

GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORTS
DATE RECEIVED OCT 20 1995

**ASSESSMENT REPORT  
GEOLOGY AND GEOCHEMISTRY  
ON THE  
ELF GROUP A CLAIMS  
OMINECA MINING DIVISION**

**NTS: 94F/7E&W**

**LATITUDE 57° 18' N LONGITUDE 124° 42' W**

**FILMED**

**OWNER: CIRQUE OPERATING CORP. R. Farmer  
Project Geologist**

**OPERATOR: TECK EXPLORATION LTD. September, 1995**

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**24,079**

## SUMMARY

A program of geological mapping and limited geochemical sampling was carried out on the Elf Group A claims between June 27 and July 10, 1995.

Geological mapping included examination of the known showing and regional scale traverses across the Gunsteel Formation shale stratigraphy. The program was undertaken to assess the known mineralization and determine the immediate host stratigraphy and then attempt to trace the favourable stratigraphy across the property. Known mineralization is hosted by a sequence of black siliceous, graphitic shale containing local concretions, barite nodules and laminated pyrite. This sequence has been traced northwestwards across the property and is particularly well developed in the Joel Creek area.

During the course of mapping a new showing was discovered in Joel Creek. Mineralization consists of nodular to blebby barite and laminated pyrite hosted by siliceous, graphitic black shale. Although weak on surface, this horizon has not been tested in this area by previous work.

Geological mapping in 1995 indicates that the mineralized sequence northwest of the exposed Elf Showing has been displaced eastwards, relative to its projected strike extension. As a result, previous drilling northwest of the exposed mineralization was collared too far west, and drilled over top of the mineralized horizon. As such the main mineralized horizon in the area of the Elf Showing has not been adequately tested along the northwest strike extension.

## **RECOMMENDATIONS**

1. Establish grids in the area of the Elf Showing and the Joel Creek Showing to facilitate detailed geological mapping and soil geochemical sampling.
2. Re-log existing drill core to provide details on stratigraphy and structure in the area of mineralization.
2. Upon completion of Nos. 1&2 above, diamond drill all favourable geological and geochemical targets.

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## INTRODUCTION

The Elf property is located in the Akie River area, southern Kechika trough, in northeastern B.C. The property is underlain by a thick succession of black shale and chert of the Upper Devonian Gunsteel Formation, Earn Group. The Cirque deposit (30 MT @ 8% Zn, 2% Pb, 37g/t Ag), located 35 kilometres to the northwest, is hosted by these same shales. The Elf property consists of 161 contiguous units and this report describes work carried out on the northwestern portion of the property, grouped as Elf Group A (94 units).

During 1995, a program consisting of geological mapping and limited associated geochemical sampling was undertaken on the property. The purpose of the program was to examine the Gunsteel shale sequence and the Elf showing, to determine characteristics of lithology hosting mineralization, and to attempt to trace this lithology across the northwestern portion of the property. Much of the northwestern portion of the property is untested, any new showings or discovery of stratigraphy which is typically proximal to mineralization, would provide new targets for drilling.

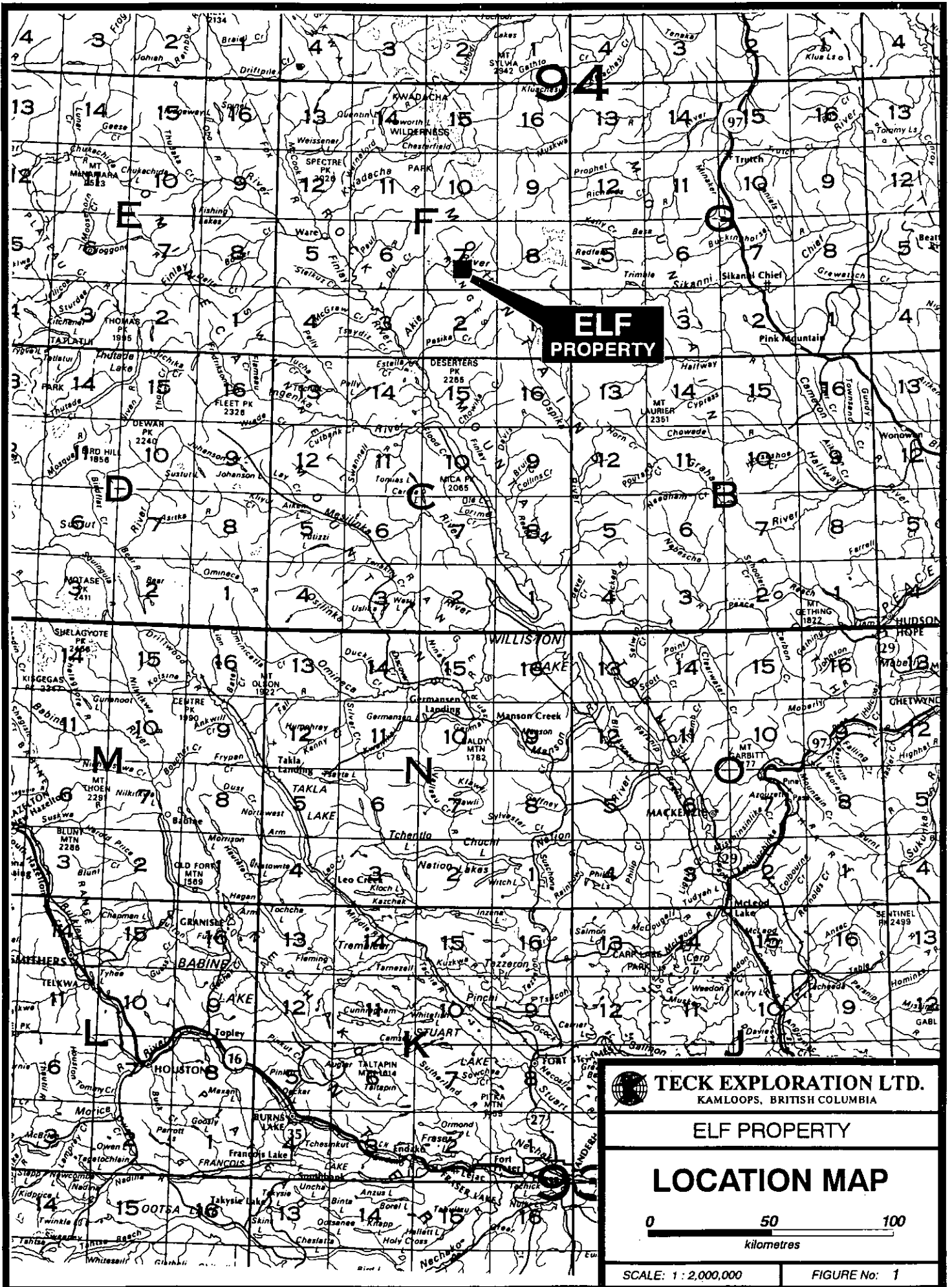
This report describes the work carried out on the Elf property (Group A), and provides an interpretation of results obtained.

## LOCATION AND ACCESS

The Elf property is located on the south slope of the Akie River, approximately 45 kilometres east-southeast of the village of Fort Ware, B.C. (figure 1). The center of the claims are located at latitude 57° 18' N, longitude 124° 42' W, on NTS mapsheets 94F/7 E&W.

Access to the property is via helicopter only, with the nearest base located at the logging camp of Finbow, 40 kilometres west of the property. Access to Finbow camp is by fixed wing aircraft or barge from the town of Mackenzie, B.C., a distance of 250 kilometres. The 1995 program was based out of the Cirque camp located 35 km northwest of the property, utilizing helicopter transport to the property on a daily basis.

The Elf claims cover the steep south slope of the Akie River. Slopes are generally heavily timbered with spruce and fir, higher elevations on ridge tops are above tree line. Despite heavy timber, slopes are very steep (often 30-50°), with much timber on the ground, often making traverses difficult. Elevations on the property vary between 930 and 1600 metres, with several steeply incised creek valleys cutting across the predominant northwest topographic alignment.



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**ELF PROPERTY**

**LOCATION MAP**

0 50 100  
 kilometres

SCALE: 1 : 2,000,000      FIGURE No: 1

## CLAIMS

The Elf property comprises 22 claims totalling 165 units (figure 2). The current registered owner of all claims is Cirque Operating Corp. This report concerns a portion of these claims, 10 claims totalling 94 units, comprising Elf Group A. Table 1 below provides a summary of claim statistics.

**Table 1**  
**Claim Statistics**

Claim Name	Record Number	Number of Units	Owner	Expiry Date*
Elf 1	237990	6	Cirque Operating Corp.	23 Jun 96
Elf 2	237991	6	Cirque Operating Corp.	23 Jun 96
Elf 3•	237992	4	Cirque Operating Corp.	23 Jun 97
Elf 4•	237993	10	Cirque Operating Corp.	23 Jun 97
Elf 5	237994	4	Cirque Operating Corp.	23 Jun 96
Elf 6	237995	10	Cirque Operating Corp.	23 Jun 96
Elf 7	237996	4	Cirque Operating Corp.	23 Jun 96
Elf 8•	237997	18	Cirque Operating Corp.	23 Jun 97
Elf 9•	237998	8	Cirque Operating Corp.	23 Jun 97
Elf 10	237999	8	Cirque Operating Corp.	23 Jun 96
Elf 11	238000	12	Cirque Operating Corp.	23 Jun 96
Elf 12	238001	1	Cirque Operating Corp.	23 Jun 96
Elf 13•	238007	20	Cirque Operating Corp.	18 Jul 97
Elf 14•	238008	20	Cirque Operating Corp.	18 Jul 97
Elf 15•	238009	2	Cirque Operating Corp.	18 Jul 97
Elf 15	238029	9	Cirque Operating Corp.	01 Aug 96
Elf 16•	238128	5	Cirque Operating Corp.	22 Jun 97
Elf 17•	238129	3	Cirque Operating Corp.	22 Jun 97
Elf 18•	238144	4	Cirque Operating Corp.	13 Aug 97
Elf 19	238287	4	Cirque Operating Corp.	11 Jul 98
Elf 21	238336	3	Cirque Operating Corp.	11 Sept 97

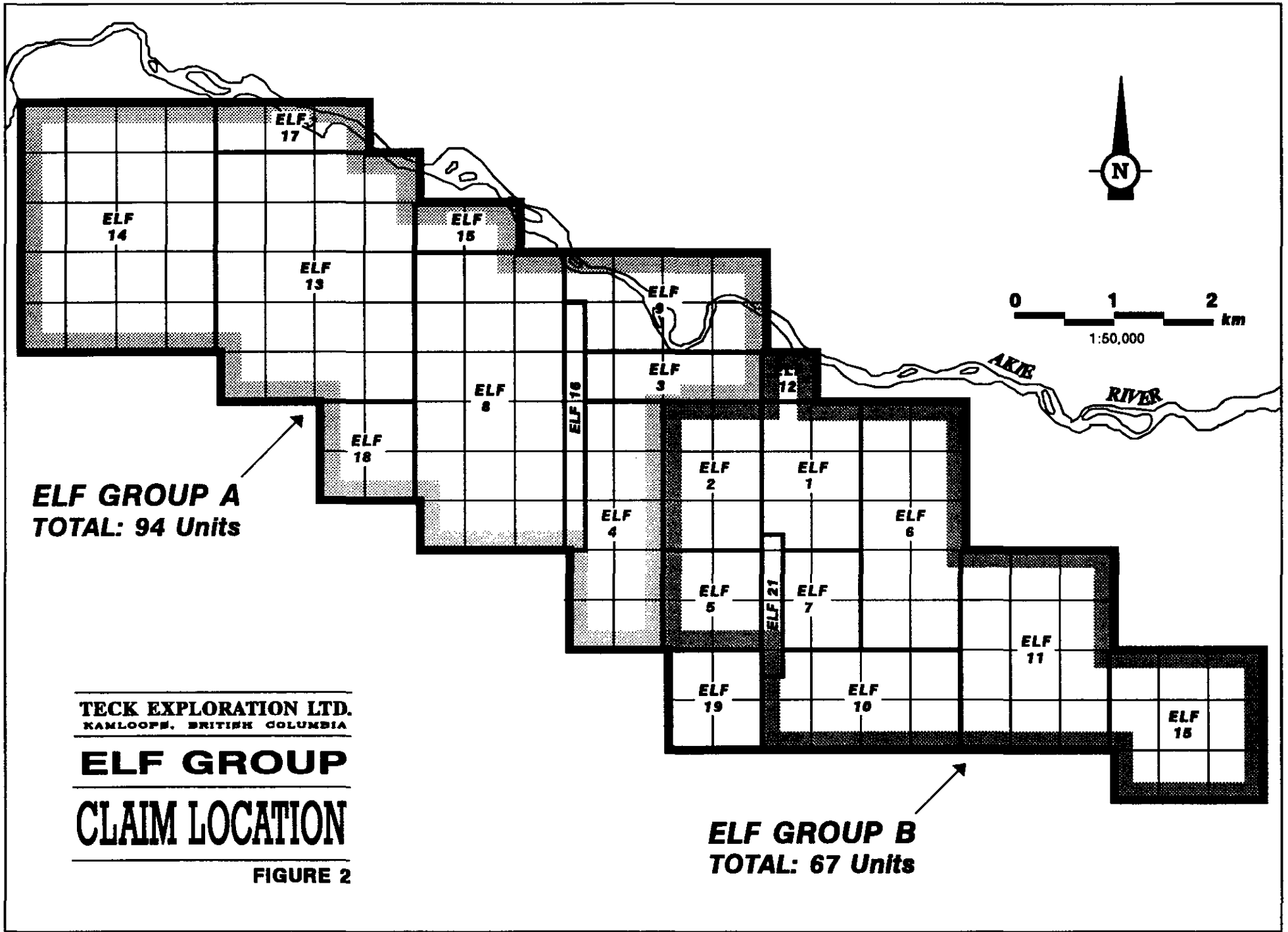
**Total: 161 Units**

- **Grouped as Elf A Group**
- **Expiry of Elf Group A Claims Based on Acceptance of this Report**

## PREVIOUS WORK

The Elf claims were explored between 1978 and 1982 by Cyprus Anvil Mining Corporation. Work carried out during that period included, geological mapping, stream and soil geochemical sampling, linecutting, orthophoto base map construction, horizontal loop EM and diamond drilling.





**ELF GROUP A**  
**TOTAL: 94 Units**

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**ELF GROUP**  
**CLAIM LOCATION**

**FIGURE 2**

**ELF GROUP B**  
**TOTAL: 67 Units**

Followup of stream sediment anomalies and mineralized float led to the 1979 discovery of a high grade barite-lead-zinc showing in Elf Creek. Between 1979 and 1982 a total of 26 diamond drill holes (10,500 metres) were drilled on the property, 23 in the area of the Elf Creek Showing and three to test soil anomalies in the northern portion of the claims. Significant mineralization was intersected in eight holes directly under the Elf showing, with the best being 3.65% Pb, 10.13% Zn, 27.2 g/t Ag over a true width of 10.9 metres. A further 15 holes drilled in the vicinity of the of the showing failed to intersect the mineralized horizon due to bad drilling conditions (10 holes), or intersected a barren zone at the targeted horizon (5 holes). Three holes drilled to test soil anomalies several kilometres to the northwest, failed to intersect significant mineralization. The majority of this drilling was undertaken on what is now the Elf Group A.

## **CURRENT PROGRAM**

During the period June 27 to July 10, 1995 a program consisting of regional scale geological mapping and related geochemical sampling was carried out on the Elf Group A claims. The purpose of the program was to identify lithologies hosting mineralization and attempt to trace these lithologies northwestwards across the property, in an attempt to identify other areas of mineralization or proximal lithology which may warrant drill testing. Rock, stream and iron seep samples were collected as part of the program to aid in locating mineralization or prospectivae stratigraphy. Traverses across the stratigraphy were completed utilizing 1:5000 scale orthophoto maps and altimeters for location control. Outcrops and sample locations are plotted on 1:5000 scale maps (figures 4a-c).

## **GEOLOGY**

### **A. Regional Geology (Figure 3)**

The best description of the geology of the Gataga district - Akie River area, including the Elf property area is provided by MacIntyre (1981, 1992).

The Elf property is located within the Rocky Mountain Fold and Thrust belt of northeastern B.C. The property is located within Paleozoic, miogeoclinal basinal facies rocks of ancestral North America affinity (MacIntyre, 1992). These rocks were deposited in the Kechika Trough, a southeast extension of the Selwyn Basin, and are bounded to the east by platformal carbonates of the Macdonald Platform and to the west by carbonates of the Cassiar Platform. The Kechika Trough is underlain by predominantly clastic rocks, ranging from Proterozoic to Triassic in age which form a northwest trending linear belt. The Elf property is underlain by black shale, siliceous shale and chert of the Gunsteel Formation, Lower Earn Group, of Upper Devonian age. The Stronsay (Cirque) deposit, located 30 kilometres to the northwest (38.5 mt @ 8.0% Zn, 2.2% Pb, 47.2g/t Ag), is hosted by the same Gunsteel Formation shales. Northeast directed compression has

**MISSISSIPPIAN-TRIASSIC**

**MR** DOLOMITIC SILTSTONE, LIMESTONE, CHERT

**UPPER DEVONIAN-MISSISSIPPIAN**

**uDM** EARN GROUP: CHERT, ARGILLITE, SHALE, SILTSTONE

**ORDOVICIAN-SILURIAN-LOWER DEVONIAN**

**OSD** ROAD RIVER GROUP: DOLOMITIC SILTSTONE, DOLOSTONE; GRAPTOLITIC SHALE, CHERT, CALCAREOUS SILTSTONE; LIMESTONE, MAFIC VOLCANIC ROCKS

**CAMBRIAN-ORDOVICIAN**

**EO** KECHIKA GROUP: NODULAR WAVY BANDED PHYLLITIC SILTY LIMESTONE, LESSER VOLCANIC ROCKS

**CAMBRIAN**

**E** LIMESTONE, QUARTZITE

**PRECAMBRIAN**

**PE** PHYLLITE, SCHIST, TILLITE

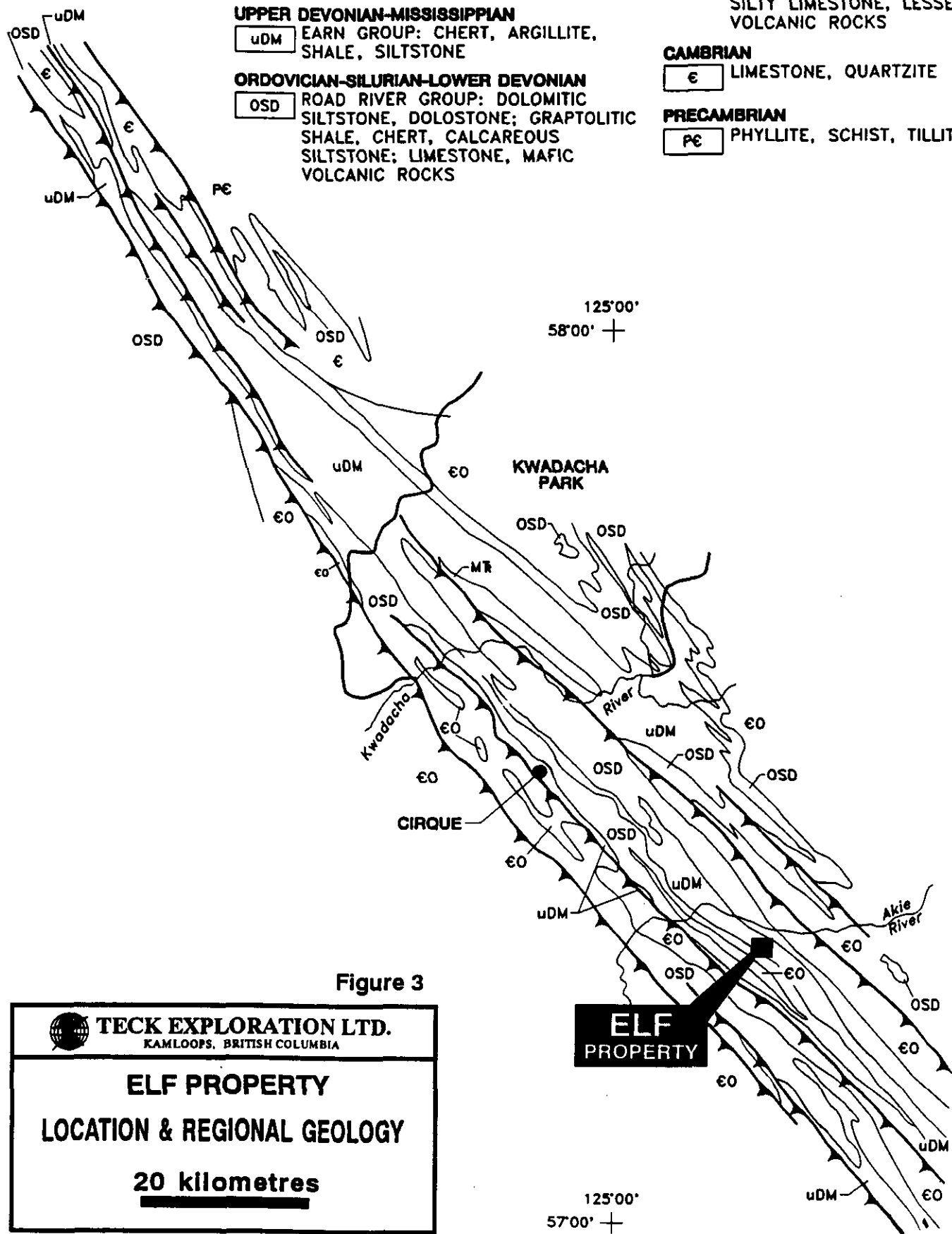


Figure 3



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**ELF PROPERTY**  
**LOCATION & REGIONAL GEOLOGY**

**20 kilometres**

resulted in complex thrusting and related folding, resulting in difficult stratigraphic correlation.

Cyprus Anvil Mining Corporation carried out extensive work on the Elf property during the period 1978-1982, including regional and detailed mapping and diamond drilling. From this work a showing was discovered near Elf creek, consisting of laminated massive barite and galena, named the Elf Showing. This showing is associated with black, siliceous shale.

### **B. Property Geology - 1995 Work**

Geological mapping in 1995 included, detailed mapping and sampling of the showing to assess mineralization style and proximal host lithology, as well as, regional scale traverses across the Gunsteel sequence in an attempt to recognize and follow the favourable, mineralized lithologic sequence. Limited geochemical sampling of rocks, streams and iron-seeps was conducted in conjunction with mapping to assess geochemical signatures of mineralization and lithology to determine if geochemistry is a viable tool in recognizing mineralization or prospective lithology. Mineralization at the Elf showing will be described later, in the section entitled "Mineralization". Topography is rugged and traverses were completed to examine as much of the Gunsteel sequence as possible, and were restricted to areas underlain by Gunsteel shales, as recognized by previous operators.

The Gunsteel sequence on the property trends in a northwest - southeast manner across the claims and is bounded to the southwest by Silurian calcareous siltstone, which has been thrust northeastwards onto the younger Gunsteel shales. To the northeast the Gunsteel shales are overlain by a siltstone/shale package termed by previous operators as the Conundrum Siltstone. The nature of the contact is not clear.

Gunsteel shales form a belt several hundred metres thick on the property, however structural repetition is likely. Mapping in 1995 has recognized five distinctive subdivisions based on lithology, but relative stratigraphic relationships are unknown. The subdivisions include; undivided shales (unit 3e), siltite laminated shale (unit 3d), chert (unit 3c), black "speckled" shale (unit 3b) and siliceous, graphitic shale (unit 3a). Siliceous graphitic shale of unit 3a is the host to mineralization. A description of lithological units is included in the "Lithology" section below. These different lithologies are distinctive in the field, however contacts are gradational resulting in areas with characteristics of more than one lithology, and several outcrops are often necessary to distinguish lithological units.

The shales have a general northwest strike with moderate dips to the southwest. Locally variable strikes and dips indicate complex structure, in terms of both folding and faulting. The scope of the current program did not allow sufficient detailed work to resolve the structure. Small scale (10's of metres), tight to isoclinal, often overturned folds are common. Cliffs near the Joel Creek Showing show a variety of low to high angle

faulting with offsets varying from a few centimetres to tens of metres and more. These faults are difficult to recognize anywhere other than cliff faces.

Chert is present, often as interbeds within siliceous shale, but locally forms a discrete lithological unit. Cherts are black and massive to thin bedded, are usually rusty weathering on fracture surfaces due to the presence of minor disseminated pyrite. Cherts tend to form thin horizons adjacent to siliceous shales but are also located in areas of generally undivided, non-siliceous shale (figure 4b).

The prospective portion of stratigraphy which occurs proximal to mineralization (units 3a, 3b) is present in the Elf Showing area and is particularly well developed near the Joel Creek occurrence as well as ridges to the northwest and southeast (figure 4b). Nodular barite and laminated pyrite, interpreted to represent the mineralized horizon, or close proximity to it, has been identified over a one kilometre strike length, centered on the Joel Creek occurrence. Previous drilling in this area was collared in the footwall to this prospective stratigraphy and consequently the sequence has not been tested in this area.

Geological mapping in 1995 has identified the mineralized sequence northwest of the exposed Elf showing. This sequence is displaced at least 100 metres eastwards from its projected location, based on strike (figure 4). As a result, previous drilling in this area was collared too far westwards and consequently, failed to test the mineralized horizon. The cause of the displacement of stratigraphy could not be determined with any certainty due to poor bedrock exposure, however a north trending high angle fault is the probable cause.

### **C. Lithology**

The following section describes lithologic units used on geological maps included in this report. Showing maps (figures 5 and 6) have their own descriptive legends due to the more detailed style of mapping carried out at the showings. Units are numbered from stratigraphically lowest to highest, although stratigraphic relationships within the Gunsteel Formation are not known at this time. Contacts between units belonging to the Gunsteel Formation (3a-3e) are gradational.

## **UNIT 1 - ORDOVICIAN STRATIGRAPHY**

This unit includes limestone (Unit 1a) and mafic volcanic rocks of the Ospika Volcanics (Unit 1b). Unit 1a consists of massive to thick bedded grey limestone forming prominent ridges and cliffs in the southeastern portion of the property. The age of the limestone is uncertain, but because it occurs in the same thrust panel as Ospika Volcanics is considered to be Ordovician. Unit 1b consists of limonitic to ankeritic weathering, carbonate-rich, mafic volcanic flows and breccias. Rocks of Unit 1 are exposed in a

thrust panel in the southeastern corner of the Elf claims, and are not exposed in the northern portion of the property, which is the subject of this report, and will not be discussed further here.

## UNIT 2 - SILURIAN SILTSTONE

This is a distinctive package of rocks, including several lithologies which have not been subdivided. The most common and distinctive lithology consists of brown to buff weathering dolomitic siltstone. The siltstone varies from thin to thick bedded and locally contains thin interbeds of grey calcareous, shale. Occasionally, dark grey massive limestone is present as beds varying from a few centimetres to several ten's of metres thick. A lithology consisting of light grey calcareous mudstone containing 70% grey "pancake shaped" discontinuous limestone beds to 10 centimetres thick is also present locally. Rocks of Unit 2 have been thrust in a northeast direction over Devonian Gunsteel stratigraphy.

## UNIT 3 - GUNSTEEL SHALES

Gunsteel shales are Upper Devonian in age and consist of grey to black shale, mudstone and chert. The sequence is host to Sedex Pb-Zn-Ag-Ba mineralization throughout the Kechika Trough and Selwyn Basin. Geological mapping on the Elf property in 1995 has recognized five subdivisions within the Gunsteel shales, here designated as units 3a to 3e.

Subunit 3a consists of siliceous, graphitic black shale which locally contains carbonate concretions, nodular barite and/or laminated pyrite. This subunit is the direct host to mineralization on the property and seems to be restricted to a few ten's of metres vertically around mineralization (above and below), but can be quite extensive laterally, updip and downdip from mineralization. Due to the very siliceous to cherty nature of these rocks they tend to be non-fissile, in spite of being intensely graphitic and strongly cleaved. In addition, when present, concretions, barite nodules and pyrite laminations make this subunit readily identifiable. Carbonate concretions vary from less than one centimetre to in excess of one metre in diameter.

Subunit 3b consists of a very distinctive massive, black, silty shale containing abundant, pinhead sized grey spots, lending a speckled appearance to the lithology on fresh surface. Composition of the spots is not known but is most likely barite. Speckled shale of subunit 3b has only been observed in close association with siliceous shale of subunit 3a, where it is present both as interbeds and as thin, discrete horizons, within or adjacent to siliceous shale. As such subunit 3b is considered to represent a portion of the mineralized stratigraphy and therefore to be intimately associated with mineralization.

Chert (subunit 3c) is present throughout the Elf property. It occurs as interbeds a few tens of centimetres thick within siliceous shale of subunit 3a and as a distinct lithology 10 to 20 metres thick within and adjacent to subunit 3a. Cherts are also present far removed from siliceous shale stratigraphy where they form discrete horizons within siltite laminated shales of subunit 3d or silty, undivided shales of subunit 3e. As such they do not appear to be restricted to a particular portion of stratigraphy, but rather occur throughout the Gunsteel stratigraphy. Cherts are black and vary from massive to thinly bedded. They are characteristically rusty weathered on fracture surfaces due to a minor content of disseminated pyrite. Chert horizons can seldom be traced for any distance along strike, suggesting a discontinuous nature to their presence.

Subunit 3d consists of a grey to black, siltite laminated shale. Siltite laminations are light grey in colour and a few millimetres to one centimetre thick, often imparting a striped appearance to shales, particularly on weathered surfaces. Rocks of subunit 3d are always non-siliceous, and often silty looking. They are commonly very fissile in outcrop and are generally associated with undivided shale of subunit 3e. Siltite laminated shales are always distal from mineralization and combined with silty fissile shale of subunit 3e probably form the bulk of Gunsteel stratigraphy.

Unit 3e includes all undivided Gunsteel shales. These shales are grey to black in colour, non-siliceous and non-graphitic. They often have a "silty" appearance and may locally grade into siltstone or mudstone. A ubiquitous slaty cleavage is particularly well developed in unit 3e, producing commonly fissile shale, locally to the point of paper thin plates.

#### UNIT 4 - CONUNDRUM SILTSTONE

Unit 4 overlies the Gunsteel shales but is likely still of Upper Devonian age. This unit probably correlates with the Conundrum Siltstone as described by Cyprus Anvil geologists (Roberts, 1979; Jefferson, 1980), and consists of a siltstone dominant sequence. Main rock types include; grey, brown, to black weathering, grey to black, thick bedded (2-50cm) siltstone. Locally, grey shale interbeds produce a well bedded siltstone- shale lithology. Occasional coarser, gritty beds may be present. The siltstone and shale are often, but not always, mildly calcareous. Contact relationships between units 3 and 4 are not known on the Elf property, in other areas however, the contact is often faulted. There is some suggestion of a broad transition between upper Gunsteel Fm. and Conundrum siltstone. This transition is in the form of increasing siltstone content towards the top of the Gunsteel Fm., becoming siltstone dominant in Unit 4. Additional work is necessary to confirm this however, if correct, may be indicative of a marine regression in the uppermost Devonian, allowing a rapid influx of coarser clastic material.

#### **D. Mineralization**

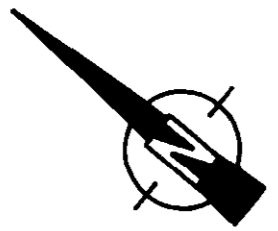
One showing was previously known on the Elf property, the Elf Showing discovered by Cyprus Anvil Mining Corp. in 1979. During the course of 1995 mapping a second occurrence was discovered in Joel Creek. Both showings were mapped in detail and sampled as part of the 1995 program to gain a better understanding of the style of mineralization and to identify the lithology directly hosting mineralization.

The Elf Showing consists of massive, well laminated barite at least four metres thick, originally exposed in three trenches and several pits (trenches 1-3 on figure 5). The barite is host to considerable galena as disseminations and thin (<2 cm, max 10 cm) massive laminations, as well as minor pyrite and trace sphalerite. A new hand trench (Paul's Trench on Figure 5), dug during the 1995 program, extended the known surface strike length of the showing to 50 metres. Mineralization is overlain and underlain by siliceous black shale. Concretion bearing shale is present in the structural hanging wall and a greenish, sericitic shale is locally present in the structural footwall. Barite nodules are also present for at least 10 metres above and below mineralization. Locally, the immediate footwall to mineralization, particularly at the northwest end, is a coarse, crystalline calcite vein, up to several metres thick, often containing patchy recrystallized galena and sphalerite. The veining may be indicative of a fault on the footwall side of mineralization. Bedding at the showing strikes between 120° and 150° with moderate dips to the southwest (40-60°). Bedding / cleavage relationships suggest the mineralization is on the west limb of an overturned antiform. Folding here appears to be small scale (tens of metres), suggesting that structural repeats of the mineralization can be expected downslope to the east. To the west, within 50 metres, Silurian siltstone has been thrust over the Gunsteel package containing the mineralization.

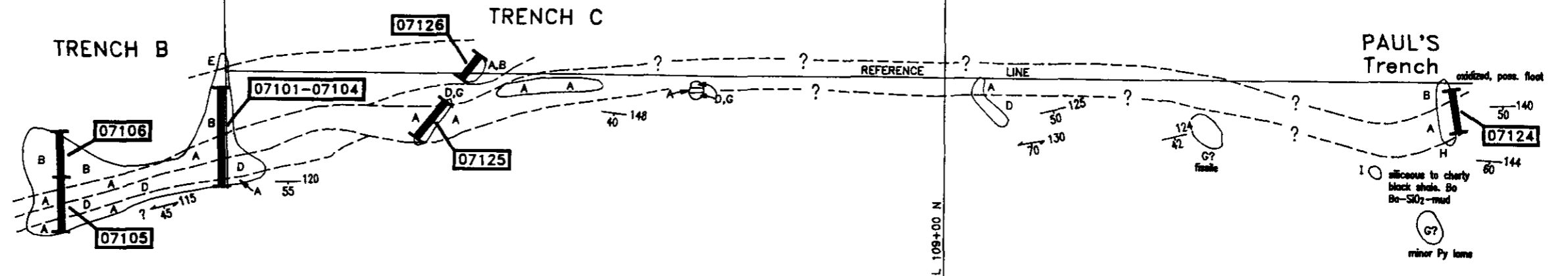
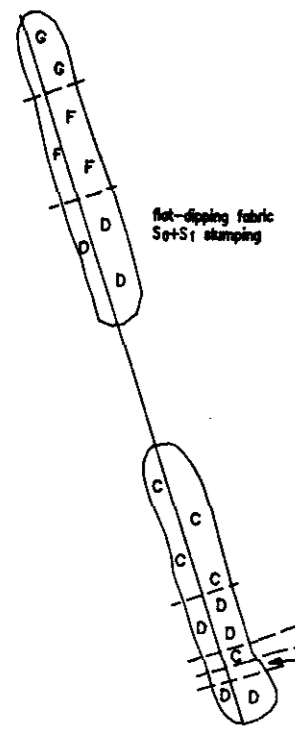
A total of nine samples were collected from the showing. Sample locations and results are plotted on figure 5. Samples 07101-07106 from trench B are not included for assessment as they were collected before the anniversary date of the claims, however their location and results are included on figure 5 for completeness. Best results include an average of ; 0.22% Zn, 10.46% Pb, 22.58 g/t Ag over 4.0 metres.

The Joel Creek Showing (Figure 6) was discovered during the course of 1995 mapping. Mineralization is exposed in a cliff on the northwest side of Joel Creek, and consists of beds of nodular to blebby barite (5-20%) and laminated pyrite (10-30%) within black, graphitic, siliceous to cherty shale. The mineralized zone is approximately 4 metres thick. Individual barite-pyrite beds are 10-20 cm thick. The mineralized zone forms a gossan, enhanced by two Fe-seeps which seem to drain a high angle fault two metres into the hanging wall. The mineralized zone is also characterized by abundant hydrozincite and hemimorphite surface coatings. Bedding strikes 110° to 120° and dips 60° to the southwest. The hanging wall to mineralization consists of a thick succession of black siliceous to cherty shale containing occasional concretions to 10 cm, as well as local mm-scale pyrite laminations and barite nodules. The footwall to mineralization is a grey to black, silty, well laminated shale also containing local mm-scale pyrite laminations and





TRENCH A



SAMPLE #	Zn(%)	Pb(%)	Ba(%)	Ag(g/t)	Length(m)
07101	0.17	13.20	7.9	31.8	1.0
07102	0.08	10.45	27.1	26.9	0.8
07103	0.07	2.10	15.1	15.7	1.5
07104	1.47	13.10	34.8	40.4	0.85
07105	0.29	9.23	25.1	34.2	2.2
07106	0.14	11.96	19.5	26.1	1.8
07124	0.01	4.13	32.4	12.4	1.6
07125	1.57	12.87	29.8	47.5	1.6
07126	0.15	10.70	31.0	24.2	1.2

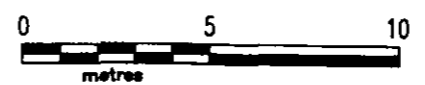
① AVG. 0.38% Zn, 8.64% Pb, 26.8g/t Ag/4.15 metres  
 ② AVG. 0.22% Zn, 10.46% Pb, 22.58g/t Ag/4.0 metres

**LEGEND**

- A** MASSIVE BARITE, FINE GRAINED, GREY, WELL LAMINATED. CONTAINS CONSIDERABLE DISSEMINATED PATCHY AND LAMINATED Pb, Zn, Py
  - B** GREY to BLACK SHALE INTERBEDDED WITH 1-5cm THICK MASSIVE Ba-Py +/- Sp, Py BEDS SECTION IS SHALE DOMINANT. LOCAL SPECKLING, Ba NODS? (mm scale)
  - C** MASSIVE COARSE GRAINED GREY CARBONATE WITH VARIABLE AMOUNTS OF WHITE CALCITE VEINING, ORIGIN, LIMESTONE? TRACE to ABUNDANT Pb, LOCAL HONEY SPHALERITE
  - D** MOTTLED GREY/BLACK SHALE. GREY MOTTLING MAY BE OXIDATION ALONG FRACTURES? LOCAL BARITE NODS
  - E** GREENISH/GREY SERICITIC SHALE LOCALLY WITH Pb-Zn-Py BEDS
  - F** BLACK MODERATELY SILICEOUS SHALE SILICA CONTENT VARIABLE, tr. Py
  - G** BLACK, SOFT NON-SILICEOUS, SILTY LOOKING SHALE, LOCAL BARITE NODS
  - H** CONCRETION-BEARING BLACK SILTY SHALE LOCAL mm SCALE Ba and/or Py LAMS.
  - I** SILICEOUS SHALE and CHERT
- .....BEDDING    - - - - - CLEAVAGE



FIGURE 5



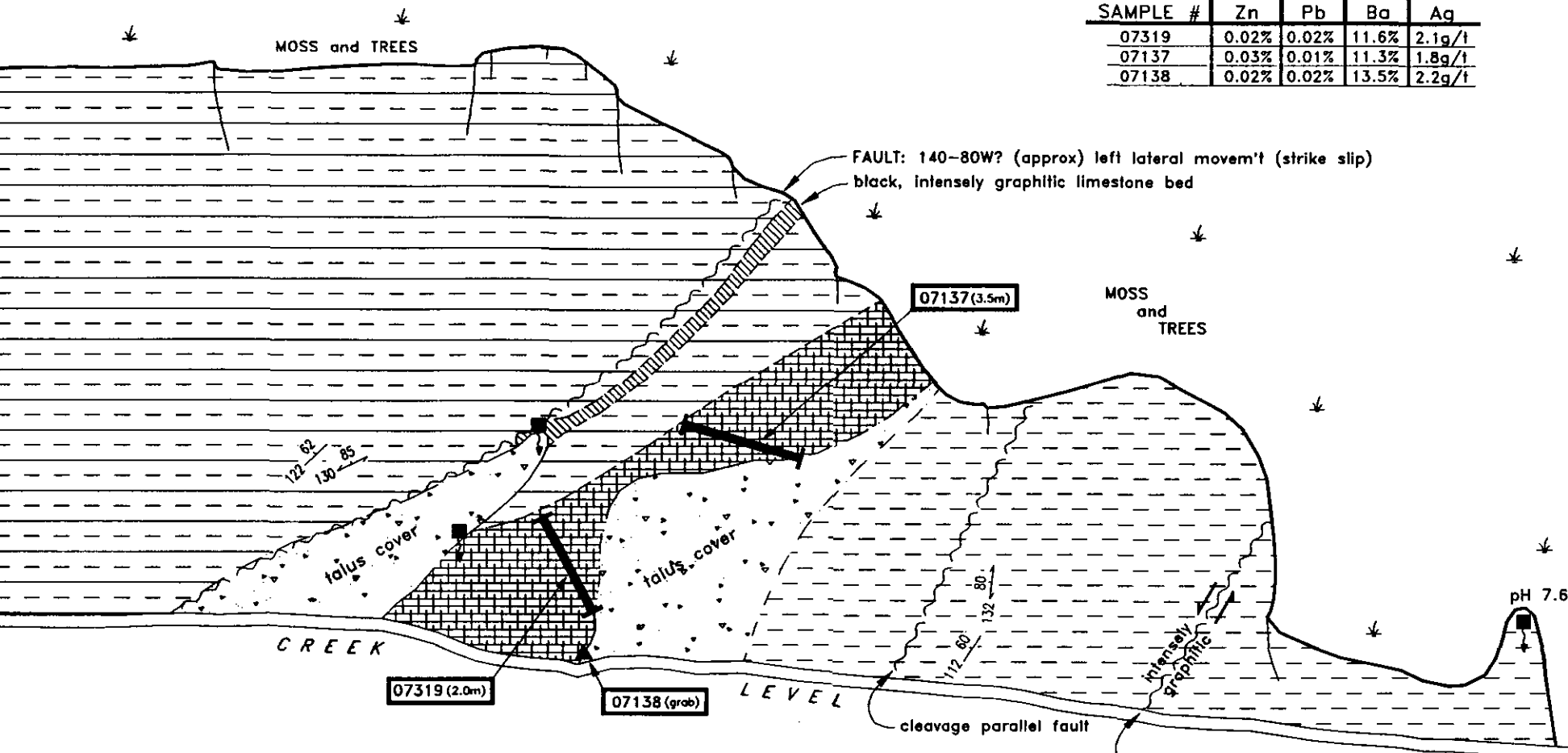
**TECK EXPLORATION LTD.**  
 KAMLOOPS, BRITISH COLUMBIA

**ELF PROPERTY**

**ELF SHOWING  
 GEOLOGY AND  
 SAMPLE LOCATIONS**

DATE DRAWN: SEPT. 15, 1995	SCALE: 1:200	DWG. NAME:
COMPILED BY: R. Farmer	JOB No: 1755	ELF-SHW
DRAWN BY: S.A.	NTS No: 94F/7 W.E	

SAMPLE #	Zn	Pb	Ba	Ag
07319	0.02%	0.02%	11.6%	2.1g/t
07137	0.03%	0.01%	11.3%	1.8g/t
07138	0.02%	0.02%	13.5%	2.2g/t



LOOKING NORTHWEST  
(CLIFF ON NORTHWEST SIDE OF CREEK)





-  BLACK, SILICEOUS to CHERTY SHALE, OCCASIONAL CONCRETIONS to 10cm, LOCAL mm SCALE Py LAMS, LOCAL NODULAR Ba
-  MINERALIZED ZONE - BLACK, GRAPHITIC, SILICEOUS to CHERTY SHALE CONTAINING LAMINATED Py (10-30%), AND NODULAR to BLEBBY Ba (5-20%), tr GALENA IN BARITE, HYDROZINCITE, HEMIMORPHITE. RICHEST MINERAL'N IN 10-20cm THICK BEDS
-  GREY to BLACK SILTY SHALE, WELL LAMINATED WITH, SILTITE LAMS, VAR. GRAPHITIC and SILICEOUS (gen. not), DISSEM Py and COMMON mm SCALE Py LAMS, BARITE NODULES LOCALLY
-  Fe SEEP



FIG. 6

**TECK EXPLORATION LTD.**  
KAMLOOPS, BRITISH COLUMBIA

ELF PROPERTY

JOEL CREEK SHOWING

GEOLOGY and  
SAMPLE LOCATIONS

DATE DRAWN: SEPT. 14, 1995	SCALE: 1:100	DWG. NAME:
COMPILED BY: R. Farmer	JOB No: 1755	ELF-JOEL
DRAWN BY: S.A.	NTS No: 94F/7 W.E	

barite nodules. The sequence is cut by a series of high angle faults, subparallel to either bedding or cleavage which have a west side down or, left lateral (strike slip) sense of movement.

Previous drilling in the area of the showing was collared in the footwall and drilled away from the mineralized horizon, and subsequently this horizon has not been tested in this area.

Three rock samples were collected from the showing and sample locations and results are plotted on figure 6. In spite of the lack of significant base metal grades at surface, this style of mineralization is present adjacent to high grade mineralization at the Elf Showing and elsewhere in the belt. Drill testing of the strike and dip extent of this horizon is warranted.

## **GEOCHEMISTRY**

A total of 15 samples were collected as part of the 1995 exploration program, comprising 7 rock samples and 8 silt samples. Silt samples include moss mat samples from creeks, prefixed with an "M" on figure 4 and Table 2, and samples from iron seepage zones, prefixed with a "G". All samples were sent to Min-En laboratories in Vancouver, B.C. for analysis. Six rock samples were analysed for Zn, Pb, Ba and Ag by assay methods, while all other samples were analysed for 31 elements by ICP plus Ba. Sample locations and results for Pb, Zn, Ag, Ba are shown on figures 4, 5 and 6 and complete results are listed on the Certificates of Analyses located in Appendix III. A sample list is included in Table 2 below.

The 8 silt samples include 5 moss mat samples collected from creeks and 3 samples from iron seepage zones. Moss growing on rocks within creeks inherently collects and holds the correct size fraction for silt sampling and as such provides a quick and reliable method of collecting samples which minimizes sample collection errors. In the case of iron seepage zones, the seepages can be both, directly related to mineralization and, related to collection of metals by groundwater circulation through metalliferous black shale, then brought to surface along faults. Previous work in the belt indicates that the two types of seepages can be distinguished by lead content, which tends to be high when associated with mineralization and low when related to groundwater circulation in shales. Gossan samples were collected from close to discharge points or just from ferricrete in the case of ancient seepages.

As part of the program pH was measured from many of the creeks and gossans. Ph values are plotted on the geology and Sample Location Map (figure 4).

Although additional work is required to confirm results, geochemical results, particularly for Pb and Ag, are enhanced in creeks and seepages associated with mineralization or the siliceous and graphitic sequence associated with mineralization.

Drainage from shales and cherts tends to produce Pb values which are <60ppm, whereas drainage from mineralization or the sequence hosting mineralization tend to be >100ppm. Similarly, ph values for water, from creeks and seepages, shows a strong variation depending on lithology in the drainage. Preliminary results indicate that unmineralized shales and drainage from faults tends to yield ph values of >7, often >8. Drainage issuing from, or immediately below mineralization yield values of 5 or less. The mineralized sequence (siliceous shale with local pyrite or barite), yields values in between, ie 5-7.

Results indicate that geochemistry can be a useful tool to aid in the location of mineralization, or in tracing the favourable lithologic package.

**Table 2**  
**Sample List**

SAMPLE NUMBER	DESCRIPTION	RESULTS (ppm unless otherwise stated)			
		Zn	Pb	Ba	Ag
G07309	Sample of iron seep from northwest side of Elf Creek	>10,000	246	281	2.2
G07315	Sample of iron seep, northwest side of Elf 13 claim	1351	169	5700	0.1
G07316	Sample of iron seep, Joel Creek Showing area	>10,000	333	259	1.1
G07317	Sample of iron seep, Joel Creek Showing area	6914	257	1710	0.1
G07318	Sample of iron seep, Joel Creek Showing area	>10,000	340	3130	0.1
07319	Sample from Joel Creek Showing, chip across 2.0 metres	0.02%	0.02%	11.6%	2.1g/t
07124	Sample from Elf Showing, chip across 1.6 metres	0.01%	4.13%	32.4%	12.4g/t
07125	Sample from Elf Showing, chip across 1.6 metres	1.57%	12.87%	29.8%	47.5g/t
07126	Sample from Elf Showing, chip across 1.2 metres	0.15%	10.70%	31.0%	24.2g/t
07127	siliceous black shale with Py, Ba; 1.0m chip, NW of Elf Showing	88	22	3.99%	0.8
M07128	Moss Mat sample, small creek draining sequence NW of Joel Creek ph- 8.9	1392	61	6180	0.6
M07129	Moss Mat sample from lower part of large creek on Elf 14 claim. ph- 8.9	824	46	>10,000	0.9
M07130	Moss Mat sample from small creek southeast of Joel Creek, ph - 8.7	1283	42	>10,000	0.4
07137	Sample from Joel Creek Showing, chip across 3.5 metres	0.03%	0.01%	11.3%	1.8g/t
07138	Sample from Joel Creek Showing, grab sample of stronger mineralization	0.02%	0.02%	13.5%	2.2g/t

## CONCLUSIONS

Geological mapping was undertaken on the Elf Group A claims in 1995. Mapping indicates that the Elf Showing is hosted by a sequence of siliceous to cherty and graphitic black shale, locally containing pyrite laminations and barite nodules. This sequence of shales has been traced discontinuously to the northwest across the entire property.

During the course of mapping a new showing was discovered in Joel Creek and is hosted by this same sequence of shales. Mineralization consists of a four metre thick horizon containing nodular to blebby barite and laminated pyrite. This horizon has not been tested in the Joel Creek area.

Geological mapping in 1995 indicates that the mineralized sequence northwest of the exposed Elf showing has been displaced eastwards relative to its projected strike extension. This is important in that previous drilling northwest of the showing was collared too far to the west and consequently drilled over top of the mineralization. As such the main mineralized horizon in the area of the Elf showing has not been tested northwest of exposed mineralization.

**REFERENCES**

- Cecile, M.P. and Norford, B.S. (1979): Basin to platform transition, lower Paleozoic strata of Ware and Trutch map-areas, northeastern B.C.; in Current Research, Part A, GSC Paper 79-1A, Report 36.
- Jefferson, C.W. (1980): Geological, Geochemical and Diamond Drilling Report on the Elf Group. Cyprus Anvil Mining Corporation, Inhouse Report.
- MacIntyre, D.G. (1981): Geology of the Akie River Ba-Pb-Zn mineral district; B.C. Ministry of Energy, Mines and Petroleum Resources, Preliminary Map 44.
- MacIntyre, D.G. (1982): Geologic setting of recently discovered stratiform barite-sulphide deposits in northeast B.C.; CIM Bulletin 75, No. 840.
- MacIntyre, D.G. (1992): Geological setting and genesis of sedimentary exhalative barite and barite-sulphide deposits, Gataga District, Northeastern B.C.; Explor. Mining Geol., Vol. 1, No. 1.
- Roberts, W.J. (1979): Geological, Geochemical and Geophysical Report on the Elf Group. Cyprus Anvil Mining Corporation, Inhouse Report.
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- Taylor, G.C., and MacKenzie, W.S. (1970): Devonian stratigraphy of northeast B.C.; GSC Bulletin 186.
- Taylor, G.C., Cecile, M.P., Jefferson, C.W. and Norford, B.S. (1979): Stratigraphy of the Ware E1/2 map area; in Current Research, Part A, GSC Paper 79-1A, Report 37.

**APPENDIX I: COST STATEMENT**

**COST STATEMENT  
ELF CLAIMS - GROUP A**

**1. GEOLOGY AND GEOCHEMISTRY**

R. Farmer (Senior Project Geologist), June 27 - July 10, 1995  
11 days @ \$268.00/day ..... \$2948.00

Paul Watt (Assistant), June 27 - July 10, 1995  
7 days @ \$232.00/day ..... \$1624.00

**Subtotal:.....\$4572.00**

**2. ANALYTICAL**

Min-En Labs Ltd  
8 silt samples (30 element ICP + Ba), @ \$13.55ea..... \$108.40  
1 rock sample (30 element ICP + Ba), @ \$16.30ea..... \$16.30  
6 rock samples (Assay Pb, Zn, Ag, Ba), @ \$26.30ea..... \$157.80

**Subtotal:.....\$282.50**

**3. HELICOPTER**

Northern Mtn. Helicopters  
10.6 hrs @ \$735.80/hr..... \$7799.48

**Subtotal:.....\$7799.48**

**4. BOARD**

a) Cook, 9 days @ \$240.00/day ..... \$2160.00

b) Groceries, Lump Sum..... \$800.00

c) Transportation of Groceries (NT Air, June 28)..... \$497.55

**Subtotal:.....\$3457.55**



5. COMMUNICATION

Satellite Telephone Rental (TD Communications Ltd)  
9 days @ \$144.00/day ..... \$1296.00  
Proportionate share of mobilization of telephone equipment  
1/3 of \$5000.00 all in cost (TD Communications)..... \$1666.67  
**Subtotal:.....\$2962.67**

6. REPORT AND DRAFTING

a) Report Writing, R. Farmer (Geologist)  
2 days @ \$268.00/day ..... \$536.00  
  
b) Drafting  
2 days @ \$188.50/day ..... \$377.00  
**Subtotal:.....\$913.00**

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**Total cost of Program: .....\$19,987.20**



**APPENDIX II :      STATEMENT OF QUALIFICATIONS**

I, Randy Farmer, do hereby certify that:

- 1) I am a geologist and have practised my profession for more than 15 years.
- 2) I graduated from Lakehead University in Thunder Bay, Ontario with an Honours Bachelor of Science degree, (Geology), in 1980.
- 3) I conducted the program on the Elf Group A property 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 Elf Group A property which is the subject of this report.
- 6) I am a Professional Geoscientist registered in the Province of British Columbia (Registration No. 20192).



*Randy Farmer*

Randy Farmer, P. Geo.  
Senior Project Geologist  
September, 1995

**APPENDIX III : CERTIFICATES OF ANALYSES**

COMP: TECK EXPLORATION  
 PROJ: 1755  
 ATTN: Fred Daley

MIN-EN LABS — ICP REPORT  
 8282 SHERBROOKE ST., VANCOUVER, B.C. V5X 4E8  
 TEL:(604)327-3436 FAX:(604)327-3423

FILE NO: 5V-0274-SJ1  
 DATE: 95/08/08

\* moss mat/gossan • (ACT:F31)

SAMPLE NUMBER	AG PPM	AL %	AS PPM	BA PPM	BE PPM	BI PPM	CA %	CD PPM	CO PPM	CR PPM	CU PPM	FE %	GA PPM	K %	LI PPM	MG %	MN PPM	MO PPM	NA %	NI PPM	P PPM	PB PPM	SB PPM	SN PPM	SR PPM	TH PPM	TI %	U PPM	V PPM	W PPM	ZN PPM
M07128	.6	.55	1	846	.7	1	1.76	4.3	11	15	55	2.07	1	.06	10	.56	240	13	.01	95	940	61	2	3	44	1	.01	1	26.0	1	1392
M07129	.9	.52	14	1144	.5	5	5.24	.1	9	17	23	1.63	2	.05	7	.67	331	11	.01	66	1230	46	2	2	169	3	.01	1	23.1	1	824
M07130	.4	.38	1	1400	.4	4	1.12	7.4	7	8	30	1.23	1	.07	5	.24	311	7	.01	88	790	42	3	1	77	1	.01	1	21.0	1	1283
G07315	.1	.31	138	1202	2.6	38	.90	.1	76	42	32	>15.00	11	.04	2	.11	1508	94	.01	215	1350	169	16	23	1	1	.01	1	32.3	1	1351
G07316	1.1	.01	562	193	4.0	46	.90	.1	74	97	5	>15.00	23	.01	1	.01	1	173	.01	379	230	333	1	55	1	1	.01	1	40.4	1	>10000
G07317	.1	.12	255	488	3.1	39	1.55	.1	157	52	18	>15.00	10	.04	1	.06	5377	155	.01	406	630	257	1	37	13	1	.01	1	50.0	1	6914
G07318	.1	.09	1	1679	4.1	65	2.75	>100.0	510	1	13	>15.00	1	.02	1	.07	>10000	58	.01	1265	810	340	102	42	224	1	.01	1	60.0	13	>10000







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CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

**VANCOUVER OFFICE:**  
8282 SHERBROOKE STREET  
VANCOUVER, B.C. CANADA V5X 4E8  
TELEPHONE (604) 327-3436  
FAX (604) 327-3423

**SMITHERS LAB:**  
3176 TATLOW ROAD  
SMITHERS, B.C. CANADA VOJ 2N0  
TEL (604) 847-3004  
FAX (604) 847-3005

**Assay Certificate**

**5V-0229-RA1**

Company: **TECK EXPLORATION LTD.**  
Project: 1755  
Attn: Fred Daley

Date: JUL-14-95  
Copy 1. Teck Exploration Ltd., Kamloops, B.C.

We hereby certify the following Assay of 4 rock samples  
submitted JUL-06-95 by F. Daley.

Sample Number	Ag g / tonne	Ag oz / ton	Ba %	Pb %	Zn %
07124	12.4	.36	32.40	4.13	.01
07125	47.5	1.39	29.80	12.87	1.57
07126	24.2	.71	31.00	10.70	.15
07127			3.99		





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TELEPHONE (604) 327-3436  
FAX (604) 327-3423

**SMITHERS LAB:**  
3176 TATLOW ROAD  
SMITHERS, B.C. CANADA VOJ 2N0  
TEL (604) 847-3004  
FAX (604) 847-3005

**Geochemical Analysis Certificate**


**5V-0219-SG1**

Company: **TECK EXPLORATION LTD**  
Project: 1754  
Attn: Randy Farmer

Date: **JUL-10-95**  
Copy 1. Teck Exploration Ltd., Kamloops, B.C.

*We hereby certify* the following Geochemical Analysis of 6 moss mat samples submitted JUN-30-95 by R. Farmer.

Sample Number	Ba PPM
G07309	281

Certified by \_\_\_\_\_ 

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FAX (604) 327-3423

**SMITHERS LAB:**  
3176 TATLOW ROAD  
SMITHERS, B.C. CANADA V0J 2N0  
TEL (604) 847-3004  
FAX (604) 847-3005

***Geochemical Analysis Certificate***

**5V-0274-SG1**

Company: **TECK EXPLORATION**  
Project: 1755  
Attn: Fred Daley

Date: **AUG-08-95**

copy 1. Teck Exploration, Kamloops, B.C.

We hereby certify the following Geochemical Analysis of 17 MOSS MAT/GOSSAN samples submitted JUL-21-95 by F. Daley.

Sample Number	Ba PPM	Ba %
MD7128	6180	
MD7129	>10000	1.18
MD7130	>10000	1.20

G07315	5700	
G07316	259	
G07317	1710	
G07318	3130	

Certified by \_\_\_\_\_

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**SMITHERS LAB:**  
5176 TATLOW ROAD  
SMITHERS, B.C. CANADA V0J 2N0  
TEL (604) 847-3004  
FAX (604) 847-3005

**Assay Certificate**

**5V-0274-RA1**

Company: **TECK EXPLORATION**  
Project: 1755  
Attn: Fred Daley

Date: **AUG-08-95**  
Copy 1. Teck Exploration, Kamloops, B.C.

*We hereby certify the following Assay of 4 rock samples  
submitted JUL-21-95 by F. Daley.*

Sample Number	Ag g/tonne	Ag oz/ton	Ba %	Pb %	Zn %
07137	1.8	.05	11.30	.01	.03
07138	2.2	.06	13.50	.02	.02
07319	2.1	.06	11.60	.02	.02

**APPENDIX IV : ANALYTICAL PROCEDURES**



**MINERAL  
ENVIRONMENTS  
LABORATORIES**

**Division of Assayers Corp. Ltd.**

**ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:**  
**PROCEDURE FOR 31 ELEMENT TRACE ICP**

**Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu, Fe, K,  
Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Tl, V, Zn,  
Ga, Sn, W, Cr**

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, using the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer or ring mill pulverizer.

0.5 gram of the sample is digested for 2 hours with an aqua regia mixture.

After cooling samples are diluted to standard volume. The solutions are analyzed by computer Jarrell Ash ICP (Inductively Coupled Plasma Spectrometers). Reports are formatted and printed using a laser printer.



**MINERAL  
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LABORATORIES**

Division of Assayers Corp. Ltd.

---

**ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:**

**PROCEDURE FOR Ba ASSAY**

Samples are dried @ 95 C and when dry are crushed on a jaw crusher. The 1/4 inch output of the jaw crusher is put through a secondary roll crusher to reduce it to - 1/8 inch. The whole sample is then riffled on a Jones Riffle down to a statistically representative 300 gram sub-sample (in accordance with Gy's statistical rules.) This sub-sample is then pulverized on a ring pulverizer to 95% - 150 mesh, rolled and bagged for analysis. The remaining reject from the Jones Riffle is bagged and stored.

Samples are weighed and fused at 1200 C with lithium metaborate prior to being dissolved in nitric acid. The resulting solutions are analyzed by ICP. The CANMET standards are employed as check standards with each set of 24 samples. Reports are formatted and printed using a laser printer.



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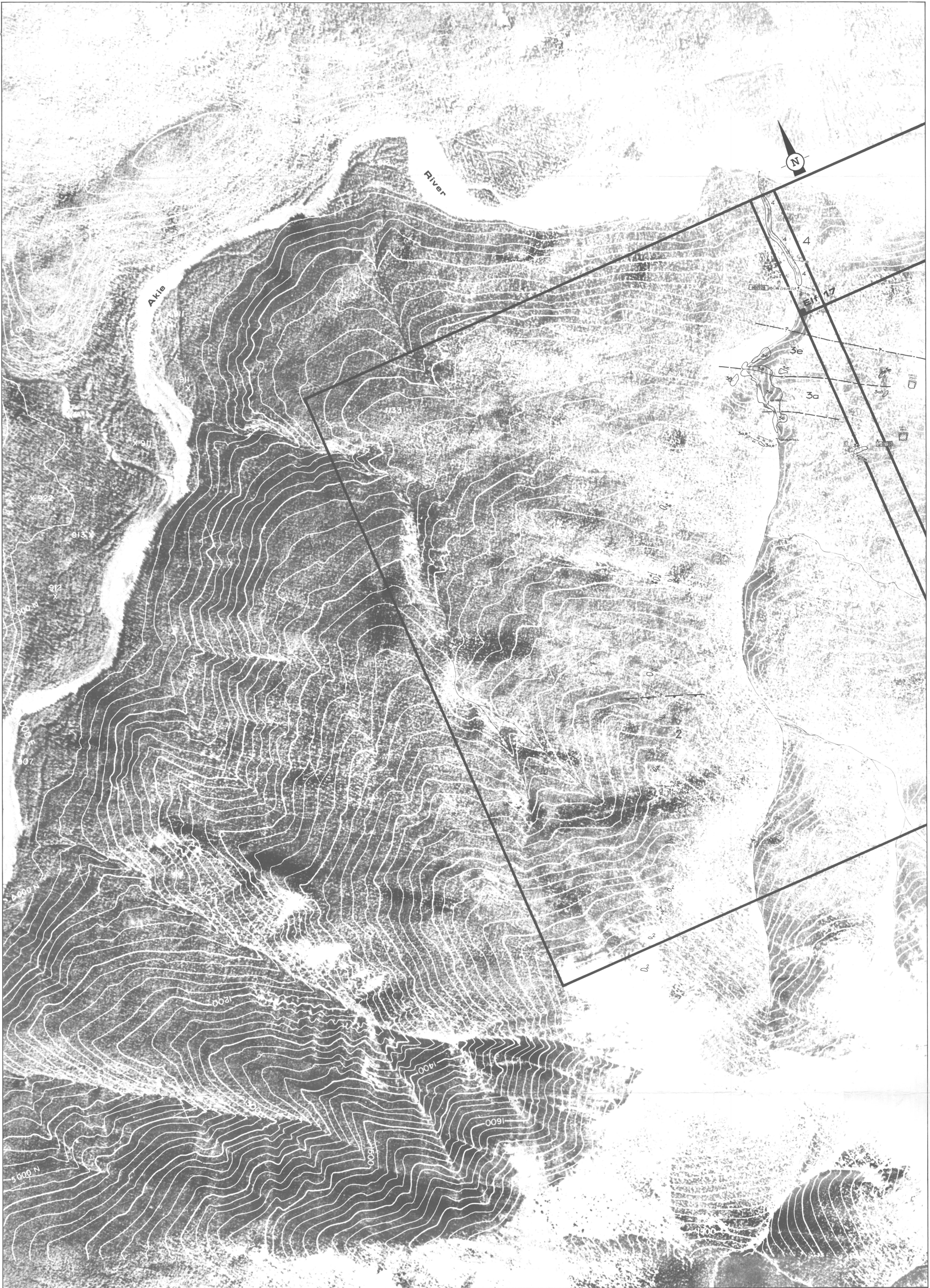
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**Ag, Cu, Pb, Zn, Ni, AND Co ASSAY PRODEDURE**

Samples are dried @ 95 C and when dry are crushed on a jaw crusher. The -1/4 inch output of the jaw crusher is put through a secondary roll crusher to reduce it to -1/8 mesh. The whole sample is then riffled on a Jones Riffle down to a statistically representative 500 gram sub-sample (in accordance with Gy's statistical rules.) This sub-sample is then pulverized in a ring pulverizer to 95% minus 140, rolled and bagged for analysis. The remaining reject from the Jones Riffle is bagged and stored.

A 0.200 to 2.000 gram sub-sample is weighed from the pulp bag for analysis. Each batch of 70 assays has a natural standard and a reagent blank included. The samples are digested using a HNO<sub>3</sub> - KClO<sub>3</sub> mixture and when reaction subsides, HCL is added before it is placed on a hotplate to digest. After digestion is complete the flasks are cooled, diluted to volume and mixed.

The resulting solutions are analyzed on an atomic absorption spectrometer using the appropriate standard sets. The natural standard digested along with this set must be within 2 standard deviations of it's known or the whole set is re-assayed. If any of the assays are >1% they are re-assayed at a lower weight. 10% of samples are assayed in duplicate.



Geological Branch  
Assessment Report

24,079



**LEGEND**

4	UPPER DELTA CONQUEROR SILTSTONE
3	SUNSTEEL FORMATION
3e	Silty, locally fossiliferous grey to black SHALE to MUDSTONE
3c	Grey to black silty laminated SHALE
3b	CHERT
3a	Black 'speckled' SHALE/MUDSTONE
3a	Black, siliceous to cherty, SHALE, local chert beds, concretions, flint nodules, pyrite as disseminations or laminations. Pyrite carb. nod. HOST TO MINERALIZATION
2	DELTAIC SILTSTONE, LOCAL LIMESTONE
1b	Onipika Volcanics carbonate rich (often ironstone/ankerite) MAFIC FLOWS - BRECCIA
1a	LIMESTONE, age uncertain

**SYMBOLS**

	THRUST FAULT		FLOAT
	FAULT		TRAIL
	BEDDING inclined, vertical		MINERALIZATION - Massive Barite, Galena - Pyrite, Sphalerite
	CLEAVAGE inclined, vertical		SEEP or SPRING, pH MEASUREMENT
	ANTIFORM ANTICLINE axial trace		SAMPLE No. and LOCATION
	SYNFORM SYNCLINE axial trace		RESULTS Zn, Pb, Bi, Ag in ppm (unless otherwise noted)
	CONTACT known, inferred		
	Extent of OUTCROP		

**TECK EXPLORATION LTD.**  
KAMLOOPS, BRITISH COLUMBIA

**ELF PROPERTY**  
**ELF GROUP A**  
**GEOLOGY and**  
**SAMPLE LOCATIONS**

SCALE 1:5,000  
DATE DRAWN: SEPT 14, 1995  
COMPILED BY: R. Farmer  
DRAWN BY: S.A.

SCALE 1:5,000  
JOB No. 1795  
N.T.S. No. 9477.W.E.

SHEET 1  
FIGURE No. 4a

Claim post locations have not been verified on the ground. Claim locations are plotted from maps generated by previous operators.





TOLOGICAL BRANCH  
ASSESSMENT REPORT

24,079



LEGEND

- UPPER DEVONIAN
- 4 CONJUNCTION SILTSTONE
- 3 QUNSTEEL FORMATION
- 3a Silty, locally fossiliferous grey to black SHALE to MUDSTONE
- 3b Grey to black siltstone laminated SHALE
- 3c CHERT
- 3b Black "speckled" SHALE/MUDSTONE
- 3a Black, siliceous to cherty, SHALE, local chert beds, concretions, Ba nodules, pyrite as disseminations or laminations, Pyrite carb. nod. HOST TO MINERALIZATION
- 2 Dolomitic SILTSTONE, local LIMESTONE
- PROTEROZOIC
- 1b Oriskany Volcanics-carbonate rich (often limonite/ankerite) MAFIC FLOWS - BRECCIA
- 1a LIMESTONE, age uncertain

SYMBOLS

- THRUST FAULT
- FLOAT
- TRAIL
- BEDDING inclined, vertical
- MINERALIZATION - Massive Barite, Galena, Pyrite, Sphalerite
- CLEAVAGE inclined, vertical
- SEEP or SPRING, pH MEASUREMENT
- ANTIFORM/SYNGLINE axial trace
- SAMPLE No. and LOCATION
- SYNFORM/SYNGLINE axial trace
- RESULTS Zn-Pb-Ag in ppm (unless otherwise noted)
- CONTACT known, inferred
- Extent of OUTCROP

TECK EXPLORATION LTD.  
KAMLOOPS, BRITISH COLUMBIA

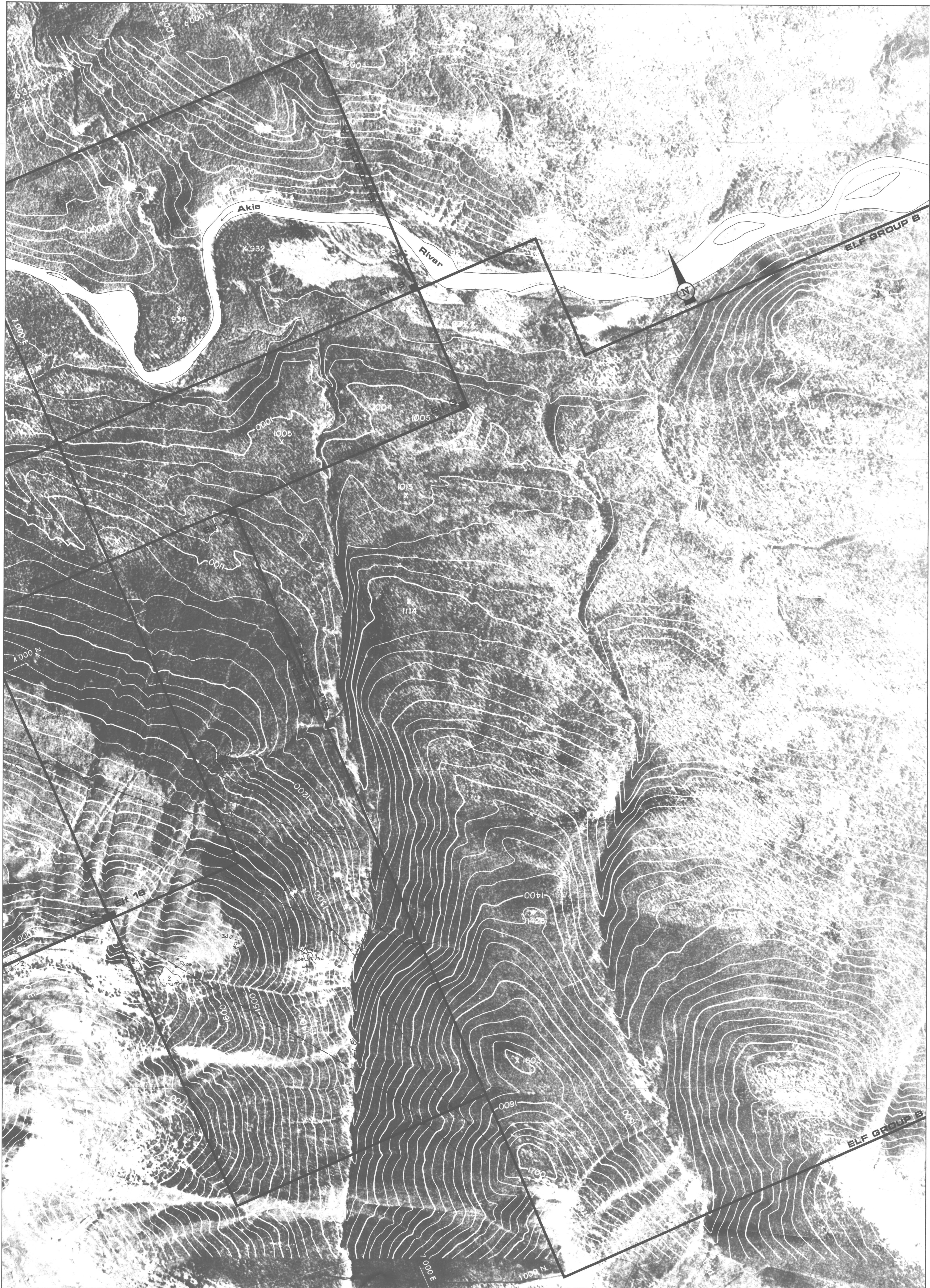
ELF PROPERTY

ELF GROUP A  
GEOLOGY and  
SAMPLE LOCATIONS

DATE DRAWN: SEPT 14, 1995  
SCALE: 1:5,000  
COMPILED BY: R. Farmer  
DRAWN BY: S.A.

FIGURE No.  
4b

Claim post locations have not been verified on the ground. Claim locations are plotted from maps generated by previous operators.



TOLOGICAL BRANCH  
ASSESSMENT REPORT

24,079



LEGEND

- UPPER DEVONIAN
- 4 CONLUNDUM SILTSTONE
  - 3 GUNSTEEL FORMATION
    - 3a Silty, locally fossiliferous grey to black SHALE to MUDSTONE
    - 3b Grey to black siltstone laminated SHALE
    - 3c CHERT
    - 3b Black, "speckled" SHALE/MUDSTONE
    - 3a Black, siliceous to cherty, SHALE, local chert beds, concretion, Ba nodules, pyrite as disseminations or laminations, Pyrite carb nodules. HOST TO MINERALIZATION
- MESOZOIC
- 2 Cretaceous SILTSTONE, local LIMESTONE
  - 1b Oligocene Volcanics: carbonates rich (often limonite/ankerite); MAFIC FLOWS - BRECCIA
  - 1a LIMESTONE, age uncertain

SYMBOLS

- THRUST FAULT
- FAULT
- BEDDING: inclined, vertical
- CLEAVAGE: inclined, vertical
- ANTIFORM/SYNCLINE axial trace
- SYNFORM/SYNCLINE axial trace
- CONTACT known, inferred
- Extent of OUTCROP
- FLOAT
- TRAIL
- MINERALIZATION: Massive Barite, Galena, Pyrite, Sphalerite
- SEEP or SPRING, pH MEASUREMENT
- SAMPLE No. and LOCATION
- RESULTS: Zn/Pb (Ba/Ag) in ppm (unless otherwise noted)

Claim post locations have not been verified on the ground. Claim locations are plotted from maps generated by previous operators.

TECK EXPLORATION LTD.  
KAMLOOPS, BRITISH COLUMBIA

ELF PROPERTY

ELF GROUP A

GEOLOGY and

SAMPLE LOCATIONS

0 100 200 METERS SHEET 3

DATE DRAWN: SEPT 29, 1995 SCALE: 1:5,000 FIGURE No.  
COMPILED BY: R. Farmer JOB No: 1755  
DRAWN BY: SA NTS No: 8487 WE 4C