Three moss mat creek samples collected on the property returned no significant base metal results.

**RECOMMENDATIONS**

No further work is recommended on the Shag property at this time due to:

- 1) Lack of extensive anomalous Pb-Zn soil results.
- 2) Erratic nature of known Pb-Zn mineralization (narrow, poddy, discontinuous).

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## 1. INTRODUCTION

During 1991, a program consisting of grid expansion followed by soil sampling and limited prospecting, geological mapping and rock sampling was carried out on the Shag property. The purpose of the program was to extend the previously established 1990 soil grid anomalies. Prospecting and mapping was carried out in areas of previous IP and soil anomalies and favourable geological areas. This report describes the program and results.

## 2. LOCATION AND ACCESS (Figures 1,2)

The Shag mineral claims are located along the Albert River drainage, roughly 40 kilometres east of Radium Hot Springs, B.C. and 14 kilometres west of the Alberta border. The property is located on NTS map sheets 82 J/11W and 82 J/12E, with an approximate latitude and longitude of 50°38'N and 115°30'W respectively.

The western and northern portions of the property are road accessible via well maintained forestry service roads originating from Canal Flats (65km) and Radium Hot Springs (60km). The remainder of the property and the higher elevations are best accessed via helicopter, based locally at either Invermere or Fairmont Hot Springs.

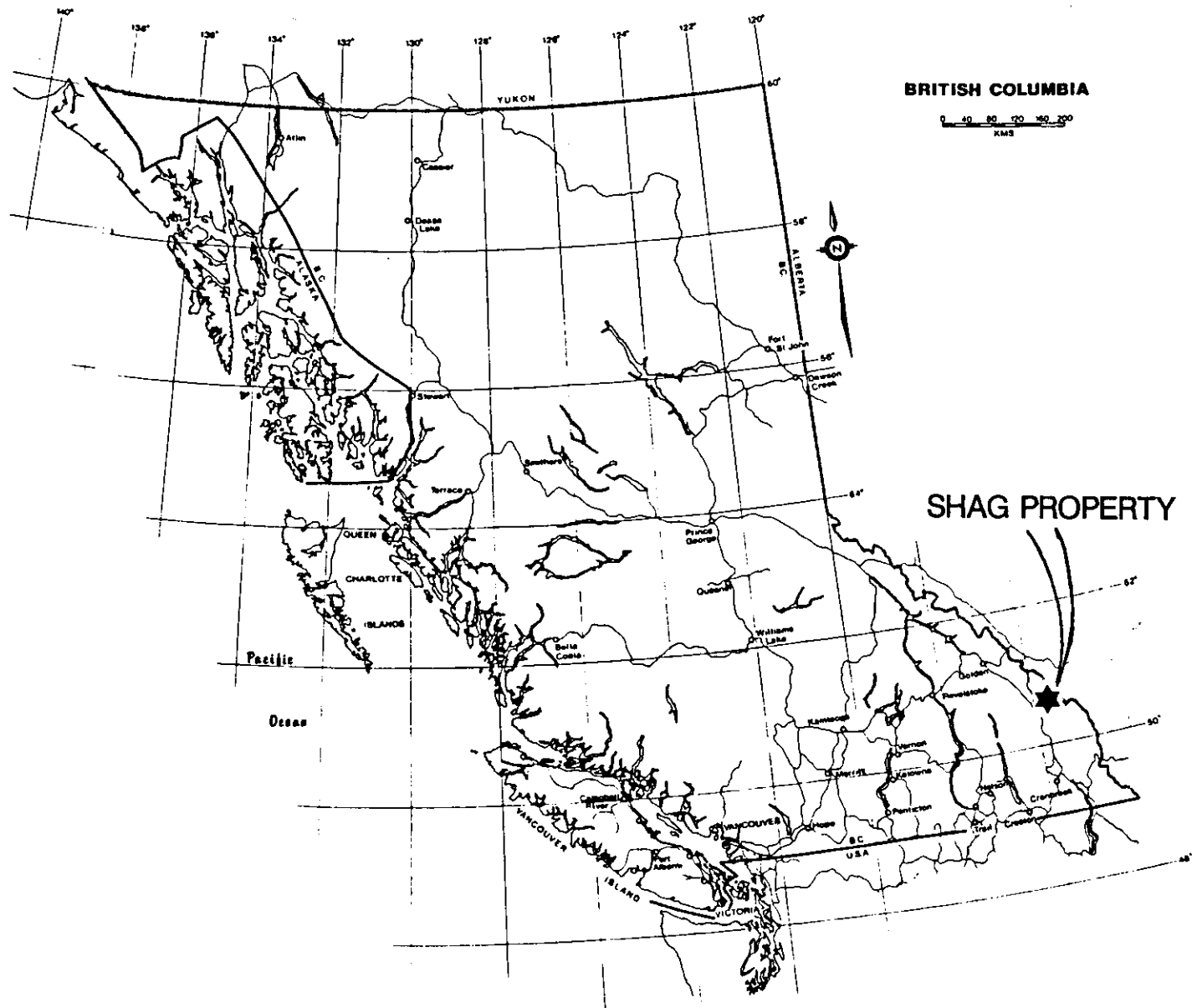
## 3. TOPOGRAPHY AND VEGETATION

Relief on the property is rugged as the claims are situated within the Park Ranges of the Rocky Mountains. Elevations range from 4000' (1220m) in the valleys to 8500' (2591m) on the mountain peaks. Vertical cliffs, steep slopes and avalanche chutes are common along Shag Creek, a northwest trending valley running through the central property area.

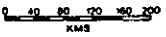
Vegetation is thick and consists of mature spruce, fir and cedar with thick underbrush below elevations of 7000' (2134m). Above 7000' (treeline) rock outcrop and talus predominate.

## 4. CLAIMS (Figure 3)

The property, located in the Golden Mining Division, consists of the Shag 1-7 mineral claims totalling 82 contiguous units (≈2050 hectares). The claims are registered in the name of Ecstall Mining Corporation



**BRITISH COLUMBIA**



**SHAG PROPERTY**

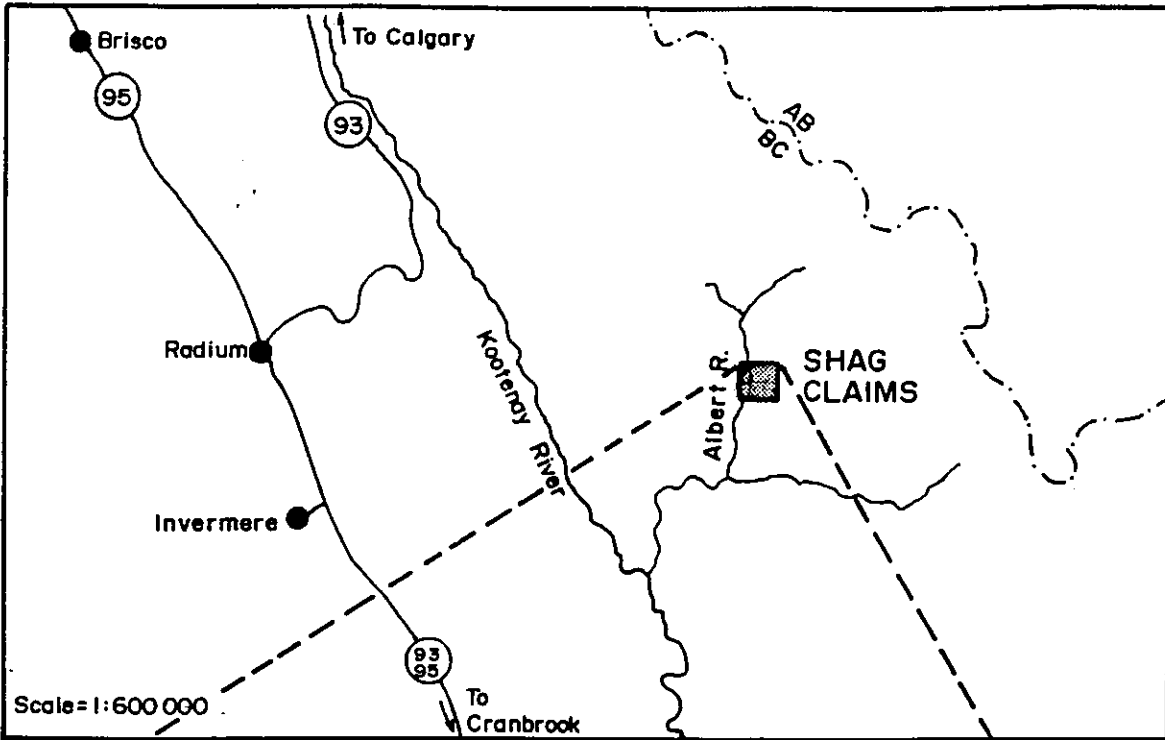
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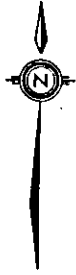

**LOCATION MAP**

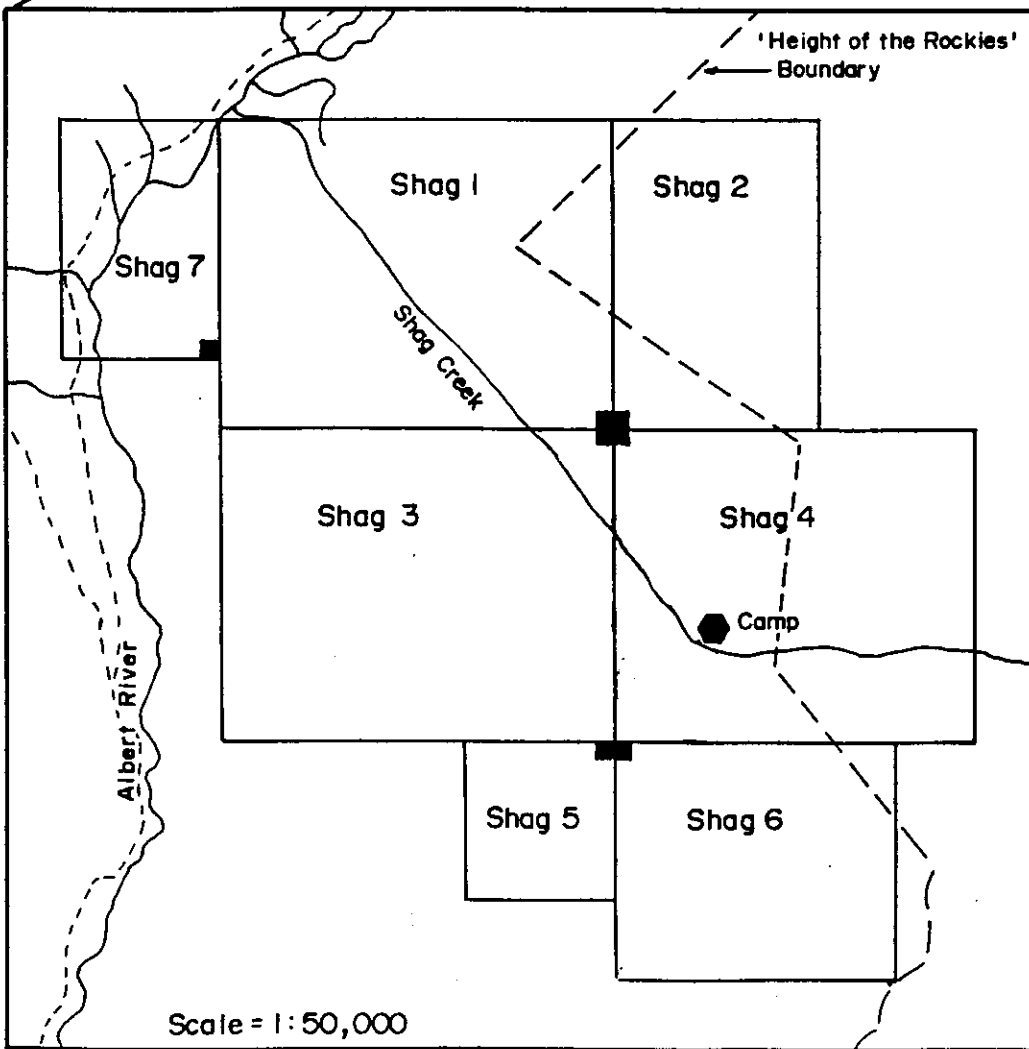
**SHAG PROPERTY**

**SCALE : 1 : 1,000,000**    **FIGURE : 1**


**DATE : SEPT. 1991**



  
 LOCATION MAP  
 FIGURE 2  
 0 6 12  
  
 KILOMETRES



CLAIM MAP  
 FIGURE 3

0 500 1000 2000  
  
 METRES



and were grouped in 1983 as the Shag Group. The following table lists all pertinent claim data.

TABLE 1  
CLAIM RECORDS

Claim Name	Record No.	Units	Record Date	Expiry Date *
Shag 1	213091	20	August 15, 1977	August 15, 1992*
Shag 2	213092	12	August 15, 1977	August 15, 1992*
Shag 3	213093	12	August 15, 1977	August 15, 1992*
Shag 4	213094	20	August 15, 1977	August 15, 1992*
Shag 5	213095	4	August 15, 1977	August 15, 1992*
Shag 6	213096	8	August 15, 1977	August 15, 1992*
Shag 7	213097	<u>6</u>	August 15, 1977	August 15, 1992*
	Total	<u>82</u>		

Note \* = Expiry Date based on acceptance of this report.

#### 5. PREVIOUS WORK

The Shag claims were staked in 1977 by Riocanex (Rio Tinto Canadian Exploration) in response to the discovery of two small Pb-Zn showings (C-3 and C-4) and associated stream silt anomalies discovered during the Graf Pb-Zn reconnaissance program.

In the summer of 1978, Rio Tinto carried out a program of 1:10,000 scale mapping, prospecting and soil sampling within the Shag claims. This work resulted in the division of the host Cathedral Formation into nine mappable units and the discovery of an additional eight Pb-Zn showings (BM, BM Extension, Pieces, RedBed, Crackle, Box, Bush and Christmas), mainly along two stratigraphic horizons known as the C-4 and BM horizons. Several small soil anomalies were outlined as well.

A follow-up drill program in the fall of 1978 tested the main BM showing with three short diamond drill holes (DDH 78-1 to 78-3) totalling 159.5 metres. Only low grade, spotty zinc mineralization was encountered, with the best intersection being 4% Zn over 0.5 metres in hole 78-1.

In the summer of 1979, Rio Tinto prospected soil anomalies not yet associated with known mineralization, remapped a number of sections of the C-4 horizon and remapped and soil sampled the C-4 showing in detail. Three new showings, the Stripes, BM Fractures and RedBed-type float were discovered. Many soil anomalies remained unexplained.

A follow-up drill program in the fall of 1979 tested the two main mineralized horizons with six diamond drill holes (DDH 79-1 to 79-6) totalling 460 metres. The first four holes tested the C-4 horizon with only weak mineralization being encountered. The final two holes (79-5,6) tested the BM mineralized horizon with hole 79-5 encountering no mineralization and 79-6 being abandoned due to inclement weather. Two additional showings were identified during prospecting around these holes (15 total showings to date).

In 1980, Rio Tinto turned the property back to Chris Graf who subsequently optioned the Shag claims to Esso Resources Canada Ltd. in the spring of 1981.

During the summer of 1981, Esso Minerals Canada carried out a program consisting of geological mapping in areas of known showings and favourable stratigraphy and the collection of 68 heavy mineral stream sediment samples. No additional mineralization was discovered, however two areas of anomalous heavy mineral concentrations were identified.

In the fall of 1981, investigation of the RedBed horizon along the east side of Shag creek resulted in the discovery of two new showings (proximal to Christmas showing and the Vug show) along a 600 metre continuously mineralized zone (RedBed horizon). Subsequently, a four hole (DDH 81-1 to 81-4) diamond drill program totalling 152 metres tested the downdip extension of this mineralized trend. Overall, only weak mineralization was encountered but hole 81-2 yielded an intersection of 10.25% Zn and 1 opt Ag over 3.3 metres. Hole 81-3 was aborted due to poor drilling conditions.

A program consisting of prospecting followed by a short six hole (DDH 82-1 to 82-6) diamond drill program totalling 458.1 metres was carried out by Esso in the summer of 1982. Prospecting concentrated on evaluating the RedBed horizon trend. The 1982 drill program followed-up DDH 81-2 and continued testing the downdip extension of the main RedBed horizon. The best intersection was hole 82-3, with 3.07% Zn over 6.3 metres (located  $\approx$ 90 metres northwest of hole 81-2).

In 1988, Ecstall Mining Corporation acquired the property and in the summer of 1988 a 10.9 line-km cut grid was established upon which an IP survey (chargeability and resistivity) was carried out by Delta Geoscience Ltd. This resulted in the delineation of four main IP anomalies within the grid.

In the summer of 1990, Toklat Resources Inc. carried out a program of prospecting, geochemical soil sampling, silt sampling and a limited VLF-EM geophysical survey over the 1988 grid area. In addition, 1.5 line-km of blazed and flagged grid was added. This work resulted in the delineation of one (150m x 180m) Zn anomalous zone and several smaller zinc soil and stream anomalies. Prospecting failed to reveal

any major zinc or lead mineralization.

## 6. 1991 PROGRAM

In 1991, 17 mandays were spent on the Shag property between August 1 and August 8. The program consisted of 2.9 line-km's of grid expansion followed by soil sampling (121 soils) and limited prospecting and 1:5,000 scale geological mapping (Figure 4-Grid Location map).

The purpose of the program was to delineate the full extent of the zinc soil anomaly located near the north end of the 1990 soil grid and to prospect and map both the IP anomalies identified in 1988 and a favourable geological contact located west of the grid. In addition, three rock samples from showings were collected and analysed for gallium and germanium. Mapping was done by topofil, compass and altimeter utilizing the existing grid lines where possible. Outcrop exposure was variable, ranging from large areas of no outcrop to steep, well exposed cliffs.

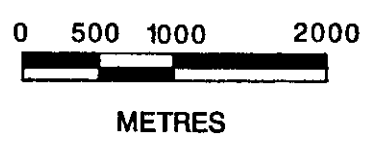
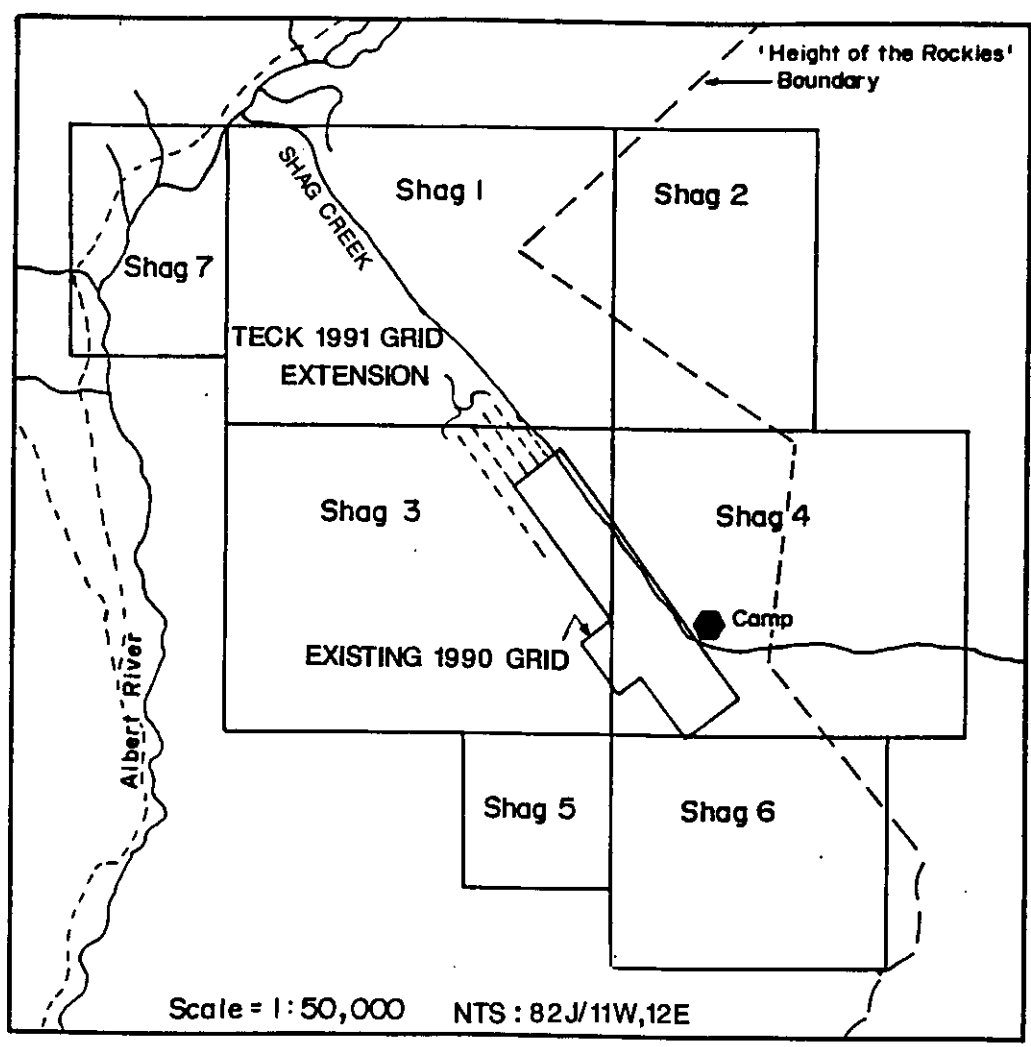
## 7. GEOLOGY

### A. Regional Geology (Figure 5)

The regional geology is taken largely from a 1981 assessment report (#9678) on Geological Mapping and Geochemical Sampling by M.H. Lenters of Esso Minerals and the 1979 G.S.C Open File Report 634 - Geology of the Kananaskis Map Area by G. Leech. The reader can refer to these reports for a more detailed regional geological account of the area.

The Shag property is located within the southern end of the Main Ranges Subprovince of the Rocky Mountain Fold and Thrust Belt, along a line that separates gently dipping, resistant Middle to Upper Cambrian carbonates in the east from recessive, cleaved and locally contorted Middle to Upper Cambrian shales in the west.

The eastern, shallow water platformal shelf carbonate facies is known as the Cathedral (and associated) Formations and the laterally equivalent western, deep water basin shale facies is known as the Chancellor Formation. These two facies represent a lower section of a Paleozoic miogeoclinal-platform sedimentary assemblage that appears to have accumulated as a continental terrace wedge prograding into a transgressing ocean basin.



TECK EXPLORATIONS LTD	
GRID LOCATION MAP	
SHAG PROPERTY	
DATE : SEPT. 1991	FIGURE : 4



Leech's 1979 map depicts the Shag property occurring on the eastern side and near the southern end of the broad northwest trending Porcupine Creek Anticlinorium whose axis roughly separates the western shale facies from the eastern carbonate facies. The Cambrio-Ordovician McKay Group shales overlie both facies.

Structurally, the Chancellor and McKay shales are commonly cleaved, isoclinally folded and internally thrust faulted in response to compression with the structural complexity increasing near the contacts with the Cathedral and associated carbonates. Deformation of the carbonate facies is characterized by a large, monoclinal flexure running parallel to the facies front. Rock type and position in the section relative to the McKay Group influence the styles of deformation in the carbonates, with the uppermost limestone members of the eastern carbonate facies indicating an east-west compression perpendicular to the facies front.

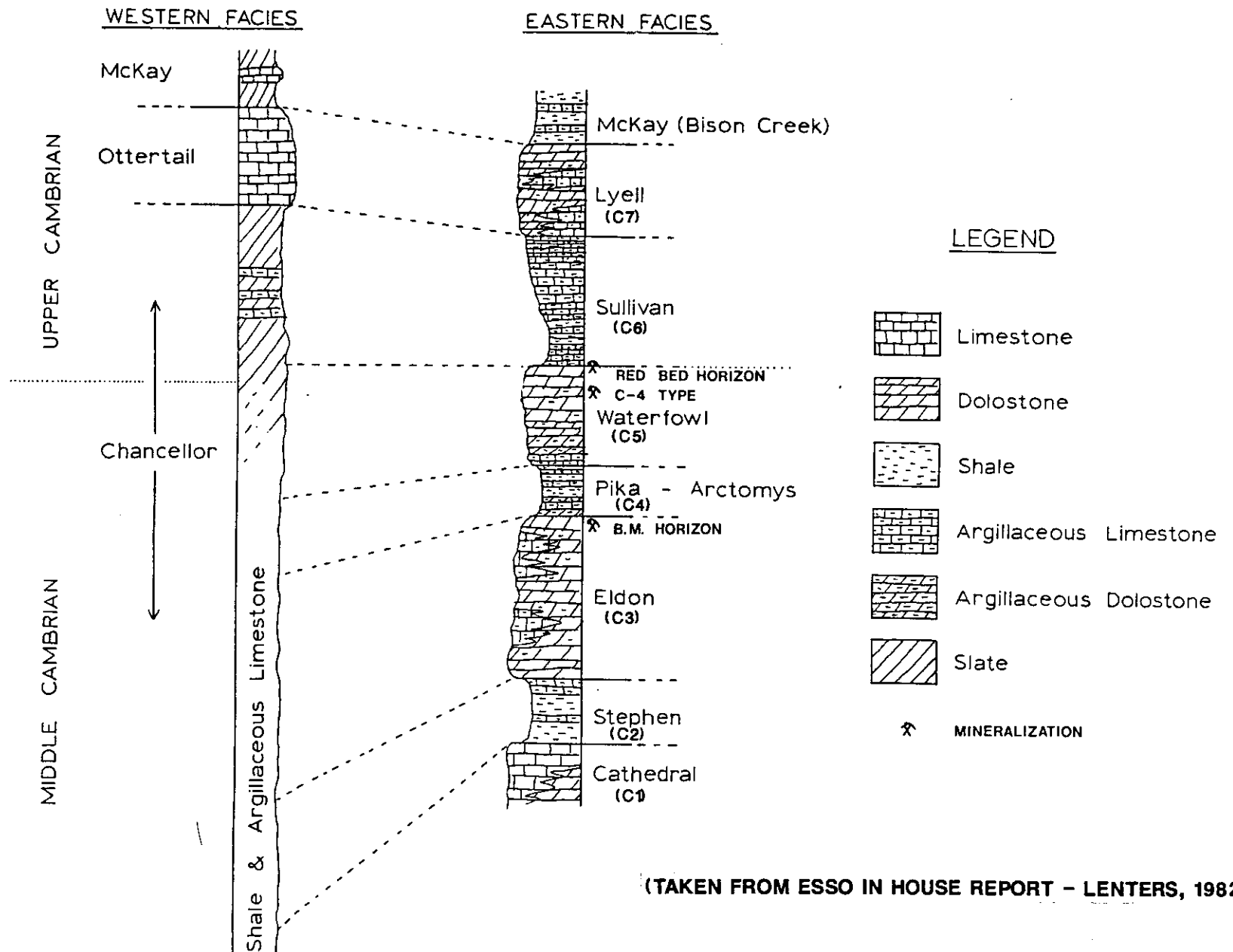
Numerous mineral occurrences are located in the surrounding region and are dominated by Cambrian carbonate-hosted Pb-Zn mineralization. They are often associated with dolomitized portions of prominent biogenetic-bioclastic carbonate complexes and are commonly located close to a carbonate-shale facies front.

#### **B. Property Geology (Figures 6,7)**

The following lithological descriptions are taken from Bendings 1979b inhouse report and Lenters (1981a) assessment report. The reader can refer to the above reports for a more detailed breakdown of the property lithologies. Originally, a large portion of the property was believed to be underlain by the Cathedral Formation and was divided into 9 mappable units. Subsequently, Bending believed the units to be higher in the regional stratigraphy than initially thought; the result being the seven main units (C-1 to C-7) were reallocated equivalent formation names which Lenters (Esso) later used in his interpretation of the property geology.

The property is largely underlain by seven carbonate units, with the McKay Group shales found locally at higher elevations and Chancellor Formation shales being identified in the western property area. Figure 6 depicts the stratigraphic columns and correlation of the formations in the Shag claim area.

**FIGURE: 6** STRATIGRAPHIC COLUMN AND CORRELATION CHART FOR GEOLOGIC FORMATIONS IN THE SHAG CLAIMS AREA



(TAKEN FROM ESSO IN HOUSE REPORT - LENTERS, 1982)

## I. Lithology

### **Unit C1 : Albert River Dolostone = Top of Cathedral Formation**

This basal unit (of which the base is not exposed on the property) is comprised of pale grey to white, crystalline, massive dolostone and thin to thick bedded grey limestone.

### **Unit C2 : Thin Limestone = Stephen Formation**

Unit C2 is dominately dark grey, finely crystalline, uniformly thinly bedded argillaceous limestone with lesser massive pale grey sucrosic dolostone.

### **Unit C3 : BM Host Dolostone = Eldon Formation**

This unit is a white to light grey, burrowed, sucrosic, massive cliff-forming dolostone. The upper part of the formation hosts the BM horizon mineralization and is characterized by burrows, stylolites, intraclastic zones and birdseye texture.

### **Unit C4 : Dividing Limestone = Pika and Arctomys Formations**

This Middle Cambrian limestone unit is thin bedded, usually recessive, quite often shaley and contains minor dolostone.

### **Unit C5 : Second Dolostone = Waterfowl Formation**

Unit C5 is a medium to thick bedded, massive, light colored, fine to medium grained, sucrosic dolostone with interbedded dolomitic limestone and dark grey limestone. The top of this Middle to Upper Cambrian formation is characterized by breccia pods, zebroid and vuggy textures with zones of orange ferroan dolomite. The upper part of this dolostone unit hosts the C-4 type and RedBed horizon mineralization (C-4, Pieces, RedBed, Crackle, Rush, Stripes, Red bed type float and Christmas showings).

### **Unit C6 : Cliff and Step Limestone = Sullivan Formation**

This Upper Cambrian limestone unit is thin to medium bedded, medium grey, banded, argillaceous and silty. It contains minor calcareous shale and characteristically shows sedimentary boudinage structures.

### **Unit C7 : Top Dolostone = Lyell Formation**

The cliff-forming Lyell Formation is a massive, sucrosic, coarsely crystalline, pale tan to grey dolostone with minor limestone.



### **Unit C8 : Cyclic Dolostone**

Dark algal and pale sucrosic texture is common in this unit which appears to abut on the more widespread and uniform units. Laterally equivalent to the Second Dolostone (C5), Dividing Limestone (C4) and upper parts of the BM Host Dolostone (C3).

## **II. Mineralization and Geochemistry** (Figure 7)

Prospecting and mapping by Riocanex and Esso has identified seventeen Pb-Zn showings on the property. Fifteen of the showings are located along a five kilometre length of Shag creek and are associated with two main stratigraphic horizons. One favourable horizon is the top of the Eldon (Unit C3) dolostone which hosts the BM style showings including the BM, BM Extension (float), BM Fractures and Galena (float). A second favourable stratigraphy is the Waterfowl (Unit C5) dolostone. The top of this unit, just below the overlying argillaceous limestone (C6), hosts the RedBed horizon showings including the Rush, Crackle, RedBed, Pieces (float), Vug and Christmas. The C-4 type mineralization, including the C-4, Stripes (float) and Pad showings, occurs stratigraphically below the RedBed horizon within the Waterfowl Formation.

Three rock samples were collected; two from the mineralized BM horizon (27080,27122) and one from the main C-4 showing (27079). They were sent to Eco-Tech Labs in Kamloops and analysed for gallium and germanium. No anomalous results were obtained and the Certificates of Analysis are included in Appendix III and Analytical Procedures in Appendix IV.

Prospecting and mapping was concentrated around the four main IP anomalies outlined in 1988 (Figure 7). No additional mineralization was discovered and outcrop exposure was variable.

The second area prospected and mapped was the favourable C5/C6 contact. This contact (or immediately below the contact) hosts the RedBed mineralized horizon located on the eastern slopes above Shag valley. It was hoped that prospecting the contact on the western side of the Shag valley would delineate additional Pb-Zn showings. However, no mineralization was discovered in the course of this investigation.

Three moss mat samples were collected during the 1991 program. Two samples, M27119 and M27120, were taken from a main stream and tributary about 100 metres downstream from the favourable C5/C6 contact and upslope from the strongest IP (chargeability) anomaly. No anomalous results were obtained. In addition, a silt collected by Toklat Resources in 1990 located roughly 100 metres downstream

returned a value of 1130 ppm Zn, but strangely was not duplicated by the upstream moss mats. A third moss mat sample (M27121) was collected from a stream located north and downslope of the above stream and it also returned a sub anomalous Zn result.

## 8. GRID PREPARATION

The existing grid (1988 IP survey and 1990 soil survey) was expanded northwestward by 2.9 line-kilometres of cross lines. Flagged lines were run at 320° using topofil and compass with slope corrected stations established every 25 metres and marked on tyvex tags. Lines were run concurrent with soil sampling.

The existing grid was expanded and subsequently soil sampled during the 1991 program in order to delineate the full extent of the existing zinc anomaly located near the northern margin of the grid (see Figure 4 for Grid Location). Line 1+00W was extended 400 metres northwest (stopped 100 metres short because of steep cliffs) while lines 2+00W to 4+00W were extended 500 metres northwest. The existing cut grid lines ended at 22+00N. A one kilometre line (L 5+00W) was added to the southwest (16+00N to 27+00N) to cover previous soil anomalies (1978 Riocanex) and to cover the possible upslope extension of an IP anomaly (L 4+00W, 16-17N).

## 9. SOIL GEOCHEMISTRY (Figure 8)

A total of 121 soil samples were collected and sent to Eco-Tech Laboratories Ltd. in Kamloops, B.C. and analysed for 29 elements by ICP (Ag, Al, As, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sn, Ti, U, V, W, Y, Zn) and gold by fire assay and atomic absorption. Samples were collected using a shovel from the 'B' horizon, which generally occurred at a depth of 20-40 centimetres. Quite often holes had to be dug 50-70 centimetres deep in order to penetrate the thick organic cover or talus. All soils were collected in Kraft bags and allowed to air dry before shipment to the lab. Three moss mats from local creeks were collected and also analysed for ICP and Au. Sample locations and zinc (ppm) results of the soils are shown on Figure 7. For a complete list of results see Appendix III-Certificates of Analysis. Analytical procedures are included in Appendix IV.

A statistical analysis of the rather small population (excluding the two 4000+ zinc results - obvious outliers) produced a mean of 174 ppm Zn and a standard deviation of 253 ppm Zn. A threshold of 2x the standard deviation was used as the first contour (500-1000 ppm Zn). Subsequent contours of 1000-2000

ppm Zn and >2000 ppm Zn were visually estimated from the data. Toklat Resources 1990 Zn soil results (from 16+00N to 22+00N) are plotted, using the same contour intervals, and along with the 1991 zinc soil results are shown on Figure 7. They were plotted in order to correlate the two years results and to see if the 1990 anomalies continued north and west (the two years of soils were analysed by the same laboratory, therefore correlation of results is possible).

#### A. Results (Figure 8)

Soil geochemical results of the 1991 program did not significantly extend the large zinc soil anomaly outlined in 1990 northwesterly. A high contrast two sample Zn anomaly (4285 and 4959 ppm Zn) was identified at line 4+00W, 22+00N to 22+25N. It is possible this could be an extension of the 1990 large Zn soil anomaly located to the southeast but correlation is speculative due to 100 metres of no samples from 21+00N to 22+00N along L 4+00W. This two sample anomaly correlates with the northwestern end of the large zinc soil anomaly outlined by Riocanex in 1978.

In addition, only two single point zinc anomalies were identified in the northwestern grid expansion area; a 1651 ppm Zn located at L 3+00W, 22+75N and a 802 ppm Zn located at L 5+00W, 24+75N. No lead soil anomalies were identified in this area. A 1978 Riocanex 150x50m Zn soil anomaly located at L 4+00W, 23+00N to 24+50N was not duplicated.

Two anomalous Zn zones were identified along L 5+00W from 16+00N to 22+00N. The first is a three station weakly anomalous (600-1136 ppm Zn) zone located from 19+25N to 19+75N. A 100 metre long zinc anomaly from 21+00N to 22+00N along L 5+00W identified by Riocanex in 1978 was not duplicated.

The second anomalous area is from 16+50N to 17+25N along L 5+00W. The highest anomaly is 1198 ppm Zn at 17+25N and correlates with the highest lead value returned in 1991 (110 ppm). This zone can be traced northeasterly through L 4+00W to L 3+00W (using the 1990 soil results on L 3+00W and 4+00W). This zone also correlates with an 1988 IP anomaly centered at 16+25N along L 5+00W. The two weakly anomalous zones remain open upslope to the southwest. Prospecting in these areas did not uncover any mineralization and outcrop exposure was poor. Possible follow-up work could consist of extending the grid lines westward.

The erratic, and generally weak, Zn soil anomalies identified in 1991 could be caused by thin, discontinuous and poddy zinc mineralization.

## 10. CONCLUSION

Results from the 1991 program did not outline economic zinc mineralization.

Soil sampling of extensions to the existing grid effectively closed off the zinc anomaly outlined in 1990. The anomaly was found not to continue northwestward, with only sporadic, weak zinc anomalies found within the expanded grid area. The strongest geochemical response was a two point zinc anomaly which returned values of 4959 and 4285 ppm Zn respectively. These results correlate with the northwestern edge of a large 1978 zinc soil anomaly. The two point anomaly, along with the other weaker zinc anomalies, could be explained by the presence of weak, erratic zinc mineralization, common to the property area.

A western soil grid line returned two weakly anomalous zinc zones. One of the zones correlates with a previously defined IP anomaly and both zones remain open upslope to the southwest. Possible follow-up could consist of extending the grid lines westward.

The results of the limited prospecting and mapping were inconclusive. No significant new mineralization was discovered during investigation of the four main IP anomalies and the favourable geological contact (C5-C6). Three moss mat samples collected during the course of this investigation returned subanomalous Zn results.

Three rock samples were collected from known Zn-Pb showings and analysed for gallium and germanium. Again, no anomalous results were returned.

**11. REFERENCES**

1. Bending, D.,(1979a) : Shag Claims, Rio Tinto Canadian Exploration Ltd (In house report 547).
2. Bending, D.,(1979b) : Shag Claims, Rio Tinto Canadian Exploration Ltd (In house report 561).
3. Hendrickson, G.A.,(1988) : Geophysical Report on the Shag Creek Project, Albert River Area.
4. Leech, G.,(1979) : Geology of the Kananaskis Map Area, Geological Survey of Canada; Open File Map Report No. 634.
5. Lenters, M.H.,(1981a) : Geological Mapping and Geochemical Sampling Assessment Report on the Shag Claims (Ass. Report No. 9678).
6. Lenters, M.H.,(1981b) : Diamond Drilling Assessment Report on the Shag Claims (Ass. Report No. 10143).
7. Lenters, M.H.,(1982) : Report on Diamond Drilling, Shag Claims (In house Esso report).
8. Termuende, T.,(1990) : Assessment Report for the Shag 1-7 Claims.

**APPENDIX I**  
**Statement of Qualifications**

I, Steve Jensen, do hereby certify that:

- 1) I am a geologist and have practised my profession for the past five years.
- 2) I graduated from University of British Columbia, Vancouver, British Columbia with a Bachelor of Sciences degree in Geology (1987).
- 3) I was actively involved in the Shag Property program and authored the report contained herein.
- 4) All data contained within this report and conclusions drawn from it are true and accurate to the best of my knowledge.
- 5) I hold no personal interest, direct or indirect in the Shag Property which is the subject of this report.

A handwritten signature in black ink, appearing to read 'Steve Jensen', written over a horizontal line.

Steve Jensen  
Project Geologist  
September, 1991

**APPENDIX II**  
**Cost Statement**



SHAG PROPERTY

COST STATEMENT

1.	Soil sampling, prospecting and mapping (includes preparation, travel days, field plotting)	
a)	Steve Jensen (Geologist) 8 days @ \$211.46/day (Aug 1,8) Aug 2-7, 1991	\$1,691.68
b)	Peter Procter (Geologist) 9 days @ \$181.25/day (Aug 1,8,10) Aug 2-7, 1991	1,631.25
c)	Randy Farmer (Geologist) 1 day @ \$241.67/day (Aug 1, 1991)	241.67
d)	Chris Graf (Geological Engineer) 2 days @ \$250/day Aug 1,2, 1991	500.00
	( ) Denotes non-field days	
	Subtotal	<u>\$4,064.60</u>
2.	Analytical = Eco-Tech Lab, Kamloops, B.C.	
a)	Soil samples 121 @ \$12.61 each (29 el. ICP & Au)	\$1,525.81
b)	Moss mats 3 @ \$17.37 each (29 el. ICP & Au)	52.11
c)	Geochemical gallium, germanium 3 @ \$8.33 each	24.99
d)	586 Soil Samples/Rock Samples Minen Labs 1990	2,330.89
	Subtotal	<u>\$3,933.80</u>
3.	Helicopter = Frontier Helicopters, Invermere, B.C.	
a)	Aug 2, 1991 : 1 hr @ \$635/hr Fuel & Oil = \$74.50	\$709.50
b)	Aug 7, 1991 : 1 hr @ \$635/hr Fuel & oil - \$74.50	709.50
	Subtotal	<u>\$1,419.00</u>

4.	Food and Accommodation	
	a) Groceries (Aug 2-7, 1991)	\$146.51
	b) Motel & meals (Aug 1,7,8)	182.60
	Subtotal	<u>\$329.11</u>
5.	Radio rental	
	a) 2 - Handheld IC-U16 radios	\$50.00
	Subtotal	<u>\$50.00</u>
6.	Report writing	
	a) Steve Jensen (Geologist) 2 days @ \$211.46/day	\$422.92
	Subtotal	<u>\$422.92</u>
7.	Drafting and Typing	
	a) Steve Jensen (Geologist) 1 day @ \$211.46/day	\$211.46
	Subtotal	<u>\$211.46</u>
8.	Orthophoto preparation	\$4,965.00
	Subtotal	<u>\$4,965.00</u>
	1991 COSTS TOTAL	<u><u>\$15,395.89</u></u>

**APPENDIX III**  
**Certificates of Analyses**

ECO-TECH LABORATORIES LTD.  
 10041 EAST TRANS CANADA HWY.  
 KAMLOOPS, B.C. V2C 2J3  
 PHONE - 604-573-5700  
 FAX - 604-573-4557

TECK EXPLORATIONS LTD.- ETX 91-605  
 960, 175 SECOND AVENUE  
 KAMLOOPS, B.C.  
 V2C 5W1

AUGUST 26, 1991

ATTENTION: FRED DALEY

VALUES IN PPM UNLESS OTHERWISE REPORTED

PROJECT NUMBER: 021- SHAG PROPERTY  
 121 SOIL SAMPLES RECEIVED AUGUST 9, 1991

ET#	DESCRIPTION	AU	AG	AL(%)	AS	B	BA	BI	CA(%)	CD	CO	CR	CU	FE(%)	K(%)	LA	MG(%)	MN	MO	NA(%)	NI	P	PB	SB	SN	SR	TI(%)	U	V	W	Y	ZN
1	- L1 W 22 + 00N	<5	<.2	3.54	25	6	85	<5	1.46	<1	13	15	14	3.42	.01	20	1.09	600	<1	<.01	15	550	32	10	<20	3	.02	<10	16	<10	10	206
2	- L1 W 22 + 25N	<5	<.2	3.35	25	6	80	<5	.54	<1	12	15	18	3.21	.02	20	.65	971	<1	.01	17	560	28	5	<20	10	.04	<10	15	<10	11	265
3	- L1 W 22 + 50N	<5	<.2	3.40	25	8	80	<5	.54	<1	12	15	17	3.25	.03	20	.66	984	<1	<.01	18	560	26	5	<20	11	.04	<10	15	<10	11	264
4	- L1 W 22 + 75N	<5	<.2	2.76	<5	6	50	<5	4.08	<1	7	8	12	2.13	.02	20	2.37	597	<1	<.01	8	340	20	10	<20	<1	.04	<10	9	<10	10	110
5	- L1 W 23 + 00N	<5	<.2	3.67	15	4	85	<5	1.53	<1	11	15	8	3.57	.01	10	.92	213	<1	<.01	14	290	30	5	<20	<1	.01	<10	26	<10	<1	152
6	- L1 W 23 + 25N	<5	<.2	2.99	30	6	60	<5	3.73	<1	12	14	9	3.52	.01	20	2.30	516	<1	<.01	13	400	30	15	<20	<1	.02	<10	13	<10	2	178
7	- L1 W 23 + 50N	<5	<.2	2.70	35	4	55	<5	.16	<1	13	20	24	3.86	.03	20	1.01	334	<1	.01	20	630	34	5	<20	6	.01	<10	16	<10	11	190
8	- L1 W 23 + 75N	<5	<.2	3.16	20	6	65	<5	3.33	<1	11	11	10	3.03	<.01	10	2.02	693	<1	<.01	11	400	28	10	<20	<1	.03	<10	17	<10	2	113
9	- L1 W 24 + 00N	<5	<.2	3.10	40	8	75	<5	1.45	<1	15	19	12	3.97	.03	20	1.21	555	<1	<.01	24	300	34	10	<20	6	.02	<10	18	<10	3	67
10	- L1 W 24 + 25N	<5	<.2	3.28	15	6	55	<5	1.93	<1	13	15	10	3.33	.02	20	1.58	363	<1	<.01	14	540	28	10	<20	1	.02	<10	17	<10	4	51
11	- L1 W 24 + 50N	<5	<.2	.65	5	6	10	<5	6.18	<1	4	5	4	1.16	<.01	10	3.20	494	<1	<.01	4	540	6	10	<20	<1	<.01	<10	2	<10	5	46
12	- L1 W 24 + 75N	<5	<.2	.81	10	8	20	<5	6.07	<1	5	6	6	1.47	<.01	10	3.59	377	<1	<.01	6	480	12	10	<20	<1	<.01	<10	4	<10	6	49
13	- L1 W 25 + 00N	<5	<.2	2.63	35	4	40	<5	.73	<1	14	18	11	4.40	.01	20	.79	306	<1	<.01	16	490	40	5	<20	8	<.01	<10	17	<10	<1	72
14	- L1 W 25 + 25N	<5	<.2	3.09	30	8	80	<5	.60	<1	11	17	8	3.75	.01	10	.90	166	<1	<.01	14	410	28	5	<20	4	.01	<10	18	<10	<1	106
15	- L1 W 25 + 50N	<5	<.2	4.08	10	6	65	<5	.20	<1	10	13	8	3.22	.01	10	.44	98	<1	.01	15	280	28	5	<20	9	.04	<10	17	<10	<1	72
16	- L1 W 25 + 75N	<5	<.2	.90	5	8	15	<5	4.55	<1	6	7	6	1.44	.01	10	2.50	434	<1	<.01	7	610	8	10	<20	1	<.01	<10	3	<10	7	51
17	- L1 W 25 + 90N	<5	<.2	2.32	20	8	25	<5	.93	<1	13	15	11	3.44	.02	20	1.01	402	<1	<.01	15	410	28	5	<20	5	.01	<10	15	<10	6	85
18	- L2 W 22 + 00N	<5	<.2	6.30	15	8	55	<5	2.34	<1	12	15	10	3.50	<.01	20	1.28	326	<1	<.01	12	530	28	10	<20	4	.08	<10	16	<10	9	58
19	- L2 W 22 + 25N	<5	<.2	5.61	5	6	45	<5	.26	<1	10	9	7	3.01	.01	10	.47	115	<1	.02	10	270	32	5	<20	10	.13	<10	14	<10	5	49
20	- L2 W 22 + 50N	<5	<.2	5.20	10	6	60	<5	1.53	<1	9	11	10	2.81	.01	10	.56	263	<1	<.01	9	330	28	5	<20	9	.10	<10	17	<10	10	208
21	- L2 W 22 + 75N	<5	<.2	3.61	20	6	60	<5	1.49	<1	10	12	11	2.81	.01	20	.98	401	<1	<.01	14	340	24	5	<20	5	.04	<10	14	<10	7	235
22	- L2 W 23 + 00N	<5	<.2	3.82	40	4	70	<5	1.05	<1	12	15	13	3.33	.01	20	.80	449	<1	<.01	16	340	28	5	<20	11	.03	<10	20	<10	7	316
23	- L2 W 23 + 25N	<5	<.2	3.25	25	6	105	<5	2.46	<1	11	16	11	3.10	.01	30	1.75	572	<1	<.01	16	440	28	10	<20	<1	.03	<10	17	<10	11	124
24	- L2 W 23 + 50N	<5	<.2	2.65	30	6	60	<5	3.71	<1	12	15	12	3.38	.01	20	2.50	644	<1	<.01	15	460	26	15	<20	<1	.01	<10	23	<10	3	88
25	- L2 W 23 + 75N	<5	<.2	.98	15	6	30	<5	6.07	<1	6	6	6	1.58	<.01	10	3.54	619	<1	<.01	5	670	12	10	<20	<1	<.01	<10	7	<10	7	42
26	- L2 W 24N	<5	<.2	3.55	35	4	60	<5	.51	<1	14	17	13	4.21	<.01	20	.64	222	<1	<.01	15	460	40	5	<20	6	.01	<10	25	<10	<1	109

AUGUST 26, 1991

ET#	DESCRIPTION	AU	AG	AL(%)	AS	B	BA	BI	CA(%)	CD	CO	CR	CU	FE(%)	K(%)	LA	MG(%)	MN	MO	NA(%)	NI	P	PB	SB	SN	SR	TI(%)	U	V	W	Y	ZH
27	- L2 W 24 + 25N	<5	<.2	4.27	5	6	95	<5	1.22	<1	9	11	13	2.44	.02	20	.67	343	<1	<.01	11	270	22	5	<20	4	.07	<10	14	<10	11	49
28	- L2 W 24 + 50N	<5	<.2	5.70	10	8	60	<5	.60	<1	11	10	8	2.92	.01	20	.32	259	<1	<.01	10	310	28	<5	<20	8	.08	<10	11	<10	10	69
29	- L2 W 24 + 75N	<5	<.2	.83	10	4	20	<5	6.68	<1	4	3	10	1.11	<.01	10	3.72	511	<1	<.01	3	570	8	10	<20	<1	<.01	<10	2	<10	4	47
30	- L2 W 25N	<5	<.2	4.30	10	6	65	<5	.21	<1	11	13	11	4.09	.02	10	.41	128	<1	.01	15	280	34	<5	<20	5	.06	<10	18	<10	<1	96
31	- L2 W 25 + 25N	<5	<.2	3.88	5	4	60	<5	2.12	<1	11	11	12	2.87	.01	20	1.30	326	<1	<.01	13	500	26	5	<20	<1	.04	<10	12	<10	13	77
32	- L2 W 25 + 50N	<5	<.2	3.22	10	6	55	<5	1.65	<1	9	10	9	2.57	.02	20	.45	274	<1	<.01	11	330	20	5	<20	18	.04	<10	10	<10	7	77
33	- L2 W 25 + 75N	<5	<.2	.80	15	4	20	<5	4.90	<1	5	5	8	1.31	<.01	10	2.96	683	<1	<.01	6	390	10	10	<20	<1	<.01	<10	5	<10	5	41
34	- L2 W 26N	<5	<.2	.33	5	4	<5	<5	10.17	<1	2	2	3	.72	<.01	<10	6.18	268	<1	<.01	1	340	2	15	<20	<1	<.01	<10	1	<10	1	32
35	- L2 W 26 + 25N	<5	<.2	1.78	45	4	30	<5	2.85	<1	10	12	9	3.20	.01	10	2.14	378	<1	<.01	11	420	28	10	<20	<1	<.01	<10	16	<10	<1	84
36	- L2 W 26 + 50N	<5	<.2	.70	10	6	20	<5	5.29	<1	4	5	7	1.27	.01	10	2.71	357	<1	<.01	5	460	10	10	<20	<1	<.01	<10	3	<10	5	43
37	- L2 W 26 + 75N	<5	<.2	1.64	25	4	25	<5	3.63	<1	9	11	7	2.69	.01	20	2.37	617	<1	<.01	11	400	22	10	<20	<1	<.01	<10	14	<10	8	57
38	- L2 W 27N	<5	<.2	2.46	20	4	45	<5	2.33	<1	11	17	9	3.47	.02	20	1.90	314	<1	<.01	16	480	38	10	<20	<1	<.01	<10	17	<10	3	57
39	- L3 W 22 + 50N	<5	<.2	2.39	10	<2	55	<5	.32	<1	8	13	9	2.65	.02	10	.47	101	<1	.01	4	210	26	<5	<20	6	.02	<10	30	<10	<1	710
40	- L3 W 22 + 75N	<5	<.2	1.71	10	6	35	<5	4.95	2	7	6	27	1.70	.01	10	2.31	972	<1	<.01	4	520	18	15	<20	<1	.03	<10	5	<10	6	1651
41	- L3 W 23 + 00N	<5	<.2	4.30	<5	2	30	<5	.60	1	8	9	7	2.46	.02	10	.48	59	<1	<.01	4	250	26	5	<20	5	.10	<10	18	<10	5	420
42	- L3 W 23 + 25N	<5	<.2	1.50	30	4	30	<5	.31	<1	7	9	13	2.24	.01	10	.56	83	<1	<.01	5	400	38	5	<20	5	.01	<10	14	<10	1	150
43	- L3 W 23 + 50N	<5	<.2	1.84	10	6	50	<5	5.35	<1	10	11	10	2.47	.02	20	3.48	627	<1	<.01	7	420	16	15	<20	<1	.01	<10	11	<10	9	84
44	- L3 W 23 + 75N	<5	<.2	4.48	5	6	100	<5	.69	<1	12	16	12	3.61	.03	20	.59	201	1	<.01	12	370	36	5	<20	8	.04	<10	20	<10	7	100
45	- L3 W 24 + 00N	<5	<.2	4.24	<5	6	70	<5	.56	<1	11	12	10	2.99	.02	20	.48	294	<1	.01	9	420	26	5	<20	10	.05	<10	15	<10	8	82
46	- L3 W 24 + 25N	<5	<.2	3.90	<5	6	80	<5	2.38	<1	11	17	10	3.14	.06	20	1.46	244	<1	<.01	12	350	28	10	<20	<1	.04	<10	18	<10	6	116
47	- L3 W 24 + 50N	<5	<.2	5.37	5	4	55	<5	.46	<1	14	11	11	3.05	<.01	10	.49	216	<1	<.01	8	310	28	<5	<20	4	.06	<10	12	<10	6	75
48	- L3 W 24 + 75N	<5	<.2	3.52	10	2	60	<5	.31	<1	9	10	13	2.71	.01	10	.35	1324	<1	<.01	4	610	24	5	<20	7	.07	<10	16	<10	8	117
49	- L3 W 25 + 00N	<5	<.2	2.48	20	6	65	<5	.54	<1	13	13	12	3.76	.02	30	.46	380	<1	<.01	13	1050	32	5	<20	10	.02	<10	17	<10	14	105
50	- L3 W 25 + 25N	<5	<.2	2.39	10	2	70	<5	.54	<1	13	13	11	3.80	.02	20	.56	282	<1	<.01	15	400	38	5	<20	6	.01	<10	18	<10	3	105
51	- L3 W 25 + 50N	<5	<.2	2.56	15	4	80	<5	1.75	<1	17	17	15	4.01	.04	30	1.38	836	<1	<.01	17	680	32	5	<20	3	.01	<10	15	<10	11	145
52	- L3 W 25 + 75N	<5	<.2	1.62	15	4	40	<5	3.61	1	11	8	12	2.66	.01	20	1.83	845	<1	<.01	7	600	28	10	<20	<1	.01	<10	11	<10	9	203
53	- L3 W 26 + 00N	<5	<.2	3.01	30	4	65	<5	2.12	<1	14	18	18	3.73	.03	30	1.63	808	1	<.01	14	440	34	10	<20	<1	.01	<10	32	<10	5	81
54	- L3 W 26 + 25N	<5	<.2	3.82	<5	6	60	<5	3.71	<1	9	10	10	2.39	.03	20	2.09	426	<1	<.01	6	290	24	10	<20	<1	.06	<10	11	<10	11	51
55	- L3 W 26 + 50N	<5	<.2	.73	<5	2	10	<5	7.01	<1	3	3	4	.86	<.01	10	3.97	533	<1	<.01	<1	280	8	15	<20	<1	<.01	<10	4	<10	5	64
56	- L3 W 26 + 75N	<5	<.2	4.56	5	4	70	<5	.99	<1	12	17	13	3.67	.03	20	.96	207	<1	<.01	14	270	40	5	<20	4	.05	<10	24	<10	4	56
57	- L3 W 27 + 00N	<5	<.2	3.68	5	2	70	<5	2.12	<1	12	17	10	3.48	.03	20	1.61	282	<1	<.01	12	310	34	10	<20	<1	.03	<10	19	<10	5	60
58	- L4 W 22 + 00N	<5	<.2	1.89	10	6	30	<5	4.49	7	6	7	27	1.73	.01	10	1.92	453	<1	<.01	4	430	16	10	<20	3	.02	<10	4	<10	7	4285
59	- L4 W 22 + 25N	<5	<.2	2.94	<5	6	30	<5	3.06	12	6	7	28	1.62	.01	10	.63	885	<1	<.01	4	460	12	5	<20	16	.06	<10	3	<10	13	4959
60	- L4 W 22 + 50N	<5	<.2	2.79	15	2	40	<5	2.46	1	13	13	8	3.33	.02	20	1.58	508	<1	<.01	12	290	24	10	<20	<1	.02	<10	13	<10	7	326
61	- L4 W 22 + 75N	<5	<.2	2.94	15	2	30	<5	1.68	1	8	9	.7	2.46	.01	10	.66	505	<1	<.01	4	320	20	10	<20	4	.05	<10	11	<10	7	179
62	- L4 W 23 + 00N	<5	<.2	1.91	<5	8	30	<5	4.56	<1	4	7	20	1.43	.01	10	1.74	398	<1	<.01	1	490	14	10	<20	7	.04	<10	2	<10	9	182
63	- L4 W 23 + 50N	<5	<.2	2.55	80	4	25	<5	1.12	1	14	11	23	3.70	<.01	20	.46	579	2	<.01	8	410	34	5	<20	6	.04	<10	23	<10	2	159

AUGUST 26, 1991

ECO-TECH LABORATORIES LTD.

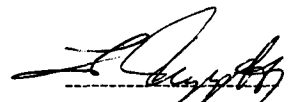
ET#	DESCRIPTION	AU	AG	AL(%)	AS	B	BA	BI	CA(%)	CD	CO	CR	CU	FE(%)	K(%)	LA	MG(%)	MN	MO	NA(%)	NI	P	PB	SB	SN	SR	TI(%)	U	V	W	Y	ZN
64	L4 W 23 + 65N	<5	<.2	3.16	10	2	45	<5	1.54	<1	7	12	10	3.45	.02	10	.43	61	<1	<.01	5	210	30	5	<20	20	.06	<10	13	<10	3	196
65	L4 W 24 + 00N	<5	<.2	.57	10	8	15	<5	4.72	<1	2	2	8	.85	.01	<10	2.17	306	<1	<.01	<1	560	18	10	<20	<1	<.01	<10	1	<10	1	76
66	L4 W 24 + 50N	<5	<.2	1.59	45	4	20	<5	4.13	<1	7	6	9	2.15	<.01	10	2.39	695	<1	<.01	1	340	28	10	<20	<1	.02	<10	6	<10	5	56
67	L4 W 24 + 75N	<5	<.2	.98	25	10	35	<5	4.54	<1	7	6	19	1.84	.01	10	2.24	902	<1	<.01	4	890	32	10	<20	<1	<.01	<10	5	<10	5	383
68	L4 W 25 + 00N	<5	<.2	4.06	<5	6	45	<5	2.30	<1	11	15	11	3.22	.04	20	1.19	241	<1	<.01	10	310	30	5	<20	<1	.04	<10	21	<10	4	53
69	L4 W 25 + 25N	<5	<.2	3.13	25	8	80	<5	1.96	<1	14	18	17	3.46	.06	20	1.47	463	1	<.01	17	290	34	10	<20	4	.02	<10	24	<10	3	115
70	L4 W 25 + 50N	<5	<.2	2.85	60	8	70	<5	2.06	<1	15	16	25	3.73	.03	20	1.59	665	1	<.01	18	340	38	10	<20	<1	.02	<10	26	<10	2	52
71	L4 W 25 + 75N	<5	<.2	3.02	20	6	65	<5	2.86	<1	12	20	19	3.36	.04	20	2.32	709	1	<.01	15	350	30	10	<20	<1	.01	<10	35	<10	3	49
72	L4 W 26 + 00N	<5	<.2	3.07	10	6	55	<5	2.53	<1	11	16	18	3.02	.05	20	2.01	541	<1	<.01	12	340	26	10	<20	<1	.03	<10	21	<10	5	52
73	L4 W 26 + 25N	<5	<.2	3.67	<5	6	80	<5	1.49	<1	13	16	11	3.21	.05	30	1.47	401	<1	<.01	13	260	28	15	<20	2	.05	<10	22	<10	10	46
74	L4 W 26 + 55N	<5	<.2	3.84	5	4	60	<5	.39	<1	12	17	9	3.34	.05	20	.72	144	<1	<.01	13	230	28	<5	<20	6	.03	<10	18	<10	4	41
75	L4 W 26 + 75N	<5	<.2	3.05	10	4	55	<5	1.21	<1	11	18	8	3.28	.03	30	1.21	208	<1	<.01	13	280	26	10	<20	<1	.02	<10	20	<10	7	41
76	L4 W 27 + 00N	<5	<.2	4.43	<5	4	40	<5	1.78	<1	9	10	10	2.12	.02	20	.74	478	<1	<.01	7	410	20	5	<20	6	.12	<10	8	<10	19	23
77	L SW 16 + 00N	<5	<.2	3.21	<5	2	135	<5	.92	<1	14	15	8	4.23	.03	20	.41	551	<1	<.01	12	720	42	5	<20	12	.02	<10	25	<10	4	267
78	L SW 16 + 25N	<5	<.2	5.83	<5	4	60	<5	.16	<1	10	10	7	2.82	.02	10	.20	76	<1	.01	6	400	44	<5	<20	7	.10	<10	11	<10	6	171
79	L SW 16 + 50N	<5	<.2	1.70	20	4	65	<5	.23	<1	15	16	10	4.46	.03	20	.59	526	<1	<.01	16	940	36	5	<20	6	<.01	<10	18	<10	2	741
80	L SW 16 + 75N	<5	<.2	2.68	10	<2	85	<5	.12	<1	10	18	7	4.15	.02	20	.67	88	<1	<.01	12	340	44	5	<20	4	<.01	<10	27	<10	<1	195
81	L SW 17 + 00N	<5	<.2	1.59	<5	4	25	<5	4.34	<1	9	13	25	2.37	.02	20	2.38	612	<1	<.01	11	820	80	10	<20	5	.01	<10	5	<10	10	865
82	L SW 17 + 25N	<5	<.2	1.91	15	4	50	<5	2.66	1	13	18	29	3.26	.04	30	1.33	1645	<1	<.01	19	690	110	10	<20	26	.01	<10	12	<10	11	1198
83	L SW 17 + 50N	<5	<.2	2.29	10	4	65	<5	1.64	<1	12	20	16	3.64	.05	20	.81	575	1	<.01	24	420	36	5	<20	36	.02	<10	11	<10	8	234
84	L SW 17 + 75N	<5	<.2	2.93	5	2	70	<5	.49	<1	12	14	12	3.64	.03	20	.52	241	<1	<.01	16	310	28	<5	<20	13	.01	<10	21	<10	6	82
85	L SW 18 + 00N	<5	<.2	4.56	<5	2	40	<5	.10	<1	11	7	12	2.93	.02	10	.26	96	<1	.01	10	340	20	<5	<20	7	.06	<10	11	<10	6	38
86	L SW 18 + 25N	<5	<.2	2.20	15	<2	85	<5	.41	<1	19	16	18	4.92	.04	20	.42	320	<1	<.01	21	470	24	<5	<20	17	.01	<10	17	<10	<1	101
87	L SW 18 + 50N	<5	<.2	4.46	<5	4	40	<5	1.10	<1	11	10	12	3.25	.03	20	.25	112	<1	<.01	13	470	26	<5	<20	26	.06	<10	9	<10	11	289
88	L SW 18 + 75N	<5	<.2	4.80	<5	4	90	<5	.09	<1	10	9	10	3.18	.02	10	.26	82	<1	<.01	12	620	18	<5	<20	7	.03	<10	9	<10	<1	66
89	L SW 19 + 00N	<5	<.2	2.64	<5	4	80	<5	2.29	<1	12	13	15	3.35	.04	20	1.03	2590	<1	<.01	10	820	32	5	<20	11	.03	<10	16	<10	8	167
90	L SW 19 + 25N	<5	<.2	2.34	5	6	80	<5	2.69	<1	14	17	30	3.48	.05	30	1.41	1624	<1	<.01	25	770	52	10	<20	15	.02	<10	10	<10	18	1136
91	L SW 19 + 50N	<5	<.2	4.22	<5	4	50	<5	1.28	<1	14	14	28	3.23	.03	30	.42	403	<1	<.01	17	560	22	5	<20	19	.07	<10	7	<10	37	600
92	L SW 19 + 75N	<5	<.2	2.78	5	2	60	<5	.89	<1	14	15	23	3.64	.03	20	.44	769	<1	<.01	18	380	24	10	<20	16	.02	<10	13	<10	13	823
93	L SW 20 + 00N	<5	<.2	3.00	15	<2	95	<5	.38	<1	16	10	35	5.88	.01	30	.27	509	<1	<.01	8	670	24	5	<20	6	.01	<10	13	<10	4	173
94	L SW 20 + 25N	<5	<.2	2.71	30	<2	70	<5	.20	<1	16	25	19	6.15	.01	20	.39	607	1	<.01	21	940	88	5	<20	5	<.01	<10	33	<10	<1	218
95	L SW 20 + 50N	<5	<.2	5.86	<5	6	60	<5	.97	<1	9	7	9	2.68	.03	20	.18	173	<1	<.01	5	450	26	<5	<20	13	.11	<10	9	<10	19	81
96	L SW 20 + 75N	<5	<.2	1.73	10	<2	55	<5	.11	<1	10	9	15	3.29	.03	20	.36	181	<1	<.01	15	360	16	5	<20	4	<.01	<10	15	<10	<1	64
97	L SW 21 + 00N	<5	<.2	2.59	5	2	75	<5	.13	<1	16	13	16	5.07	.03	20	.59	147	<1	<.01	22	430	18	5	<20	5	<.01	<10	12	<10	<1	101
98	L SW 21 + 25N	<5	<.2	2.77	5	2	85	<5	.15	<1	13	11	14	4.92	.02	20	.33	159	<1	<.01	15	550	28	<5	<20	6	.01	<10	18	<10	<1	122
99	L SW 21 + 50N	<5	<.2	1.73	15	<2	45	<5	.05	<1	10	11	11	3.75	.01	20	.46	70	<1	<.01	18	340	16	5	<20	3	<.01	<10	11	<10	<1	71
100	L SW 21 + 75N	<5	<.2	2.10	15	<2	35	<5	.11	<1	11	11	11	5.03	.02	20	.49	126	<1	<.01	17	510	18	5	<20	4	<.01	<10	14	<10	<1	77

AUGUST 26, 1991

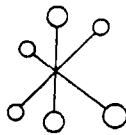
ECO-TECH LABORATORIES LTD.

ET#	DESCRIPTION	AU	AG	AL(%)	AS	B	BA	BI	CA(%)	CD	CO	CR	CU	FE(%)	X(%)	LA	MG(%)	MN	MO	NA(%)	NI	P	PB	SB	SN	SR	TI(%)	U	V	W	Y	ZN
101	- L 5W 22 + 00N	<5	<.2	4.39	<5	2	75	<5	.15	<1	17	10	15	3.50	.02	20	.34	142	<1	.01	18	430	22	<5	<20	9	.05	<10	11	<10	10	80
102	- L 5W 22 + 25W	<5	<.2	1.56	10	<2	80	<5	.14	<1	7	7	7	3.58	.03	20	.28	107	<1	<.01	8	430	16	<5	<20	4	<.01	<10	20	<10	<1	62
103	- L 5W 22 + 50W	<5	<.2	1.96	<5	<2	70	<5	.10	<1	5	7	6	2.80	.02	10	.26	165	<1	.01	4	360	18	<5	<20	5	.01	<10	22	<10	<1	371
104	- L 5W 22 + 75W	<5	<.2	3.33	<5	2	75	<5	.09	<1	9	12	12	3.81	.03	10	.33	87	<1	.01	13	510	36	<5	<20	5	.02	<10	11	<10	<1	96
105	- L 5W 23 + 00N	<5	<.2	2.57	5	<2	60	<5	.05	<1	9	10	11	3.90	.01	20	.33	109	<1	<.01	12	400	26	5	<20	3	.01	<10	17	<10	<1	69
106	- L 5W 23 + 25W	<5	<.2	1.25	25	<2	30	<5	.05	<1	15	10	24	4.84	.01	30	.35	117	<1	<.01	15	230	18	<5	<20	3	<.01	<10	16	<10	<1	76
107	- L 5W 23 + 50W	<5	<.2	2.22	15	<2	60	<5	.31	<1	11	10	8	4.35	.01	20	.30	150	<1	<.01	11	270	30	<5	<20	8	<.01	<10	17	<10	3	248
108	- L 5W 23 + 75W	<5	<.2	1.12	10	6	50	<5	3.29	<1	6	7	13	1.78	<.01	10	1.27	1616	<1	<.01	7	800	14	5	<20	<1	<.01	<10	6	<10	8	72
109	- L 5W 24 + 00N	<5	<.2	1.15	75	6	25	<5	5.02	<1	6	4	9	2.01	<.01	10	3.78	497	<1	<.01	2	670	38	10	<20	<1	.01	<10	6	<10	2	31
110	- L 5W 24 + 25W	<5	<.2	.34	25	4	<5	<5	6.05	<1	2	<1	4	.68	<.01	<10	3.69	327	<1	<.01	<1	250	10	10	<20	<1	<.01	<10	2	<10	<1	26
111	- L 5W 24 + 50W	<5	<.2	2.61	85	6	75	<5	2.51	<1	13	14	15	3.81	.02	30	2.90	954	1	<.01	12	370	58	10	<20	<1	.01	<10	17	<10	2	129
112	- L 5W 24 + 75W	<5	<.2	2.37	55	6	65	<5	4.10	1	12	13	15	3.02	.01	20	3.75	1127	1	<.01	11	320	32	10	<20	<1	.01	<10	15	<10	2	802
113	- L 5W 25 + 00N	<5	<.2	4.01	20	4	55	<5	1.77	<1	13	17	14	3.38	.03	40	1.87	660	1	<.01	13	340	34	10	<20	<1	.04	<10	16	<10	13	73
114	- L 5W 25 + 25W	<5	<.2	1.30	20	6	45	<5	5.52	<1	6	6	7	1.76	.01	10	3.31	1113	<1	<.01	3	440	20	10	<20	<1	.01	<10	6	<10	3	36
115	- L 5W 25 + 50W	<5	<.2	1.31	15	6	40	<5	6.27	<1	6	8	11	1.66	.01	10	3.67	654	<1	<.01	2	540	16	10	<20	<1	.01	<10	8	<10	4	30
116	- L 5W 25 + 75W	<5	<.2	2.65	40	8	70	<5	2.04	<1	11	17	12	3.48	.04	20	2.08	1188	1	<.01	14	360	36	15	<20	<1	.02	<10	23	<10	3	50
117	- L 5W 26 + 00N	<5	<.2	4.92	5	8	50	<5	.44	<1	14	17	9	3.62	.03	30	.93	200	1	.01	13	290	34	5	<20	8	.07	<10	17	<10	12	37
118	- L 5W 26 + 25W	<5	<.2	3.75	35	8	65	<5	.49	<1	14	20	9	4.00	.03	20	1.07	202	1	<.01	17	280	32	5	<20	6	.04	<10	21	<10	3	46
119	- L 5W 26 + 50W	<5	<.2	4.53	<5	4	55	<5	1.38	<1	9	11	14	2.84	.03	20	.69	194	<1	<.01	7	310	28	5	<20	10	.10	<10	11	<10	12	34
120	- L 5W 26 + 75W	<5	<.2	2.47	75	4	55	<5	2.83	<1	12	13	12	3.49	<.01	30	1.84	687	1	<.01	10	380	34	10	<20	<1	.03	<10	13	<10	8	40
121	- L 5W 27 + 00N	<5	<.2	2.62	40	6	60	<5	2.99	<1	13	16	16	3.31	.03	20	2.15	2334	1	<.01	11	590	24	10	<20	<1	.03	<10	22	<10	7	45

NOTE: &lt; = LESS THAN

  
 ECO-TECH LABORATORIES LTD.  
 FRANK J. PEZZOTTI  
 B.C. CERTIFIED ASSAYER

TECK3/SC5



**ECO-TECH LABORATORIES LTD.**

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

SEPTEMBER 9, 1991

CERTIFICATE OF ASSAY ETK 91-607  
=====


TECK EXPLORATION LTD.  
960 - 175 2nd. AVE.  
KAMLOOPS, B.C.  
V2C 5W1

ATTENTION: FRED DALEY

SAMPLE IDENTIFICATION: 3 ROCK SAMPLES RECEIVED AUGUST 9, 1991  
-----PROJECT: 021 - SHAG PROPERTY

ET#	Description	Ga (ppm)	Ge (ppm)
1 -	27079	<1	5
2 -	27080	<1	<5
3 -	27122	4	5

NOTE: < = LESS THAN

  
ECO-TECH LABORATORIES LTD  
FRANK J. PEZZOTTI  
B.C. CERTIFIED ASSAYER

SC91/TECK2



ECO-TECH LABORATORIES LTD.

TECK EXPLORATIONS LTD.- ETK 91-606

960, 175 SECOND AVENUE  
KAMLOOPS, B.C.  
V2C 5W1

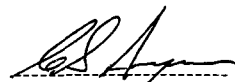
AUGUST 27, 1991

ATTENTION: FRED DALEY

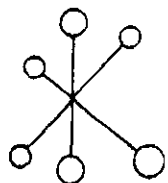
VALUES IN PPM UNLESS OTHERWISE REPORTED

PROJECT NUMBER: 021- SHAG PROPERTY  
3 MOSS MAT SAMPLES RECEIVED AUGUST 9, 1991

ET#	DESCRIPTION	AU(ppb)	AG AL(%)	AS	B	BA	BI CA(%)	CD	CO	CR	CU FE(%)	K(%)	LA MG(%)	MN	MO NA(%)	NI	P	PB	SB	SN	SR	TI(%)	U	V	W	Y	ZN
1- M	27119	45	4.2 .63	45	8	25	4.23	41	6	41	11 2.21	.03	10 1.78	435	41 4.01	41	650	22	5	420	12	4.01	10	3	410	10	43
2- M	27120	5	4.2 2.21	45	6	30	1.61	41	13	4	16 4.73	.06	10 1.65	541	41 4.01	12	890	22	5	420	17	4.01	10	5	410	13	59
3- M	27121	5	4.2 .39	45	8	20	5.81	41	1	41	8 .75	.02	410 2.66	524	41 4.01	41	460	20	5	420	3	4.01	10	2	410	5	33

  
ECO-TECH LABORATORIES LTD.  
CLINTON AYERS  
LABORATORY MANAGER

**APPENDIX IV**  
**Analytical Procedures**



# ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING  
10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (804) 573-5700 Fax 573-4557

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

### METHODS OF ANALYSIS

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

#### 1. MULTI ELEMENT ANALYSES

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

<u>Digestion</u>	<u>Finish</u>
Hot Aqua Regia	ICP

- (b) ICP - Total Digestion (24 element).

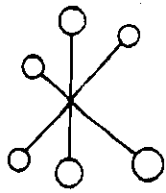
<u>Digestion</u>	<u>Finish</u>
Hot HClO <sub>4</sub> /HNO <sub>3</sub> /HF	ICP

- (c) Atomic Absorption (Acid Soluble)  
Ag\*, Cd\*, Cr, Co\*, Cu, Fe, Pb\*, Mn, Mo, Ni\*, Zn.

<u>Digestion</u>	<u>Finish</u>
Hot Aqua Regia	Atomic Absorption * = Background corrected

- (d) Whole Rock Analyses.

<u>Digestion</u>	<u>Finish</u>
Lithium Metaborate fusion	ICP



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ASSAYING - ENVIRONMENTAL TESTING

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

2. Antimony

Digestion  
-----

Finish  
-----

Hot aqua regia

ICP

3. Arsenic

Digestion  
-----

Finish  
-----

Hot aqua regia

Hydride generation - A.A.S.

4. Barium

Digestion  
-----

Finish  
-----

Lithium Metaborate

ICP

5. Beryllium

Digestion  
-----

Finish  
-----

Hot aqua regia

Atomic Absorption

6. Bismuth

Digestion  
-----

Finish  
-----

Hot aqua regia

Atomic Absorption  
(Background Corrected)

7. Chromium

Digestion  
-----

Finish  
-----

Sodium Peroxide  
Fusion

Atomic Absorption

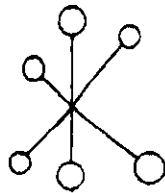
8. Fluorine

Digestion  
-----

Finish  
-----

Lithium Metaborate  
Fusion

Ion Selective Electrode



# ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING

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## 9. Gallium

Digestion

Finish

Hot HClO<sub>4</sub>/HNO<sub>3</sub>/HF

Atomic Absorption

## 10. Germanium

Digestion

Finish

Hot HClO<sub>4</sub>/HNO<sub>3</sub>/HF

Atomic Absorption

## 11. Mercury

Digestion

Finish

Hot aqua regia

Cold vapor generation -  
A.A.S.

## 12. Phosphorus

Digestion

Finish

Lithium Metaborate  
Fusion

ICP finish

## 13. Selenium

Digestion

Finish

Hot aqua regia

Hydride generation -  
A.A.S.

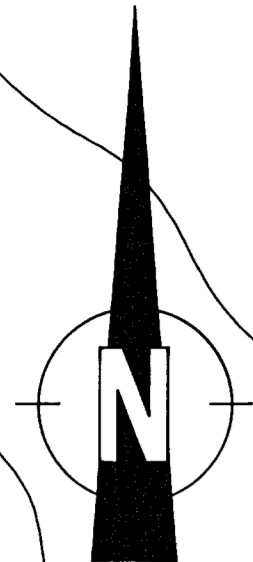
## 14. Tellurium

Digestion

Finish

Hot aqua regia  
Potassium Bisulphate  
Fusion

Hydride generation - A.A.S.  
Colorimetric or I.C.P.



**LEGEND**

**MIDDLE to UPPER CAMBRIAN**

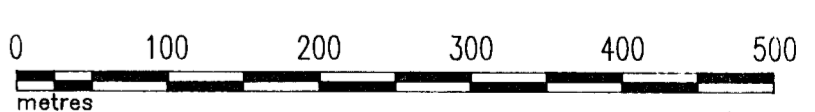
- C7 TOP DOLOSTONE
- C6 CLIFF and STEP LIMESTONE
- C5 SECOND DOLOSTONE
- C4 DIVIDING LIMESTONE
- C3 BM HOST DOLOSTONE
- C2 THIN LIMESTONE
- C1 ALBERT RIVER DOLOSTONE
- C8 CYCLIC DOLOSTONE

**KEY**

- BEDDING - inclined
- OUTCROP
- GEOLOGICAL CONTACT
- ROCK SAMPLE
- MOSS MAT SAMPLE
- GRID
- 1988 IP ANOMALY (+32 ms)
- 1978 Zn SOIL ANOMALY (+1000 ppm Zn)
- TOPOGRAPHIC CONTOUR interval 500
- CREEK

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

21,885



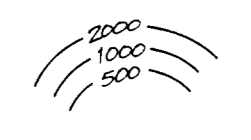
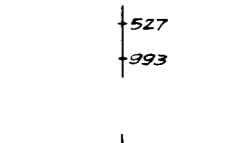
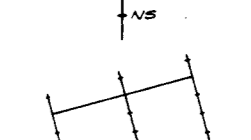



**TECK EXPLORATION LTD.**  
SHAG PROPERTY

**PROPERTY  
GEOLOGY**

DATE DRAWN: SEPT 25, 1991	SCALE: 1:5000	DWG. No:
COMPILED BY: S.J.	JOB No: 1713	7
DRAWN BY: S.A.	NTS: 82J/11W,12E	

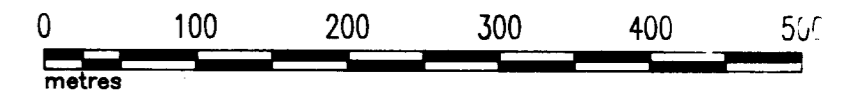


**KEY**

-  ZINC (ppm) IN SOILS
-  SOIL SAMPLE LOCATIONS and ZINC (ppm) RESULTS
-  NO SAMPLE
-  GRID
-  TOPOGRAPHIC CONTOUR interval 500'
-  CREEK

**GEOLOGICAL BRANCH ASSESSMENT REPORT**

**21,885**



**TECK EXPLORATION LTD.**  
**SHAG PROPERTY**

**SOIL GEOCHEMISTRY**  
**Zn (ppm)**

DATE DRAWN: SEPT 25, 1991	SCALE: 1:5000	DWG. No:
COMPILED BY: S.J.	JOB No: 1713	
DRAWN BY: S.A.	NTS: 82J/11W,12E	8