24605

REPORT ON

GEOLOGY AND GEOCHEMISTRY

OF THE

ECSTALL PROPERTY

SKEENA MINING DIVISION

NTS 103H/13E/14W

Lat.: 53° 51' N. Long.: 129° 31' W.

Amended Report

Original Report
received
February 28/95.

BY

Uwe Schmidt, P.Geo.

FOR

ATNA RESOURCES LTD.

Feb. 27, 1995

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1. SUMMARY AND RECOMMENDATIONS

A program of geological mapping, soil sampling, line cutting and rock chip sampling was carried out by Atna Resources Ltd. on their wholly owned Ecstall River property from August 2 to October 15, 1994. This work outlined disseminated and vein copper mineralization over a 150 by 2000 metre area on Thirteen Creek Grid. Results of a systematic chip sampling program across the zone returned values of 0.198% Cu over 124 metres across one of the better exposures. Results suggest potential for outlining a large body of disseminated copper mineralization.

On the north side of the Ecstall River, in Red Gulch Creek, detailed mapping and rock geochemical sampling were carried out in 1994. The mapping revealed similarities in lithologies which underlying the South Lens with those overlying the North Lens. The discovery of a chalcopyrite-bearing float boulder of quartz-sericite schist, in Red Gulch Creek, with a gold content of 0.202 opt Au, initiated rock geochemical sampling of quartz-sericite schist adjacent to the sulphide lenses. This led to the discovery of copper mineralization adjacent to the North Lens. The source of the gold-bearing float has not been located but indicates a potential for finding economic gold grades in the quartz-sericite schist.

Four possible drill targets were chosen in Thirteen Creek Grid area, late in the 1994 field program. Plans to drill were postponed because of deteriorating seasonal weather conditions. A diamond drill program is recommended for these targets in 1995.

The approximate locations of proposed drill sites are :

1)	91+50N - 12+00E	angle hole drilled to the east
2)	84+70N - 13+30E	angle hole drilled to the east
3)	101+40N - 13+50E	angle hole drilled to the west
4)	94+00N - 14+50E	angle hole drilled to the west

All drill sites are intended to test the disseminated copper mineralization.

2. INTRODUCTION

From August 2 to October 15, 1994, Atna Resources Ltd. carried out a mineral exploration program on their wholly owned Ecstall property, located 72 km southeast of Prince Rupert B.C. The program was carried out in two areas of the property, Thirteen Creek Grid and Red Gulch Creek. The property consists of Crown Grants and mineral claims having an elongated rectangular shape in the north-south direction and an area of approximately 7300 hectares. The area of the property where the 1994 program was carried out straddles the Ecstall River. Work included line-cutting, grid soil sampling, geological mapping, rock geochemical sampling, limited hand trenching and rock chip sampling.

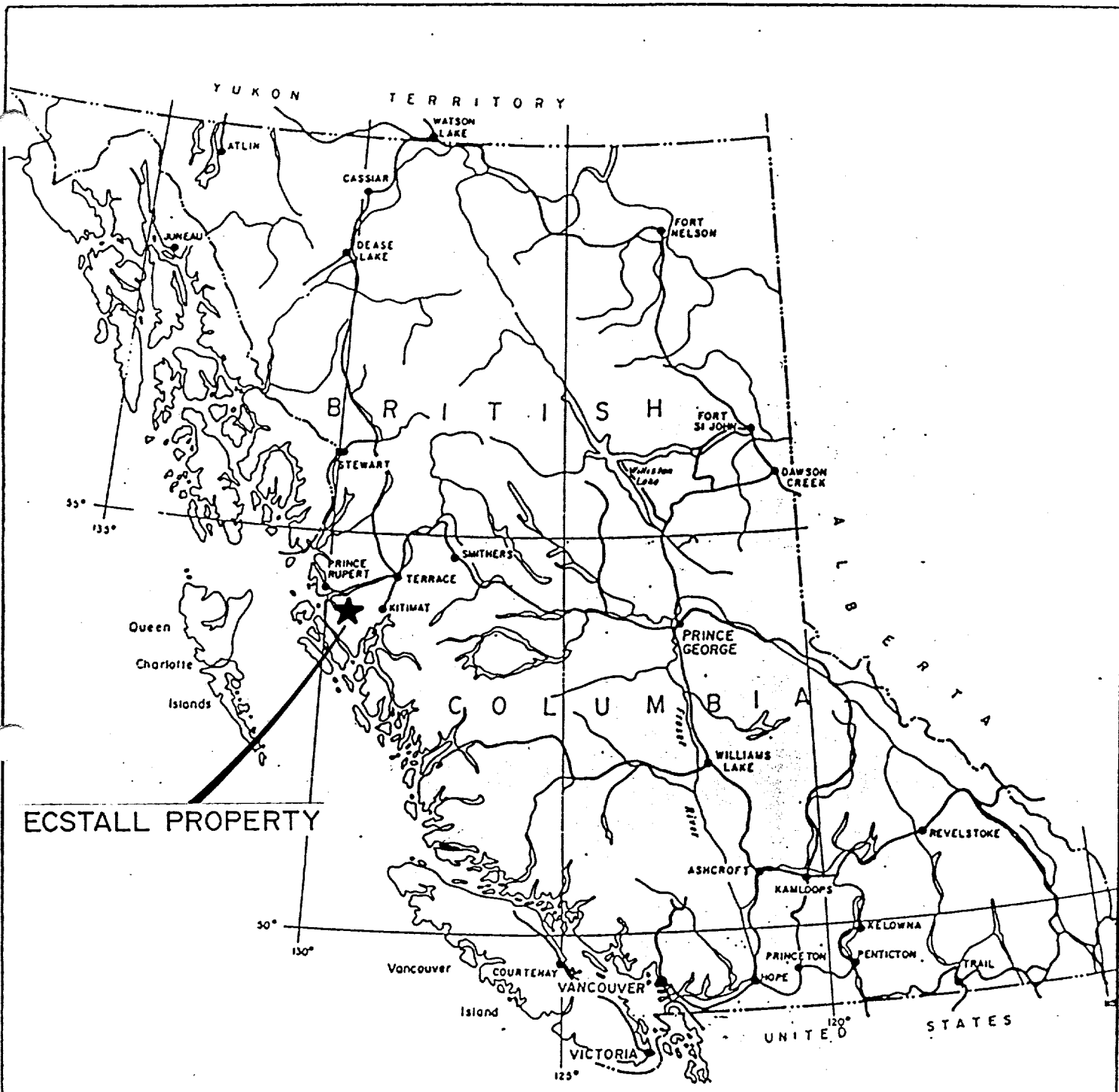
Results of property scale exploration by Falconbridge in 1986/87 indicated the presence of significant stockwork copper mineralization in felsic rocks, occurring south of the Ecstall River in Thirteen Creek area. The stockwork mineralization was interpreted as a possible feeder zone to a volcanogenic massive sulphide deposit. This area was explored by Atna in 1994, confirming stockwork copper mineralization and outlining disseminated copper mineralization over a large area, including a previously unexplored area at the north end of the grid. Results suggest a greater potential for outlining a large body of disseminated copper mineralization than finding massive sulphide mineralization.

On the north side of the Ecstall River, Red Gulch Creek area is the site of extensive historic surface and underground exploration centred on the Ecstall massive sulphide deposit. This area has been intermittently explored since its discovery in the late 1890's. Preliminary work by Falconbridge in 1987 established the volcanogenic setting of the Ecstall massive sulphide deposit. Detailed mapping and rock geochemical sampling were carried out in 1994.

Base camp was located on the south shore of the Ecstall River, approximately 1.5 km west of the claims. The field crews commuted to the property by boat or by Prince Rupert-based chartered helicopter, as appropriate. Crew size varied from 2 to 6 and included combinations of 4 geologists and 3 field assistants. The writer was contracted by Atna Resources to provided field management and supply field and camp equipment through Northwest Geological Consulting Ltd. Geologists Paul Kallock and Brian Lennan and assistants Andrew White, Duncan MacRae and John Richmond were employed by Atna Resources and assigned to the project. Overall program supervision was provided by Peter DeLancey, P.Eng., President of Atna Resources Ltd.

3. PROPERTY, LOCATION AND ACCESS

The Ecstall property consists of 21 Crown Granted Mineral Claims, 20 Mineral Claims and 1 Fractional Mineral Claim, totalling 291 units and having an area of approximately



ATNA RESOURCES LTD.			
ECSTALL PROJECT LOCATION *NORTHWEST GEOLOGICAL CONSULTING LTD.*			
SCALE	DATE	N.T.S.	DWG. NO.
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7300 hectares. The property is located 72 km southeast of Prince Rupert, in the Skeena Mining Division.

The claims are located on NTS map sheet 103H/13E and 14W. The geographic coordinates of the approximate centre of the property are 53°51'N latitude and 129°31'W longitude. The details of the claims are as follows:

CLAIM NAME	NO.OF UNITS	RECORD NO.	EXPIRY DATE
Blue 1	16	5060	Dec. 12, 1998
Blue 2	16	5061	Dec. 12, 1998
Blue 3	10	5062	Dec. 12, 1998
Blue 4	6	5063	Dec. 12, 1998
Green 1	2	5564	Oct. 08, 1998
Red 1	16	5019	Nov. 01, 1998
Red 2	12	5020	Nov. 01, 1998
Red 3	9	5021	Nov. 01, 1998
Red 4	15	5022	Nov. 01, 1998
Red 5	20	5023	Nov. 01, 1998
Red 6	8	5024	Nov. 01, 1998
Red 10	8	5054	Dec. 06, 1996
Skinny Fr.	1	5563	Oct. 08, 1998
Hot 1	12	330223	Aug. 20, 1995
Hot 2	20	330224	Aug. 20, 1995
Hot 3	20	330225	Aug. 20, 1995
Hot 4	20	330226	Aug. 20, 1995
Brooks Cabin 1	20	330223	Aug. 19, 1995
Brooks Cabin 2	20	330224	Aug. 19, 1995
Brooks Cabin 3	20	330225	Aug. 19, 1995
Brooks Cabin 4	20	330226	Aug. 19, 1995
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	291 units		

Crown Granted Mineral Claims-Mining Rights

Bluestone	1	Lot 111
Bell Helen	1	Lot 112
Red Gulch	1	Lot 113
Red Bluff	1	Lot 114
Queen	1	Lot 115
Sulphide 5	1	Lot 2261
Sulphide 6	1	Lot 2262

Crown Granted Mineral Claims-Mining Rights (Cont'd)

Sulphide 1FR	1	Lot 2263
Sulphide 7	1	Lot 2264
Sulphide 8	1	Lot 2265
Sulphide 11	1	Lot 2266
Sulphide 9	1	Lot 2267
Sulphide 10	1	Lot 2268
Sulphide 1	1	Lot 2269
Sulphide 2	1	Lot 2670
Sulphide 4	1	Lot 2671
Sulphide 3	1	Lot 2672
Sulphide 12	1	Lot 2673
Sulphide 2FR	1	Lot 2674
Sulphide 3FR	1	Lot 2675
Sulphide 13	1	Lot 2676

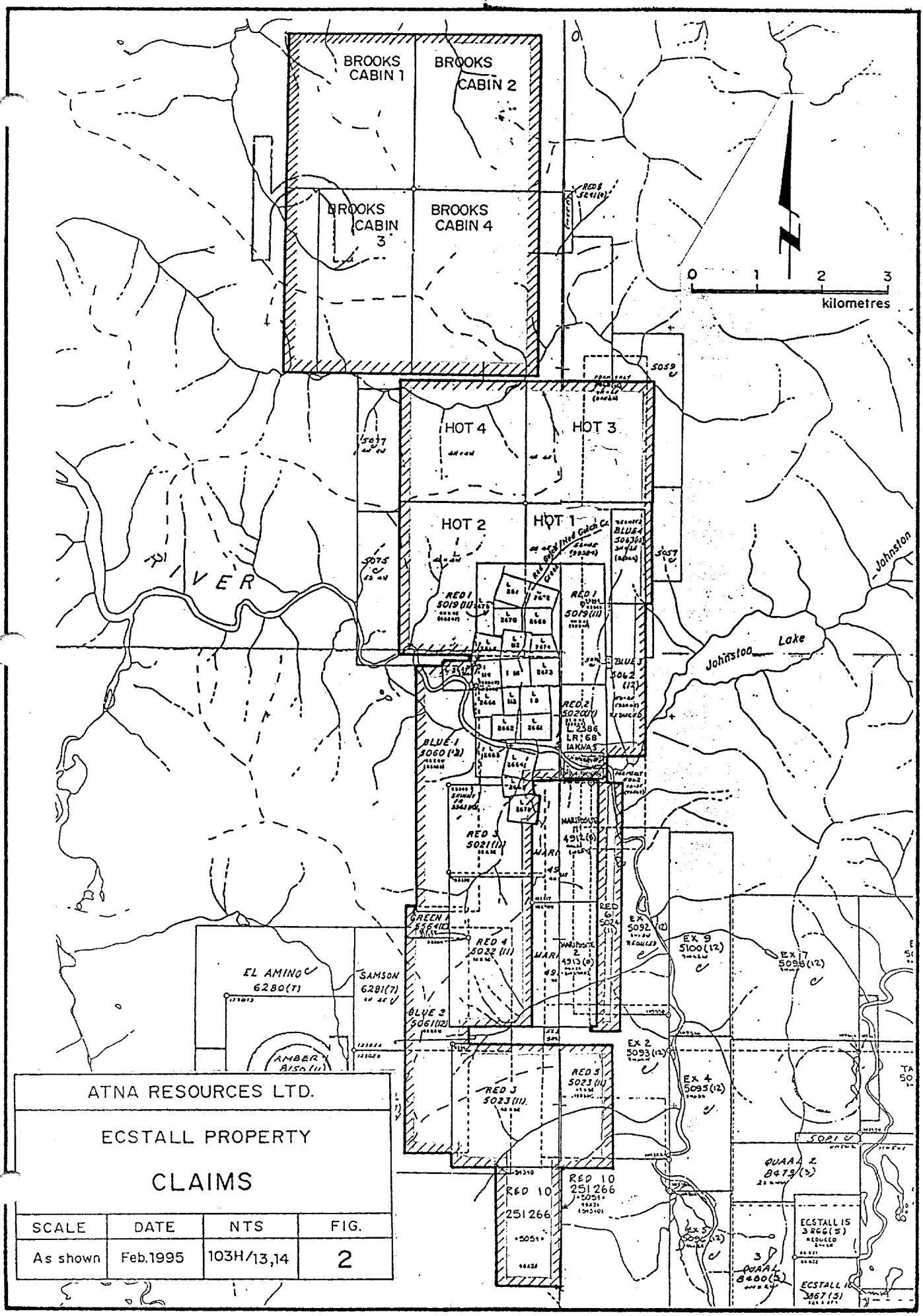
Crown Granted Mineral Claims-Surface Rights

Surface-1	1	DL 2677,GR4
Surface-2	1	DL 2678,GR4

The field crew mobilized to the property by helicopter from Highway 16 on the Skeena River. Base camp for the project was a cabin located on the south shore of the Ecstall River, 4 km downstream from the claims. The field crews commuted to the property by boat. This provided access to both Red Gulch Creek and Thirteen Creek Grid areas of the property which were within walking distance of the Ecstall River. Trails were cut through dense under brush to both areas and previously cut base lines on Thirteen Creek Grid were brushed-out. Work near the southern limits of Thirteen Creek Grid and outlying targets were accessed by helicopter. The camp was supplied by helicopter based in Prince Rupert.

4. PHYSIOGRAPHY

The property covers an area of rugged terrain typical of the Coast Range Mountains of British Columbia. Elevations range from 20 to approximately 1,300 metres. Vegetation varies from over mature coniferous rain forest to moss and grass covered alpine meadows. Dense coniferous forest and bush covers the main valley of the Ecstall River and adjacent slopes to an elevation of about 300 metres. Average slope on the Thirteen Creek Grid is approximately 25 degrees with local variations increasing to the 30 to 55 degree range. Thick underbrush of willow, blueberry bushes, devil's club and stunted conifers hinder access. Avalanche areas are especially difficult to traverse because they



ATNA RESOURCES LTD.

ECSTALL PROPERTY

CLAIMS

SCALE	DATE	NTS	FIG.
As shown	Feb.1995	103H/13,14	2

are covered with a uniform, dense growth of young conifers and brush. Above 300 metres in elevation slopes are gentler, forested areas become patchy and grass-covered bogs are more common. Slopes steepen once more above tree line near ridges and in the headwaters of drainages.

Outcrop is most commonly found in small creeks, cliff faces, benches and ridge tops. Much of the property is covered by less than a metre thickness of organic rich soil. Near the valley floor soils are often underlain by talus debris.

5. HISTORY

Intermittent exploration on parts of the property has occurred since the discovery of the Ecstall massive sulphide deposit in the late 1890's. The Ecstall deposit is primarily a pyrite deposit occurring in two sub-parallel, steeply east-dipping lenses. The deposit has been explored from surface by diamond drilling and from underground by diamond drilling and crosscuts. Reserves of 6.9 million tonnes grading 0.6% copper, 2.5% zinc, 42.3% iron and 48.4% sulphur, including a smaller reserve of 250,000 tonnes of 2% copper are reported. A small tonnage of pyrite was mined and shipped to Prince Rupert and tested as a possible source of sulphur.

More recent exploration by Falconbridge Limited in 1985, 1986 and 1987 focussed on re-evaluating the surrounding area for its volcanogenic massive sulphide potential. Falconbridge's work included airborne INPUT and magnetometer surveys, Max-Min, magnetometer and VLF-EM ground geophysical surveys, line cutting, grid soil sampling, geological mapping, lithogeochemical studies and 916 metres of diamond drilling. Most of the conductors tested by diamond drilling are graphitic argillite or weakly mineralized quartz-sericite schist.

The property was purchased by Atna Resources Ltd. from Falconbridge Limited in December, 1993.

5.1 SUMMARY OF WORK CARRIED OUT IN 1994

The 1994 exploration program was a follow-up to encouraging results received by Falconbridge after their 1987 field program. Geophysical, soil geochemical surveys, geological mapping and lithogeochemical studies by Falconbridge in the Thirteen Creek area, outlined an area of quartz-sericite-kyanite schist and mixed gneisses with lithogeochemical signatures suggesting a felsic volcanic or volcaniclastic protolith. This evidence, together with numerous narrow chalcopyrite mineralized veins, and soil geochemical anomalies in Cu, Au, Ba, Ag and Pb suggested good exploration potential for volcanogenic massive sulphide deposits in Thirteen Creek grid area.

The 1994 program consisted of brushing out and re-establishing the existing Falconbridge grid, geologic mapping, soil sampling, hand trenching and rock chip sampling. Soil sampling along 1500 metres of line, extended the previous grid northward to a previously unexplored area. Mineralized areas were tested across strike by chip sample lines. Several of these chip sample lines were along creeks which transect the area and provide good rock exposure. Continuous chip samples were taken over 5 metre intervals wherever possible. In some cases mineralization was exposed by hand trenching prior to sampling.

Ninety-Eighty rock chip samples, totalling 479.5 metres where taken at 5 metre intervals in 16 "trench" locations. In addition, a total of 186 rock geochemical samples were collected. The majority of these samples are from Thirteen Creek Grid.

Geology maps of Thirteen Creek Grid area, at 1:2000 scale (Fig. 5a,b,c) are located in pockets at the end of this report. Maps showing sample locations and analytical results are presented at the same scale on Fig. 6a,b,c. Detailed geology and analytical results for the trenching and chip sampling are presented at 1:100 scale (Fig. 7) and 1:500 scale (Fig. 8,9). Interpreted geochemical analyses for Cu and Au for northern Thirteen Creek Grid area are presented at 1:2000 scale on Fig. 10. Analytical results and rock sample descriptions are located in appendices B and C, respectively.

Limited rock sampling by Falconbridge in 1987, in Red Gulch Creek area, established the volcanogenic setting of the Ecstall massive sulphide deposit. Work in 1994, included geological mapping at 1:1000 scale and rock geochemical sampling (Fig. 4). Mapping focussed on an 800 metre length of Red Gulch Creek which includes exposures of the Ecstall massive sulphide deposit.

6. REGIONAL GEOLOGY

The property is situated in the central region of the Scotia-Quaal metamorphic belt (Gareau 1991), a 60 km long and 10 to 15 km wide, north-northwest trending pendant within the Coast Plutonic Complex. The pendant is comprised of metamorphosed volcanic, sedimentary and intrusive rocks. It is bounded to the west by the early Late Cretaceous Ecstall pluton and by the Paleocene to Eocene Quottoon pluton on the east.

Gareau subdivided the belt into eight lithologic units. Medium pressure, epidote-amphibolite to upper amphibolite facies metamorphic grades are preserved in the central region of the belt. Metamorphic grade increases gradually across the belt from west to east and from south to north (Gareau 1991). Regional metamorphism has imparted a strong planar fabric on lithologies. This fabric was subsequently deformed by three

periods of folding which occurred between the emplacement of the Middle Devonian Big Falls orthogneiss and early Late Cretaceous Ecstall intrusion.

The oldest rocks, of unknown but probable Paleozoic age, comprise metavolcanic, metasedimentary, layered gneiss units and quartzite.

The metavolcanic unit consists of mafic and intermediate metavolcanics interlayered with minor metasedimentary and felsic metavolcanic rocks. It hosts three subeconomic massive sulphide deposits; Ecstall, Packsack and Scotia. The Ecstall deposit is situated within the central region of the belt and within the area covered by this report.

Metasedimentary rocks are medium to fine grained, epidote-rich, hornblende-biotite gneiss. The quartzite unit is a white to grey quartzite interlayered with biotite-hornblende gneiss, mica schist, black phyllite, pelite and marble. The layered gneiss unit consists of medium-grained, epidote-bearing, hornblende-biotite quartz diorite to granodiorite gneiss and garnet amphibolite.

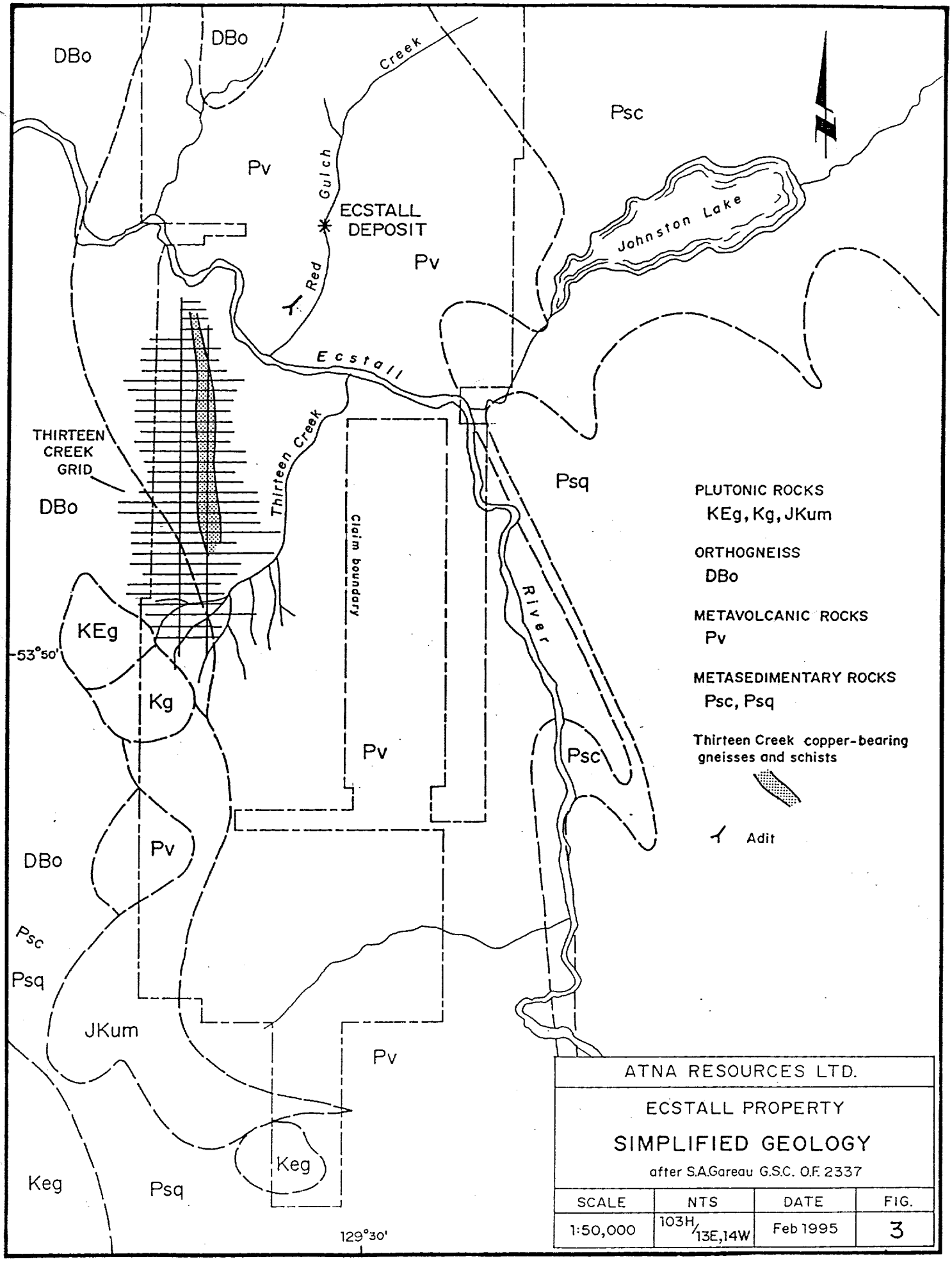
The Middle Devonian Big Falls orthogneiss, a well-foliated augen gneiss, lies along the western margin of the belt and grades eastward into the metavolcanic unit over a distance of about 700 metres. This suggests a cogenetic relationship between the intrusive orthogneiss and metavolcanic unit.

Mesozoic rocks include the Ecstall pluton, late Early Jurassic Johnston Lake and Foch Lake orthogneisses and probable Jurassic or Cretaceous aged ultramafic rocks.

Late fine-grained hornblende porphyritic lamprophyre dykes crosscut the metamorphic rocks throughout the area.

7. PROPERTY GEOLOGY

A simplified version of the regional geology in the vicinity of the property is presented on Fig. 3 at 1:50,000 scale, based on G.S.C. Open File 2337 by S. Gareau. The Middle Devonian or older metavolcanic unit is the most extensive on the property. This unit underlies the two areas mapped in 1994. On a regional scale, the metavolcanic unit consists of mafic and intermediate metavolcanic rocks interlayered with minor metasedimentary and felsic metavolcanics. In the vicinity of the Ecstall deposit it was sub-divided into 8 mappable units, with metavolcanic, metasedimentary and intrusive lithologies present. In this area lithologies trend north-south and dip steeply to the east. On Thirteen Creek grid the metavolcanic unit was subdivided into 9 mappable units. This area is dominated by 3 leucocratic micaceous quartzofeldspathic gneisses and related schists. Lithologic units are intercalated, trend north to north-northwesterly and dip steeply to the east over the limits of mapping. Variation in foliation strike and dip occur locally.



ATNA RESOURCES LTD.

ECSTALL PROPERTY

SIMPLIFIED GEOLOGY

after S.A.Gareau G.S.C. O.F. 2337

SCALE	NTS	DATE	FIG.
1:50,000	103H/13E,14W	Feb 1995	3

The contact between Gareau's metavolcanic and metasedimentary units occurs close to the eastern property boundary. The western boundary of the metavolcanic unit is defined by its gradational contact with the Middle Devonian Big Falls orthogneiss. This transition is located close to the western property boundary. An area in the southwest corner of Thirteen Creek Grid is underlain by these gradational rocks. Early Late Cretaceous intrusive rocks of the Ecstall pluton and Jurassic or Cretaceous mafic and ultramafic plutonic rocks underlie the southwestern corner of the property.

Regional metamorphism has imparted a strong foliation on all units. Field relationships among interlayered units and local preservation of primary textures, suggest that the lithologic units are deformed to some extent but the primary layering remains intact.

No evidence of cataclastic textures were found, suggesting that lateral displacement of lithologies is small.

7.1 RED GULCH CREEK GEOLOGY

Mapping along Red Gulch Creek focussed on the lower 800 metres of creek valley, from the main valley of the Ecstall River northward. This area was mapped previously by H. Douglas in 1952. A modified version of Douglas' map was redrafted and reinterpreted in 1987 by Falconbridge geologists, based on a lithogeochemical study of selected host rocks which established the volcanogenic setting of the Ecstall massive sulphide deposit. A re-examination of the Ecstall deposit setting was initiated by Falconbridge's results. Work in 1994, included geological mapping at 1:1000 scale and rock geochemical sampling (Fig. 4). It centred on an area of Red Gulch Creek which includes the surface exposures of the Ecstall massive sulphide deposit. The deposit consists of two partially overlapping, north trending and steep easterly dipping lenses. Red Gulch Creek parallels and in some areas follows a fault zone which separates the North and South Lenses of the deposit. The deposit has been explored from surface by diamond drilling and from underground by diamond drilling and crosscuts. Reserves of 6.9 million tonnes grading 0.6% copper, 2.5% zinc, 42.3% iron and 48.4% sulphur, including a smaller reserve of 250,000 tonnes of 2% copper are reported.

Mapping control was established by a slope corrected "hip-chain", compass and altimeter survey of the creek valley. Outcrop occurs mainly along the banks of Red Gulch Creek and its tributaries. Mapping away from the creek floor is hindered by a combination of thick vegetation and steep slopes (Photo 1).

This area of the property is underlain by Devonian or older metavolcanic rocks (Gareau 1991). The metavolcanic rocks were sub-divided into eight mappable units. Lithologies in the map area strike on average in a north-south direction

Photo 1 Red Gulch Creek, looking north

and have steep easterly to vertical dips. Primary textures in finer grained rocks are often obscured by metamorphism, deformation and in some cases alteration.

Quartz-chlorite schist (Sqc), chlorite-biotite schist (Scb) and hornblende-quartz-feldspar gneiss (Ghqfp) are mappable sub-divisions of metavolcanics. Units interpreted as metasedimentary are quartz-muscovite-biotite gneiss (Gqmb) (Photo 5), biotite-muscovite gneiss (Gbm) and argillite (Ar). Unit Gbqfp, biotite-quartz-feldspar gneiss is interpreted as a metamorphosed porphyritic intrusion.

A one to two metre thick quartz-muscovite/sericite schist (Sqm) envelopes most of the massive sulphide mineralization of the North and South Lenses. Lithogeochemical analyses of this unit led Falconbridge geologists to conclude that its protolith is a felsic volcanic or volcaniclastic. It is also recognized as an important host to sulphide mineralization in other areas of the property and throughout the belt. The quartz-sericite schist varies from massive, resistant outcrops to thinly laminated, friable, recessive exposures. It commonly contains disseminated pyrite, in some areas in concentrations up to 30%. Shearing around the margins of the sulphide lenses has often centred on this unit.

Black argillite and phyllite (Ar) form a distinctive but of volumetrically small unit. Most outcrops of this unit are too small to map. Thin horizons of the argillite occur at the sulphide, quartz-muscovite schist contact. These narrow argillite bands are best preserved when enclosed by sulphides. Laterally they become bleached and grade into quartz-muscovite schist. This association suggests the quartz-muscovite schist (Sqm) must at least in part be an alteration product of argillaceous sediments.

Similarities in lithologies of the structural footwall of the South Lens with the structural hanging wall lithologies of the North Lens were noted, especially in outcrops south of the largest waterfall on Red Gulch Creek, where the North and South Lenses overlap. Here, quartz-muscovite schist in the structural footwall of the South Lens is underlain by about 8 metres of fine grained, sugary textured, quartz dominant, quartz-muscovite-biotite gneiss (Gqmb). Below this, quartz-chlorite schist (Sqc) of similar thickness occurs in sharp contact. Below Sqc, the two previous units are interlayered in equal proportions (Gqmb/Sqc) in 30 to 50 centimetre thick bands. A similar progression of lithologies occurs east of the North Lens, progressing eastward from the structural hanging wall quartz-muscovite schist.

Similarities in lithologies underlying the South Lens and overlying the North Lens suggest the two lenses lie in opposite limbs of a tightly folded, overturned, steeply east-dipping antiform. The sulphide lenses diverge at depth (Douglas,

1953) and no fold closures have been found in the map area, suggesting the fold axis is horizontal or dipping at a low angle and the fold hinge was located above the present erosion surface along Red Gulch Creek. Minor lateral displacements were observed along shallow southwest dipping joint planes. These are often adjacent to a fault zone which was traced along Red Gulch Creek and lies between the North and South Lenses. This suggests lateral movement occurred along the fault.

A notable difference between hanging wall and footwall lithologies is the occurrence of biotite-quartz-feldspar gneiss (Gbqfp). This unit is restricted to the hanging wall of the North Lens and is interpreted to be a quartz-feldspar porphyry sill. A preliminary age date for this unit of 375 +/- 2 million years, obtained by T. Barrett of the Mineral Deposits Research Unit, suggests the intrusive may be coeval with surrounding metavolcanic rocks.

A map unit of similar appearance, but restricted occurrence, is hornblende-quartz-feldspar gneiss (Ghqfp). It was found only in the footwall lithologies of the South Lens. A significant number of exotic mineral aggregates within this unit, suggest that it is more likely of volcanic or volcanoclastic origin (photo 6).

7.1.1 MINERALIZATION

The North and South Lenses of the Ecstall deposit are exposed prominently along the banks of Red Gulch Creek. The lenses are primarily of pyritic composition and contain sub-economic grades of zinc, copper, silver and gold. The pyrite occurs as medium to coarse euhedral grains with minor interstitial matrix of carbonate, barite, and quartz (Photo 4). Chalcopyrite is rarely visible and sphalerite is present in pale brown banded massive sulphide areas which occur near the structural hanging wall of the North Lens. At the southern limit of the North Lens this style of mineralization assayed 5.98% Zn, 0.003 opt Au, 0.41 opt Ag and 90,321 ppm Ba (PD-112). A chip sample (US-52) taken across one metre of similar mineralization, located east of the large waterfall, returned 65,218 ppm Zn 4,585 ppm Pb 4,778 ppm Cu 43.8 ppm Ag and 158,682 ppm Ba.

The North Lens is traceable on surface over a strike length of 330 metres. The surface expression of the zone outlines an asymmetric, lensoid shape. From its southern exposed limit, northward, the North Lens increases in thickness to approximately 30 metres (Photo 2). The northern end of the zone branches in two. The east branch terminates abruptly while the west branch pinches out in an overburden covered area over a 100 metre distance. Previous work (Douglas 1953) has demonstrated that the North

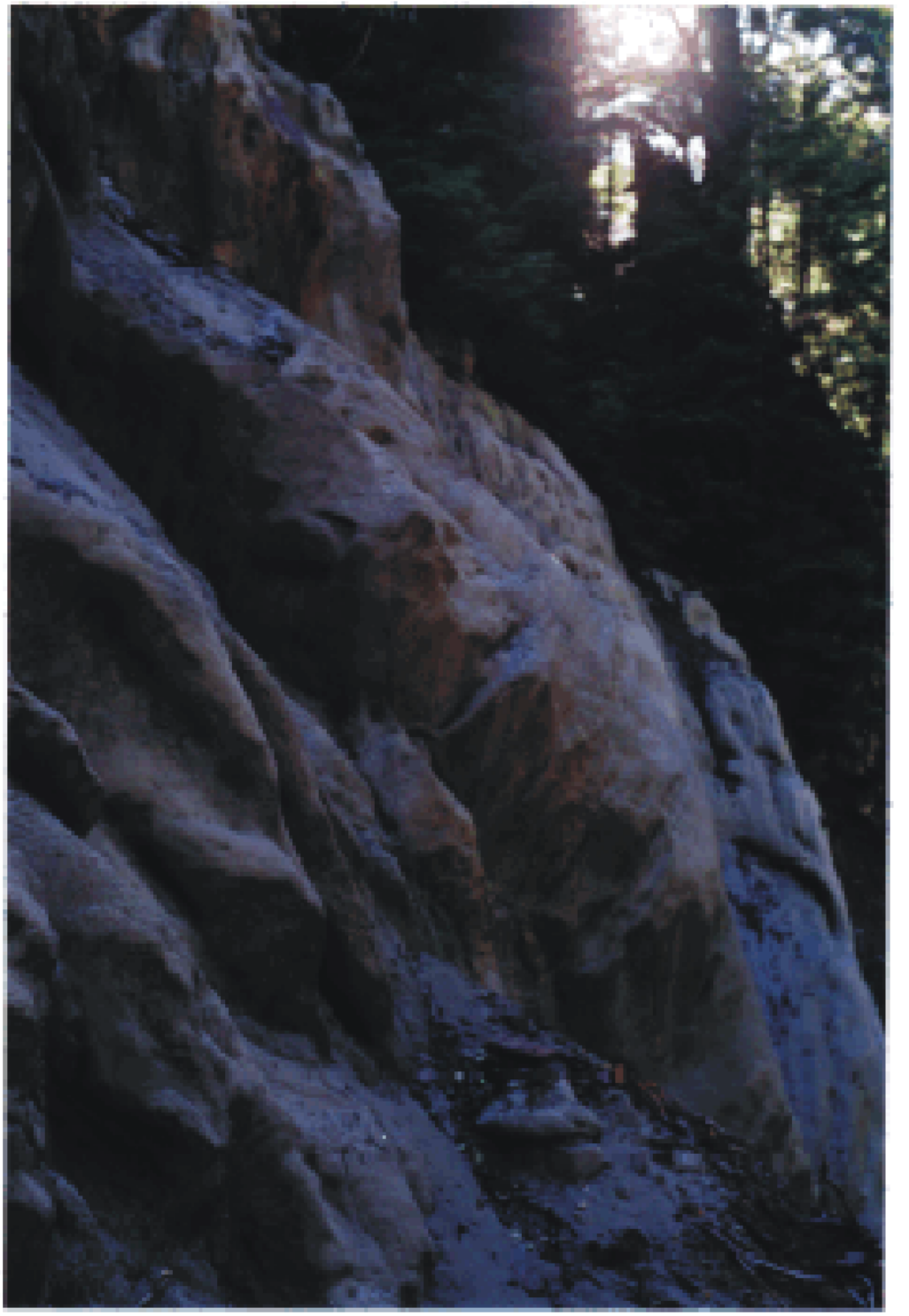


Photo 2 Red Gulch Creek - Massive sulphide exposure, North Lens, looking south

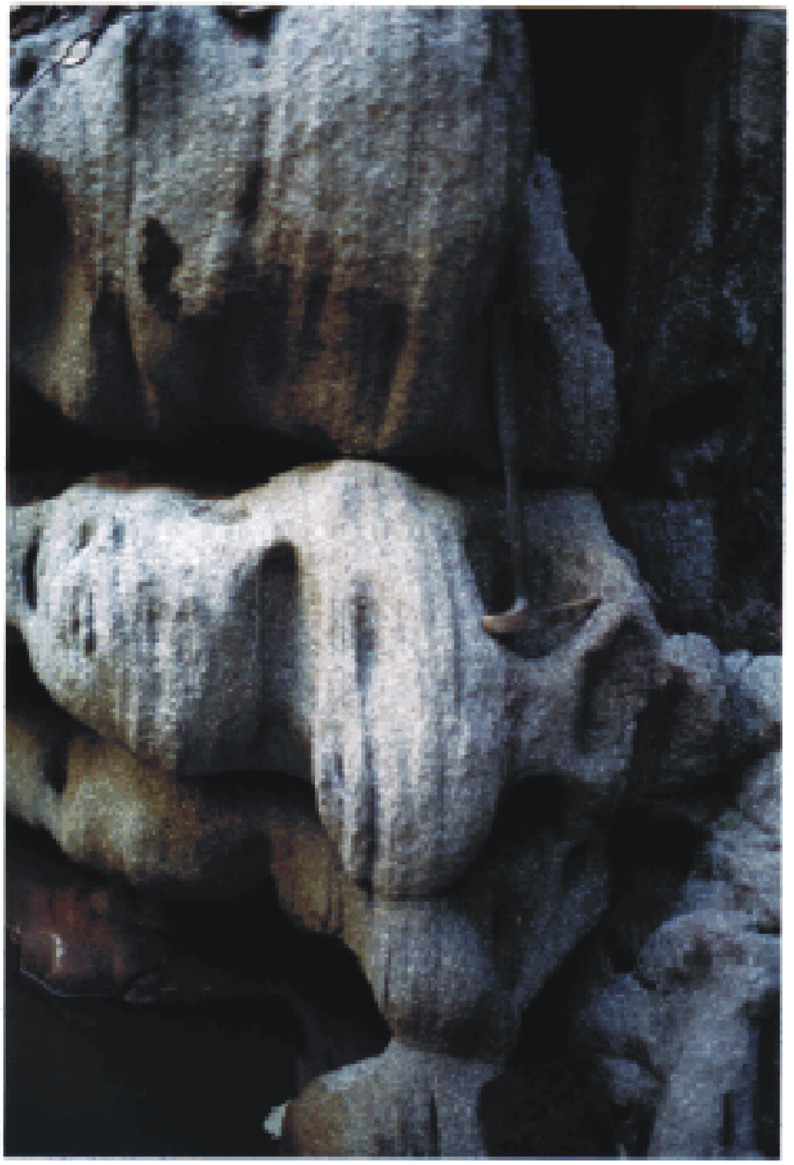


Photo 3 Red Gulch Creek - Crudely banded massive pyrite, South Lens

Photo 4 Red Gulch Creek - Quartz-Sericite folded inclusion in massive sulphide, North Lens

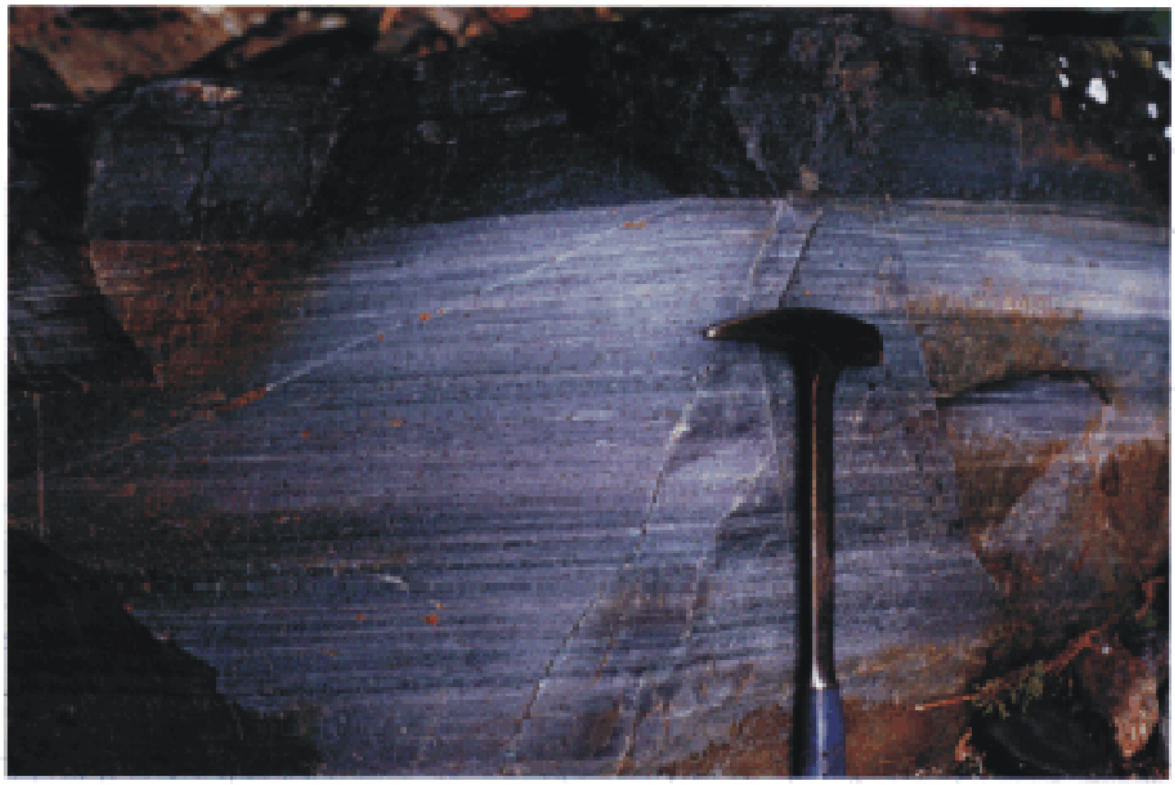


Photo 5 Red Gulch Creek - Quartz-muscovite biotite gness (Gqmb) (siliceous sediment?)

Photo 6 Red Gulch Creek - Hornblande-quartz-feldspar gneiss (Gqfp) (crystal lithic tuff?)

Lens has a keel or tongue shape with thickness and copper grade contours defining a steep south plunging axis. The limits of the zone at depth have been defined by diamond drilling.

The South Lens is exposed intermittently on the west side of the valley for a distance of 350 metres (Photo 3). Thickness ranges from approximately 3 to 5 metres. The zone pinches out to the north, about 120 metres from where the structurally overlying North Lens begins. The South Lens has been explored by diamond drilling from underground and surface. Its southern limit has not been defined and it remains open at depth. The zone's northern limit plunges steeply southward (Douglas 1953).

The pyritic quartz-muscovite schist unit (Sqm) was chip sampled to determine its background concentrations of base metals, barium and gold. The sampling of the unit was initiated after a boulder of this material with high concentrations of chalcopyrite (US-12) assayed 5.75% Cu, 0.43% Zn and 0.202 opt Au. Samples were taken from the hanging walls and footwalls of both lenses (see Fig. 4). Chalcopyrite mineralization was discovered in the hanging wall quartz-muscovite schist at the north end of the North Lens. The highest grade mineralization of this type returned 3.88% Cu, 60.6 ppm Ag and 790 ppb Au over 50 cm (US-48). The source of the high grade boulder assaying 0.202 opt Au is believed to be the hanging wall sericite schist zone.

A high copper assay of 23.3% Cu 1.65% Zn and 1420 ppb Au (Rx 223626) was obtained from a boulder in Red Gulch Creek during a previous examination of the property. Located at the south end of the main North Lens outcrop, this boulder is not typical of North Lens mineralization and consists primarily of chalcopyrite and pyrrhotite. Similar styles of mineralization were discovered in outcrop at locations where massive pyrite mineralization pinches-out abruptly. Samples US-13, 33, 57 and 58 are taken from this type of mineralization.

7.2 THIRTEEN CREEK GRID GEOLOGY

The geology of Thirteen Creek Grid was mapped at a scale of 1:2,000 (Fig. 5a, b, c). Detailed geology and sampling in three areas of Thirteen Creek grid is presented at a scale of 1:100 (Fig. 7) and 1:500 (Fig. 8, 9). The program focussed on an area of stockwork copper mineralization in felsic rocks previously outlined by Falconbridge.

This area of the property is underlain by Gareau's metavolcanic unit. Mapping of this unit indicated it could be sub-divided into 9 sub-units. Lithologies trend north to northwesterly and dip steeply to the east. Significant local variations in dip and strike were observed.

Three interbanded leucocratic, micaceous, quartzofeldspathic gneissic units and related schists form a 200 metre wide and 3,000 metre long, north-trending belt in the centre of the map area. These are: quartz-muscovite/sericite-kyanite schist (Sqmk), biotite quartzofeldspathic gneiss (Gb) and quartz-muscovite-biotite gneiss (Gqmb).

Quartz-muscovite/sericite-kyanite schist (Sqmk) is more abundant than the other leucocratic rocks. This unit has been traced for a length of 2,600 metres and average width of 100 to 150. The quartz-muscovite/ sericite-kyanite schist comprises pale grey to white weathering muscovite-kyanite quartzofeldspathic gneiss and schist. Resistant weathering outcrops and creek exposures give an impression that gneissic varieties of this unit are more common than schistose varieties. Kyanite-rich varieties contain coarse, pale grey to white kyanite which is resistant to weathering and gives the unit a distinctive appearance (Photo 7). Variations of the unit which lack megascopic kyanite crystals are designated Sqm. Kyanite-rich varieties predominate at the south end of the map area and gradually diminish northward. The kyanite is a distinguishing feature of this unit which makes it unlike the quartz-muscovite/sericite schist unit found adjacent to massive sulphides in Red Gulch Creek. Its strata-bound distribution may result from an aluminum-rich protolith or from alteration associated with mineralization.

Contacts between biotite-quartzofeldspathic gneiss (Gb), quartz-muscovite-biotite gneiss (Gqmb) and quartz-muscovite/sericite-kyanite schist (Sqmk) are gradational. Biotite quartzofeldspathic gneiss is the second most common leucocratic gneiss unit. It is a grey to medium grained gneiss, which grades to brown and pale green interbanded biotite and chlorite-bearing varieties. Disseminated biotite and chlorite are often associated with higher concentrations of copper mineralization, suggesting these minerals represent alteration associated with mineralization. The distribution of alteration is complex and no property scale patterns were recognized.

Quartz-muscovite-biotite gneiss (Gqmb) is least common among the leucocratic gneissic units. It is a fine grained granular, quartz dominant, micaceous quartzofeldspathic gneiss. It is characterized by low and variable concentration of muscovite, biotite and hornblende. Contacts

with Sqm and Gb are gradational. All three units, Sqmk, Gb and Gqmb commonly contain disseminated, fine grained sulphides in the range of 3 to 5%. Sulphides include pyrite, chalcopyrite and in some areas, bornite.

Argillite (Ar), Marble (Ma), and chlorite schist (Sc) are in contact with the eastern boundary of leucocratic rocks. Chlorite schist is a fine grained, pale olive-green schist which grades to a chlorite-biotite schist (Scb), having alternating medium brown biotite-rich layers. Both chlorite schist units are probably derived from a basic volcanic protolith.

Amphibolite (Ga) and orthogneiss unit (Gqf) are in contact with the leucocratic gneisses along the west side of the map area. The amphibolite is a mafic to intermediate metavolcanic unit (Gareau,1991) with dark green to black, coarse to fine grained, feldspar-rich and porphyroblastic varieties. The western contact is marked by intercalations of amphibolite in the gneissic units. The amphibolite also occurs as sill-like bodies within the leucocratic gneisses, suggesting an intrusive relationship between these units. These generally range from one to several metres in width and are too small to be included on 1:2,000 scale maps. Figure 7, the detailed geology at 1:100 scale of trenches T1 to T3, gives a more accurate representation of their distribution at the north end of the grid.

Quartzofeldspathic gneiss unit Gqf is a leucocratic biotite-quartzofeldspathic orthogneiss which was encountered at the southwest limits of mapping. This unit lies with Gareau's Big Falls orthogneiss and metavolcanic transitional zone.

Chlorite-quartz-pyrite schist (Scqp) is a distinctive, rare, pyritic, knotty chlorite schist. Its restricted occurrence to narrow linear zones in the southwest corner of the map area suggests that this unit might be a metamorphosed fault zone.

7.2.1 MINERALIZATION

Disseminated copper mineralization extends from the north end of Thirteen Creek Grid to the south branch of Elaine Creek, a distance of approximately 2,000 metres. The mineralization commonly consists of fine grained disseminated chalcopyrite and pyrite in concentrations of 3 to 5%. Higher concentration occur locally as narrow sulphide stringers, parallel to foliation (Photo 8). Minor bornite and malachite are present in some areas. Mineralization is hosted by the three previously described leucocratic quartzofeldspathic rock units . Coarse grained, gneissic varieties often resemble metaplutonic rocks.

Photo 7 Thirteen Creek Grid area - Well foliated quartz-sericite-kyanite schist (Sqmk)

Photo 8 Thirteen Creek Grid area - Chalcopyrite dissemination and stringers in felsic gneiss (Gb)

Photo 9 Ecstall Regional - Breccia showing stretching at fragments

There is a broad trend in mineralization from disseminated to vein hosted from north to south. South of Elaine Creek, copper mineralization feathers out and pyrite mineralization increases.

Vein-type mineralization parallels and cross-cuts foliation at low angles. Chalcopyrite, pyrite and occasional bornite occur in centimetre wide veins. Vein selvages of muscovite/sericite and quartz are common.

Early in the program it became apparent that the disseminated copper mineralization was wide spread. Continuous chip sampling was chosen to evaluate this mineralization. Samples were taken at 5 metre intervals across strike. Several chip sample lines (trenches) were along creeks which transect the area. In some cases mineralization was exposed by hand trenching.

Ninety-Eight samples, totalling 479.5 metres were taken in 16 "trench" areas. Analytical and assay results are tabulated in Table 1 and are presented on Fig. 6a, b, c (1:2,000). Detailed geology and analytical data are presented on Fig. 7 at 1:100 scale and 1:500 scale for Fig. 8 and 9.

The longest continuous chip sample is 154 metres in length along Central Branch Elaine Creek (Fig. 9). Significant copper grades over this distance include an average of 0.198% Cu over 124 metres. Within this interval, a 45 metre length averages 0.270% Cu.

The best assays among four sample lines along Phoebe Creek (Fig. 8) returned average grades of 0.271% Cu over 33 metres and 0.227% Cu over 42 metres, including 0.311% Cu over 15 metres. The highest grade chip sample "trench" T7 (Fig. 8), averaged 0.649% Cu over 7.5 metres, including 0.800% Cu over 5 metres. This sample line is located 150 metres north of Phoebe Creek.

At the north end of the grid, "trench" T3 (Fig. 7), 0.266% Cu was obtained over a 25 metre interval of a 37 m long sample line. Mapping in this area revealed that narrow, barren amphibolite "sills" have had a diluting effect on overall copper grades. Leaching of chalcopyrite and development of malachite was also observed to a depth of up to 1 cm. This suggests sampling results might be somewhat less than expected from "fresh" rock.

The "Sphalerite Showing" described by Falconbridge (Hassard, 1987) as a 4 cm by 2.2 m lens, was re-examined. A hand trench was located at 79+10N - 16+15E, where a few centimetre thick limonitic horizon parallels a chlorite schist, marble contact. Banded sphalerite mineralization was observed and a sample of this material (PK-36) returned 70,509 ppm Zn 121 ppm Cu and 93 ppm Pb. It is not clear whether mineralization is strata-bound or structurally controlled.

Table 1

Chip Sample Summary - Thirteen Creek Grid
(Distance weighted averages)
(Cu % in brackets are calculated from ppm)

Sample	Interval (m)	Distance (m)	Cu ppm	Cu %	Au ppb	Au opt
E94 T01	0 -5	5	1019	0.112		0.001
E94 T01	5-10	5	907	0.100		<0.001
E94 T01*	10-15	5	2215	0.244		0.001
E94 T01*	12-17	5	3013	0.330		0.001
	averages over 17m		1789	0.196		
*intervals overlap						
E94 T02	0-5	5	1017	0.106		0.001
E94 T03	0-5	5	2926	0.333*		0.002
E94 T03	5-10	5	1653	0.179*		0.001
E94 T03	10-15	5	2130	0.236*		0.001
E94 T03	15-20	5	3438	0.390*		0.003
E94 T03	20-25	5	1878	0.194*		0.001
E94 T03	25-30	5	524	0.058		0.001
E94 T03	30-37	7	1212	0.133		0.004
	averages over 37m		1925	0.213		
				*including 0.266% Cu/25m		
E94 T04	10-12W	2	3130	(0.313)	130	
E94 T04	5-10W	5	3763	(0.376)	140	
E94 T04	0-5W	5	2839	0.302		0.006
E94 T04	0-5	5	3576	0.376		0.004
E94 T04	5-10	5	2737	0.293		0.004
E94 T04	10-15	5	2500	0.271		0.003
E94 T04	15-20	5	1323	0.150		0.001
E94 T04	20-25	5	1839	0.188		0.003
E94 T04	25-30	5	1778	0.192		0.003
E94 T04	30-35	5	1195	0.127		0.003
	averages over 47m		2267	0.255		

Table 1 (Cont'd)

Sample	Interval (m)	Distance (m)	Cu ppm	Cu %	Au ppb	Au opt
E94 T05	40-45W	5	733	(0.073)	61	
E94 T05	35-40W	5	1219	(0.122)	110	
E94 T05	30-35W	5	1581	(0.158)	100	
E94 T05	20-25W	5	22	(0.002)	1	
E94 T05	15-20W	5	103	(0.010)	5	
E94 T05	10-15W	5	732	(0.073)	37	
E94 T05	5-10W	5	1024	(0.102)	25	
E94 T05	0-5W	5	1305	(0.131)	24	
E94 T05	0-5	5	841	0.091		<0.001
E94 T05	5-10	5	2132	0.231		0.002
E94 T05	10-15	5	3428	0.337		0.002
E94 T05	15-20	5	3225	0.337		0.002
E94 T05	20-24	4	2344	0.248		0.002
E94 T05	25-30	5	3163	0.347		0.005
E94 T05	30-35	5	2784	(0.278)	240	
E94 T05	35-38	3	2172	(0.217)	99	
	averages over	77m	1654	0.170		
E94 T06	0-5	5	1443	0.151		0.004
E94 T06	5-10	5	809	0.083		0.005
E94 T06	10-15	5	1676	0.170		0.006
E94 T06	15-20	5	3487	0.356		0.005
	averages over	20m	1854	0.190		
E94 T07	0-5	5	7709	0.800		0.006
E94 T07	5-7.5	2.5	4048	0.424		0.006
	averages over	7.5m	6489	0.675		0.006
E94 T08	0-5	5	3597	0.371		0.003
E94 T09	0-5	5	1103	0.114		0.002

Table 1 (Cont'd)

Sample	Interval (m)	Distance (m)	Cu ppm	Cu %	Au ppb	Au opt
E94 T10	0-2	5	1184	0.125		0.003
E94 T11	0-5	5	3460	0.353		0.008
E94 T12	0-5	5	324	(0.043)	5	
E94 T12	5-10	5	4157	(0.226)	62	
E94 T12	10-13	3	1607	(0.181)	19	
E94 T12	16-20	4	2168	(0.217)	53	
E94 T12	20-25	5	2332	(0.233)	40	
	averages over	22m	2162	0.216		
E94 T13	0-5	5	427	(0.042)	7	
E94 T13	5-10	5	2261	(0.226)	23	
E94 T13	10-15	5	1816	(0.182)	24	
	averages over	15m	1501	0.150		
E94 T14	30-35W	5	125	(0.013)	5	
E94 T14	25-30W	5	70	(0.007)	5	
E94 T14	20-25W	5	102	(0.010)	4	
E94 T14	15-20W	5	197	(0.020)	4	
E94 T14	10-15W	5	395	(0.040)	18	
E94 T14	5-10W	5	509	(0.051)	7	
E94 T14	0-5W	5	2438*	(0.244)	32	
E94 T14	0-5	5	2149*	(0.215)	25	
E94 T14	5-10	5	3867*	(0.387)	33	
E94 T14	10-15	5	3352*	(0.335)	47	
E94 T14	15-20	5	2405*	(0.241)	45	
E94 T14	20-25	5	2595*	(0.260)	79	
E94 T14	25-30	5	1056*	(0.106)	23	
E94 T14	30-35	5	1234*	(0.123)	23	
E94 T14	35-40	5	5224*	(0.522)	110	
E94 T14	40-45	5	1225	(0.123)	43	
E94 T14	45-50	5	654	(0.065)	10	

Table 1 (Cont'd)

Sample	Interval (m)	Distance (m)	Cu ppm	Cu %	Au ppb	Au opt
E94 T14	50-55	5	683	(0.068)	18	
E94 T14	55-60	5	972	(0.097)	29	
E94 T14	60-65	5	1154	(0.115)	22	
E94 T14	65-70	5	1133	(0.113)	30	
E94 T14	70-75	5	673	(0.067)	37	
E94 T14	75-80	5	1829	(0.183)	56	
E94 T14	80-85	5	2415	(0.242)	65	
E94 T14	85-90	5	4712	0.492	180	
E94 T14	90-95	5	2627	0.269	150	
E94 T14	95-100	5	1304	0.129	120	
E94 T14	100-105	5	1731	0.171	170	
E94 T14	105-110	5	1100	0.109	36	
E94 T14	110-115	5	1522	0.141	47	
E94 T14	115-119	4	1408	0.137	46	
	averages over 154m		1642	0.164		
including (from 5W to 119m) 1983ppm Cu 0.198%Cu/124 m						
*including (from 5W to 40m) 2700ppm Cu 0.270%Cu/45 m						
E94 T15	0-5	5	1229	0.123	100	
E94 T15	5-10	5	1507	0.145	74	
E94 T15	10-15	5	229	(0.023)	8	
E94 T15	15-20	5	91	(0.009)	4	
E94 T15	20-25	5	90	(0.009)	2	
	averages over 25m		629	0.063		
E94 T16	25-30	5	398	(0.040)	10	
E94 T16	30-35	5	308	(0.031)	25	
E94 T16	35-39	4	1213	(0.121)	76	
E94 T16	44-50	6	2142	(0.214)	48	
E94 T16	50-55	5	1842	(0.184)	62	
E94 T16	55-60	5	1021	(0.102)	58	
	averages over 30m		1185	0.119		

8. GEOCHEMISTRY, THIRTEEN CREEK

In preparation for soil sampling, mapping and rock sampling on Thirteen Creek grid, the program commenced with 3.4 km of line-cutting, consisting primarily of brushing out the existing base line and cutting access trails from the Ecstall River to the grid. This grid was established by Falconbridge in 1987. The previous survey included 838 soil samples taken at 20 or 40 metre sample intervals. Since most of the area was already covered by a soil geochemical survey, additional sampling was restricted to extending the survey to the north and to limited fill-in sampling.

Sample lines were established by slope corrected compass and "hip-chain" survey and were tied-in to the existing grid base lines. Lines are marked with flagging tape and grid stations are identified by grid coordinates, marked on "Tivek" tags. Existing base-lines were retagged.

In total, 72 samples were collected along 1,500 metres of line. Grid coordinates of the sample site were used as sample numbers, with the exception of contour soil samples which were assigned a unique sample number. Where possible, samples of B horizon soils were collected using sampling shovels. Typical sample depths ranged from 20 to 40 cm. Soil development is poor throughout the grid area. Steep slopes and frequent precipitation have limited soil development. Sample sites were often located in the vicinity of large boulders or tree trunks which trap the soil and prevent further erosion. At some sample sites, a one metre thick organic layer mixed with clay, silt and mica covers bedrock and talus boulders. A thin layer of grey mica-rich sandy clay can usually be found at the base of this organic horizon. This material was often the only mineral soil available for sampling.

Samples were analyzed by Acme Analytical Laboratories Ltd. of Vancouver. Soils were analyzed by a standard 30 element Inductively Coupled Argon Plasma (ICP) package with gold analyzed by acid leach/AA from a 10 g sample. Barium analyses were done on selected rock samples employing a Lithium Metaborate fusion/ICP analysis. Certificates of analyses are appended to this report.

Soil and rock sample locations are plotted on Fig. 6a, b, c. Analytical results for Cu and Au in soils are presented on Fig. 10 at a scale of 1:2,000. The 72 soil samples are a small population for determining anomalous and background values. Falconbridge geologists determined that copper concentrations of greater than 300 ppm and gold concentrations of greater than 50 ppb in B horizon soils are anomalous. These values were adopted in the presentation of the data on Fig. 10.

Analytical results range from 1 ppm to 6548 ppm for Cu, with an average value of 418 ppm. Gold analyses range from 1 to 230 ppb Au, with an average of 37 ppb.

The anomalous Cu and Au sites parallel and are down slope from known areas of mineralization.

9. CONCLUSIONS

Geological mapping, prospecting, systematic chip sampling, and limited soil sampling in Thirteen Creek grid area have outlined disseminated and vein copper mineralization over an extensive area underlain by leucocratic micaceous gneisses and schists. In many areas these gneisses have a metaplutonic appearance. Average copper grades in the 0.2 to 0.3% range have been demonstrated by chip sampling over widths of up to 124 metres. The copper mineralization is accompanied by anomalous geochemical concentrations of Au, moderate to low concentrations of Zn and low Pb concentrations. Results from the 1994 program suggest the potential for outlining a large near surface body of disseminated copper mineralization.

In Red Gulch Creek area, mapping in the vicinity of the Ecstall massive sulphide deposit indicates similarities between lithologies underlying the South Lens with those overlying the North Lens, suggesting the two lenses lie in opposite limbs of a tightly folded overturned, steeply east dipping antiform. The lenses may have originally been deposited along the same stratigraphic horizon and may be the eroded remnants of one sulphide deposit.

The massive sulphide lenses are enveloped by a quartz-sericite schist which may be the hydrothermal alteration product of siliceous sediments. This unit also hosts copper mineralization adjacent to the North Lens and has the potential to host economic gold mineralization, based on an assay of float which contained 5.75% Cu, 0.43% Zn and 0.202 opt Au.

10. REFERENCES

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Hassard, F.R.,Pattison J., Uher, L. (1987a):Geological, Geophysical and Geochemical Surveys and Diamond Drilling, Ecstall Project, Falconbridge Limited.

Hassard, F.R., Manojlovic, P.M.;Fournier, J.D.(1987b):Geological, Geophysical and Geochemical Surveys, Ecstall Project, Falconbridge Limited.

11. STATEMENT OF EXPENDITURE

EXPENSES
1/6/94 Through 27/2/95

Geochemistry :		
Analysis	$ 7,363.80	
Wages	19,349.22	
Related Costs	1,275.30	
Total Geochemistry		$ 27,988.32
Geology :		
Equipment Rental	18,025.00	
Helicopters	36,956.53	
Professional Fees* (Wages)	108,661.32	
Related Costs	13,730.76	
Total Geology		177,373.61
Others :		
Courier & Freight	773.70	
Drafting	3,668.11	
Expediting	474.18	
Meals & Groceries	3,861.30	
Office Services	2,126.25	
Maps & Publications	614.94	
Printing & Reproductions	1,217.56	
Supplies (Camp, etc.)	3,271.32	
Telephone & Communication	648.62	
Total Others		16,655.98
TOTAL EXPENSES		$ 222,017.91

Appendix A

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Uwe Schmidt, of 656 Foresthill Place, Port Moody, B.C. do hereby declare:

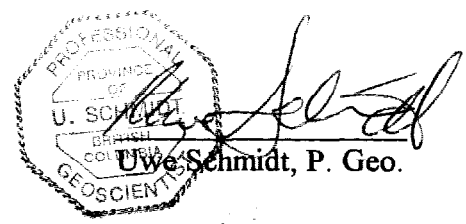
(1) I am a consulting geologist and controlling shareholder of Northwest Geological Consulting Ltd.

(2) I am a 1971 graduate of the University of British Columbia with a B.Sc. degree in Geology.

(3) I am a member of The Association of Professional Engineers and Geoscientists of British Columbia and a Fellow of the Geological Association of Canada.

(4) I have practised my profession continuously since graduation.

(5) This report is based on work carried out by me and other geologists under my supervision.



February 27, 1995
Vancouver, B.C.

Uwe Schmidt, P. Geo.

Appendix B

CERTIFICATIONS OF ANALYSIS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3793

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	Ba* ppm
PK-E-94-42	4	367	7	25	.3	22	19	90	3.21	<2	<5	<2	6	1	<.2	3	3	8	.02	.024	2	13	.30	41	<.01	3	.48	.01	.14	1	3	899
PK-E-94-43	2	143	41	210	<.1	17	17	557	5.17	11	<5	<2	<2	3	.5	<2	<2	179	.08	.030	<2	22	2.86	130	.17	5	2.56	.02	.34	<1	3	921
PK-E-94-44	11	92	9	169	.1	127	32	246	4.45	16	<5	<2	3	15	2.7	<2	<2	115	1.07	.123	5	82	3.21	79	.25	3	2.38	.01	.22	<1	1	1516
US-E-94-49	2	785	100	2817	1.3	42	54	535	13.18	50	<5	<2	<2	3	12.3	<2	2	58	.29	.044	<2	31	1.36	7	.19	<2	1.27	.01	.32	<1	22	1133
US-E-94-50	2	347	19	52	3.5	298	24	184	16.26	13	<5	<2	<2	29	<.2	<2	<2	427	1.99	.650	11	184	.63	11	<.01	<2	.58	.01	.05	2	28	86
US-E-94-51	5	444	78	469	2.4	236	44	91	13.23	6	<5	<2	<2	14	16.7	<2	<2	260	1.03	.372	13	128	.51	7	.04	<2	.51	.01	.11	<1	10	1022
US-E-94-52	<1	4778	4585	65218	43.8	21	25	205	15.92	1024	<5	<2	<2	5	315.1	147	25	15	.01	<.001	<2	4	<.01	7	<.01	<2	.02	<.01	.01	<1	660	150682
US-E-94-53	<1	7028	751	9580	42.1	11	61	6	17.39	434	<5	<2	<2	5	43.0	50	7	33	.02	.001	<2	6	<.01	4	.01	<2	<.01	<.01	.01	<1	910	54572
US-E-94-54	<1	16332	139	4813	19.2	13	163	<2	17.56	91	<5	<2	<2	5	24.4	15	61	14	.01	<.001	<2	1	<.01	5	<.01	<2	<.01	<.01	.01	<1	870	16407
US-E-94-55	<1	17480	322	3965	27.3	14	194	<2	19.10	262	<5	<2	<2	4	20.1	41	71	21	.01	<.001	<2	3	<.01	4	<.01	<2	<.01	<.01	.01	<1	760	18247
US-E-94-56	2	2838	47	46187	7.5	31	38	52	16.69	105	<5	<2	<2	5	253.7	2	<2	3	<.01	<.001	<2	4	<.01	5	<.01	<2	<.01	<.01	.01	<1	390	99920
RE US-E-94-56	<1	2904	44	46733	7.9	31	39	53	17.00	113	<5	<2	<2	5	257.4	2	<2	3	<.01	<.001	<2	3	<.01	4	<.01	<2	<.01	<.01	.01	<1	400	104428
US-E-94-57	2	99999	191	18340	206.2	39	65	241	20.27	37	<5	<2	<2	3	104.9	<2	<2	42	.13	.019	<2	14	.67	3	.06	<2	.68	.03	.38	<1	6140	3425
US-E-94-58	<1	14216	513	7483	70.4	18	105	56	19.28	86	<5	<2	<2	3	39.7	2	75	28	.17	<.001	<2	<1	.07	3	.01	<2	.08	.01	.03	<1	380	1489
STANDARD C/AU-R	20	59	43	139	7.3	73	33	1078	4.16	44	13	7	38	51	19.3	14	18	61	.50	.093	41	60	.95	186	.09	34	1.97	.07	.16	13	520	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.
BA* .2 GM SAMPLE FUSED WITH 1.2 GM LIBO2, ANALYSIS BY ICP. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 20 1994 DATE REPORT MAILED: Oct 27/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

- Assay for Cu > 10000ppm in progress

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT LESTALL File # 94-3684 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	Ba* ppm
US-E-94-47	1	30582	29	1348	45.1	19	175	34	18.18	137	<5	<2	2	1	13.0	3	14	2	.01	.015	<2	6	.06	3	.01	<2	.18	.01	.07	<1	1390	-
US-E-94-48	2	38797	54	1605	60.6	21	247	25	18.44	148	<5	<2	2	1	17.2	2	14	<2	.01	.018	<2	5	.02	2	.01	<2	.11	.01	.06	<1	790	-
STANDARD C/AU-R	19	63	38	126	7.0	73	32	1059	3.96	41	16	7	35	51	18.4	15	17	61	.49	.093	40	60	.93	182	.08	34	1.88	.06	.15	11	505	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.
BA* .2 GM SAMPLE FUSED WITH 1.2 GM LIBO2, ANALYSIS BY ICP. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 13 1994 DATE REPORT MAILED: Oct 24/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3634

900 - 409 Granville Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
US-E-94-42	4	15583	63	519	38.6	11	54	53	11.64	92	<5	<2	4	6	.9	<2	24	5	.05	<.001	<2	6	.17	9	.01	5	.34	.08	.14	<1	320
US-E-94-43	1	164	297	514	1.0	91	31	480	5.30	23	<5	<2	<2	2	1.0	<2	3	35	.12	.033	<2	107	2.86	26	.05	2	1.75	.01	.11	<1	21
US-E-94-44	2	48	29	194	<.1	3	5	662	3.27	2	<5	<2	4	3	<.2	<2	<2	11	.07	.019	2	3	2.92	66	.02	<2	2.26	.03	.18	<1	5
US-E-94-45	2	4635	60	247	14.2	9	77	44	13.22	377	<5	<2	4	4	<.2	16	25	7	.03	<.001	<2	11	.16	6	.01	2	.28	.02	.15	2	390
US-E-94-46	3	6027	497	54855	49.3	33	2	72	13.20	510	<5	<2	3	2	232.7	97	23	6	.01	<.001	<2	<1	.05	36	<.01	4	.01	<.01	<.01	<1	380
RE US-E-94-46	3	6062	513	55374	49.8	34	2	72	13.45	516	<5	<2	3	2	234.3	96	20	5	.01	<.001	<2	<1	.05	32	<.01	2	.01	<.01	<.01	<1	430
PK-E-94-040	1	10858	12	132	7.5	49	127	352	12.76	2	<5	<2	3	6	<.2	<2	13	69	.39	<.001	<2	19	2.17	17	.10	<2	2.29	.09	.39	1	120
PK-E-94-041	3	149	6	112	.1	47	11	285	3.56	<2	<5	<2	7	2	.3	<2	2	48	.27	.082	9	33	1.81	160	.14	2	1.68	.02	1.15	<1	8
STANDARD C/AU-R	19	61	41	130	6.6	72	33	1054	3.96	44	13	7	38	53	16.7	14	19	61	.49	.092	40	61	.93	183	.08	32	1.88	.06	.16	11	480

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 11 1994 DATE REPORT MAILED: Oct 17/94. SIGNED BY C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3684R

SAMPLE#	Ba* ppm
US-E-94-47	1353
US-E-94-48	1369

- SAMPLE TYPE: ROCK PULP BA* .1 GM SAMPLES FUSED WITH .6 GM LIBO2 DISSOLVED IN HNO3 ANALYSED BY ICP.

DATE RECEIVED: NOV 1 1994 DATE REPORT MAILED: Nov 10/94 SIGNED BY C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ASSAY CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3489R

SAMPLE#	Cu %
US-E-94-22	.133
US-E-94-33	10.429

1 GM SAMPLE LEACHED IN 75 ML AQUA - REGIA, DILUTE TO 250 ML, ANALYSIS BY ICP.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 14 1994 DATE REPORT MAILED: Oct 19/94. SIGNED BY. C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD.

G. CHEMICAL ANALYSIS CERTIFIC E

Atna Resources Ltd. PROJECT E TALL File # 94-3489 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
US-E-94-22	1	1236	174	180	17.5	18	52	36	13.90	139	6	<2	<2	2	1.4	19	2	2	.02	.004	<2	2	.07	7	.01	<2	.20	.01	.09	1	620
US-E-94-23	1	843	28	130	23.9	11	86	24	14.20	190	<5	<2	<2	1	1.5	8	13	2	.02	.003	<2	2	.04	6	.02	<2	.16	.01	.10	<1	730
US-E-94-24	<1	45	8	48	1.1	8	36	80	13.24	134	<5	<2	<2	1	<.2	2	<2	4	.02	.006	<2	2	.47	12	.02	<2	.50	.01	.09	1	35
US-E-94-25	4	175	4	256	3.3	26	18	693	11.22	75	<5	<2	<2	1	.5	<2	3	51	.02	.007	<2	48	4.57	20	.02	<2	3.81	.01	.08	<1	150
US-E-94-26	3	121	48	120	2.7	3	4	279	4.36	43	<5	<2	<2	14	.4	6	<2	11	.11	.026	<2	2	.73	47	.05	2	1.48	.03	.16	<1	37
US-E-94-27	2	97	93	88	2.4	11	17	252	5.79	33	<5	<2	<2	2	.3	11	2	45	.05	.006	<2	11	2.56	11	.03	<2	2.04	.01	.09	<1	88
US-E-94-28	2	203	241	187	4.2	33	21	801	5.62	104	<5	<2	<2	5	.8	7	6	66	.14	.017	<2	19	2.59	21	.15	<2	2.36	.02	.63	2	110
US-E-94-29	1	112	24	28	.9	13	18	141	7.82	39	<5	<2	<2	1	.5	5	4	11	.05	.016	<2	5	.66	12	.02	<2	.73	.01	.17	1	28
US-E-94-30	2	307	22	387	.7	16	27	165	9.04	107	<5	<2	<2	1	2.8	5	4	10	.05	.022	<2	8	.66	13	.01	<2	.71	.01	.13	<1	24
US-E-94-31	2	15	19	22	.4	5	2	22	2.99	57	<5	<2	<2	1	<.2	<2	<2	4	<.01	.002	<2	4	.04	20	<.01	2	.24	.01	.14	<1	22
US-E-94-32	1	272	24	198	1.3	9	18	630	9.96	70	<5	<2	<2	1	.4	5	2	22	.04	.015	<2	8	2.15	17	.03	<2	1.61	<.01	.10	<1	46
US-E-94-33	2	81248	10	5089	185.2	124	95	227	28.22	33	<5	4	<2	4	35.7	14	40	11	.47	.037	<2	4	.12	10	.01	<2	.23	<.01	.03	<1	3660
US-E-94-34	7	325	538	175	11.9	10	5	347	7.13	62	<5	<2	<2	1	1.3	9	4	26	.04	.014	<2	11	1.02	12	.06	<2	.89	.02	.36	<1	100
RE US-E-94-34	7	318	531	165	11.3	10	5	340	7.08	61	<5	<2	<2	1	1.0	8	<2	26	.04	.014	<2	11	1.01	13	.06	<2	.88	.02	.35	<1	120
US-E-94-35	3	131	4	217	.5	274	44	366	5.80	2	<5	<2	<2	3	.3	<2	<2	222	.19	.034	<2	317	4.17	68	.13	<2	3.51	.02	.15	<1	4
US-E-94-36	3	367	15	284	.9	6	13	212	8.44	19	<5	<2	<2	1	2.3	4	<2	17	.05	.023	<2	5	1.10	9	.02	<2	1.14	.01	.18	<1	29
US-E-94-37	2	231	52	2324	.6	25	16	474	5.60	10	<5	<2	<2	4	11.4	2	<2	75	.23	.040	<2	26	1.98	21	.07	<2	1.89	.03	.54	<1	9
US-E-94-38	2	136	16	42	.7	4	5	157	6.52	14	<5	<2	2	1	.4	2	<2	7	.02	.024	2	5	1.17	35	.01	<2	1.15	.01	.12	1	10
US-E-94-39	5	51	50	225	1.0	8	5	93	5.91	63	<5	<2	<2	16	1.1	5	<2	5	.11	.007	2	4	.32	9	.02	<2	.63	.04	.12	<1	19
US-E-94-40	96	215	324	52	12.1	44	2	22	2.42	190	<5	<2	<2	11	1.2	7	<2	217	.08	.013	2	12	.05	29	.12	2	.49	.01	.11	14	270
US-E-94-41	14	27	43	11	2.8	2	1	23	4.01	130	<5	<2	<2	5	.2	3	2	3	.01	.010	<2	2	.04	29	.01	2	.19	.02	.17	<1	67
STANDARD C/AU-R	18	61	37	126	6.8	74	30	1021	3.96	42	14	7	34	49	16.8	15	18	60	.49	.089	41	55	.89	190	.08	33	1.88	.07	.15	10	480

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 3 1994 DATE REPORT MAILED: Oct 11/94 SIGNED BY.....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Cu %	Zn %	Au** oz/t
US-E-94-12	2	59551	69	3410	70.6	29	287	33	20.19	300	<5	4	2	2	26.9	14	34	<2	.03	.017	<2	6	.02	2	.01	<2	.11	.01	.06	<1	5.750	.43	.202

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
BL-E-94-8	1	1837	9	26	.5	4	7	413	1.76	<2	<5	<2	3	5	.2	2	<2	28	.12	.015	<2	5	1.42	84	.02	3	1.55	.04	.21	5	86
BL-E-94-9	10	2933	14	44	.6	4	4	114	1.17	<2	<5	<2	5	2	.6	3	<2	11	.03	.003	7	3	.45	133	.05	3	.76	.03	.38	1	47
BL-E-94-10	2	1635	9	71	.6	5	12	321	2.63	<2	<5	<2	5	4	<.2	<2	2	25	.11	.029	9	6	1.99	25	<.01	3	2.25	.05	.15	1	95
BL-E-94-11	1	5601	3	<1	1.0	7	1	205	1.30	<2	<5	<2	4	9	<.2	2	3	24	.20	.054	4	8	.47	60	.01	<2	.85	.04	.16	1	260
BL-E-94-12	1	6128	8	14	.6	6	8	122	2.81	<2	<5	<2	4	3	<.2	4	2	14	.16	.035	5	3	.78	32	.04	<2	1.08	.04	.12	<1	94
BL-E-94-13	1	148	6	77	.3	1	8	395	5.37	<2	<5	<2	3	2	<.2	<2	<2	9	.10	.036	3	4	1.26	40	.02	<2	1.92	.04	.12	<1	7
US-E-94-13	22	13745	1160	2656	54.5	93	<1	364	18.22	20	8	<2	2	4	10.4	2	19	11	.56	.018	<2	3	.47	44	.05	<2	1.77	.01	.04	<1	280
US-E-94-14	4	952	48	816	3.1	7	6	31	8.32	127	<5	<2	2	4	2.5	3	<2	3	.09	.025	<2	2	.06	8	.01	<2	.42	.03	.21	<1	43
US-E-94-15	1	65	157	347	.6	7	8	24	5.95	52	<5	<2	<2	2	.5	2	<2	4	.03	.005	<2	4	.08	14	.03	<2	.40	.01	.21	<1	11
US-E-94-15A	3	214	328	682	1.5	5	5	40	5.66	47	<5	<2	<2	2	1.6	4	<2	3	.03	.003	<2	4	.09	16	.02	4	.41	.01	.21	<1	15
US-E-94-16	5	1955	24	266	1.3	45	10	188	3.73	9	<5	<2	<2	5	2.7	2	<2	43	.41	.046	<2	4	.87	24	.30	<2	1.10	.01	.34	<1	10
US-E-94-16A	4	2074	15	349	1.4	57	9	185	4.60	4	<5	<2	<2	5	3.6	<2	<2	46	.44	.050	<2	4	.85	20	.29	2	1.14	.02	.34	<1	26
US-E-94-17	2	47	10	86	.4	31	14	622	9.96	32	<5	<2	2	2	<.2	<2	3	121	.06	.018	<2	36	4.98	16	.02	<2	4.74	<.01	.04	<1	23
US-E-94-17A	1	27	3	49	.3	35	20	612	13.00	57	<5	<2	2	1	<.2	<2	5	126	.06	.019	<2	33	5.12	10	.02	<2	4.85	<.01	.03	1	33
US-E-94-18	2	76	9	34	.6	10	21	103	9.24	86	<5	<2	2	1	<.2	3	<2	8	.05	.011	<2	6	.59	10	.01	<2	.74	.01	.24	2	15
US-E-94-19	2	578	10	31	1.0	14	22	163	7.70	56	<5	<2	2	3	<.2	2	3	14	.05	.017	<2	8	.95	13	.03	7	1.19	.01	.32	1	46
US-E-94-20	1	346	18	12	.8	21	13	21	5.80	56	<5	<2	2	2	<.2	4	<2	7	.02	.002	<2	4	.08	8	.02	<2	.38	.01	.21	<1	42
US-E-94-21	1	26	12	44	1.5	7	18	40	11.11	131	<5	<2	2	1	<.2	7	4	4	<.01	<.001	<2	5	.17	8	.01	3	.46	.01	.26	2	50
PK-E-94-019	2	8970	<2	17	3.8	20	1065	86	18.33	<2	<5	<2	2	2	<.2	<2	3	21	.03	<.001	<2	4	.58	4	.06	<2	.78	.02	.34	1	34
PK-E-94-020	4	56	14	19	.3	6	4	76	2.51	<2	<5	<2	3	5	<.2	2	<2	17	.09	.042	4	6	.27	58	.04	2	.43	.05	.14	<1	3
PK-E-94-021	4	1642	112	2528	2.7	28	12	370	4.89	<2	<5	<2	2	7	13.2	<2	<2	36	.57	.015	<2	14	.80	28	.02	4	1.01	.02	.50	<1	3
PK-E-94-022	3	161	2	71	.4	26	29	235	5.39	<2	<5	<2	<2	4	<.2	<2	<2	226	.27	.036	<2	15	2.02	20	.16	<2	1.72	.05	.58	<1	5
PK-E-94-023	10	1174	37	2708	4.7	115	81	107	16.66	<2	9	<2	2	2	46.4	<2	10	36	.11	.008	<2	5	.49	10	.01	<2	.87	.01	.47	<1	10
RE PK-E-94-023	10	1181	39	2683	4.8	110	80	109	16.99	<2	8	<2	2	2	44.9	<2	6	35	.11	.008	<2	6	.47	10	.01	3	.86	.01	.46	<1	10
PK-E-94-024	12	15068	6	<1	5.2	7	9	124	4.88	18	<5	<2	4	8	.6	2	22	26	.14	.060	5	4	1.01	32	.01	2	1.39	.05	.27	<1	490
PK-E-94-025	16	8293	4	126	2.9	5	24	87	1.80	5	<5	<2	3	9	.9	<2	7	13	.34	.125	24	3	.33	27	<.01	3	.87	.06	.22	<1	150
PK-E-94-026	4	2808	7	148	.6	3	10	147	6.41	3	<5	<2	4	5	.5	<2	2	12	.14	.055	5	3	.88	18	.01	2	1.28	.03	.18	<1	47
PK-E-94-027	5	10058	4	224	3.8	5	63	208	4.98	3	<5	<2	4	4	1.6	2	10	22	.07	.023	2	5	1.00	38	.06	4	1.42	.03	.58	<1	130
PK-E-94-028	95	37440	6	2528	16.6	18	80	355	8.61	<2	<5	<2	<2	11	22.3	<2	<2	66	.38	.030	6	22	2.60	16	.01	<2	3.26	.04	.10	<1	370
PK-E-94-029	4	470	<2	50	.1	<1	41	147	6.34	7	<5	<2	8	4	.2	2	2	5	.06	.018	2	2	.81	28	.01	5	1.15	.03	.18	1	16
PK-E-94-030	2	209	<2	52	.6	5	5	394	10.90	<2	<5	<2	2	20	<.2	<2	<2	57	.36	.023	2	8	.67	160	.18	<2	1.06	.04	.15	2	22
PK-E-94-031	10	20970	11	5886	11.7	19	456	321	10.58	31	<5	<2	2	2	33.2	<2	21	33	.15	.041	13	13	1.26	19	.02	3	2.22	.02	.14	<1	3520
PK-E-94-032	21	19722	2	1333	5.8	11	88	140	4.48	7	<5	<2	3	6	5.9	<2	16	16	.13	.046	6	2	1.06	24	<.01	3	1.50	.07	.09	<1	400
STANDARD C/AU-R	18	58	37	128	6.9	66	30	1045	3.96	42	19	6	34	50	17.3	14	21	60	.49	.091	40	58	.91	191	.08	33	1.88	.06	.15	10	450

Sample type: ROCK. Samples beginning 'RE' are duplicate samples.

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604) 253-3158 FAX(604) 253-1716

WHOLE ROCK ICP ANALYSIS

Atna Resources Ltd. PROJECT ECSTALL File # 94-3794R

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Ba ppm
PD-94-E-203	843
PD-94-E-206	191939
PD-94-E-207	2909
PD-94-E-208	187
PD-94-E-210	2193
PD-94-E-211	262

.200 GRAM SAMPLES ARE FUSED WITH 1.2 GRAM OF LIBO2 AND ARE DISSOLVED IN 100 MLS 5% HNO3. Ba IS SUM AS BaSO4 AND OTHER METALS ARE SUM AS OXIDES.
- SAMPLE TYPE: ROCK PULP

DATE RECEIVED: NOV 15 1994 DATE REPORT MAILED: Nov 29/94 SIGNED BY. D. Toye

D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

AA LL

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-2948

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
PK-E-94-010	6	8452	8	163	7.0	9	83	169	3.60	4	<5	<2	<2	8	.2	<2	7	25	.17	.027	6	9	.78	32	.05	<2	1.10	.04	.42	<1	390
RE PK-E-94-010	7	8488	12	167	7.2	9	83	173	3.62	3	<5	<2	2	8	.3	<2	<2	25	.17	.025	7	8	.80	33	.05	<2	1.12	.04	.44	3	530
PK-E-94-011	2	28750	22	230	60.8	8	17	58	4.25	<2	<5	19	3	23	1.6	<2	483	11	.42	.013	2	8	.19	15	.01	<2	.97	.10	.14	<1	9840
PK-E-94-012	20	6452	<2	44	2.5	8	10	177	2.24	<2	<5	<2	<2	5	<.2	<2	6	24	.12	<.001	<2	5	1.17	14	.01	2	1.37	.04	.12	<1	600
PK-E-94-013	2	5479	13	241	3.0	7	3	147	1.50	2	6	<2	3	2	1.1	2	3	9	.13	.034	2	3	.56	26	.05	<2	.78	.02	.40	<1	390
PK-E-94-014	1	5521	<2	70	2.6	6	6	290	2.84	2	<5	<2	<2	3	<.2	<2	3	88	.10	.026	<2	7	2.09	61	.07	<2	1.78	.04	.71	2	830
PK-E-94-015	3	8086	<2	34	2.0	8	8	381	2.28	<2	<5	<2	2	2	<.2	2	<2	113	.12	.026	<2	6	2.94	152	.10	<2	2.07	.05	1.40	1	850
PK-E-94-016	3	2831	2	33	1.7	6	2	163	.87	<2	5	<2	4	1	<.2	4	4	10	.06	.020	<2	5	.63	45	.03	2	.73	.03	.36	2	240
BL-E-94-001	5	3621	3	12	1.5	6	2	89	.66	<2	<5	<2	3	1	<.2	3	2	7	.07	.021	<2	6	.35	49	.03	2	.50	.03	.26	1	380
BL-E-94-002	23	1924	<2	22	1.7	8	4	162	1.31	3	<5	<2	<2	6	<.2	<2	4	32	.24	.030	<2	7	1.20	117	.13	2	1.42	.06	.95	<1	460
BL-E-94-003	1	5286	<2	34	.9	8	12	334	2.61	6	<5	<2	<2	3	<.2	<2	2	93	.29	.031	<2	5	2.69	83	.07	2	1.87	.04	.63	1	180
BL-E-94-004	6	909	<2	22	.5	6	3	145	.92	2	5	<2	<2	3	<.2	5	2	37	.16	.024	<2	5	1.86	50	.04	2	1.28	.04	.32	2	180
BL-E-94-005	3	2072	9	25	1.5	7	5	129	1.80	2	<5	<2	3	3	<.2	<2	2	13	.07	.015	6	6	.41	84	.07	2	.68	.04	.32	2	98
STANDARD C/AU-R	21	58	43	129	7.3	75	32	1056	3.96	42	13	5	39	51	16.6	15	21	62	.50	.094	40	60	.94	184	.08	34	1.88	.06	.17	13	530

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > .1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 1 1994 DATE REPORT MAILED: Sept 7/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-2846

900 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Paul Kallock

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
PK-E-94-006	2	2294	2	52	1.1	8	12	120	3.09	4	<5	<2	3	3	.5	4	2	31	.05	.009	3	7	.97	48	<.01	<2	1.26	.05	.11	4	140
PK-E-94-007	6	15565	4	144	8.3	10	92	136	8.74	22	<5	<2	4	3	.3	8	2	12	.04	<.001	5	10	.28	20	.02	<2	.59	.03	.14	2	220
PK-E-94-008	2	14188	5	270	18.2	6	15	143	4.35	3	<5	<2	3	3	7.7	6	44	9	.04	<.001	3	6	.11	15	.02	<2	.41	.05	.03	<1	220
PK-E-94-009	1	230	3	36	.2	9	12	416	4.67	3	<5	<2	<2	33	<.2	<2	4	71	1.37	.153	<2	7	1.02	35	.11	3	1.99	.05	.11	3	9
PD-E-94-120	2	1879	25	514	2.3	22	36	760	13.40	31	<5	<2	5	3	1.3	<2	2	63	.04	.017	2	26	3.49	22	.02	<2	3.30	.01	.06	<1	66
PD-E-94-127	2	101	10	90	.8	31	6	742	20.31	4	<5	<2	6	17	<.2	<2	7	163	.25	.088	4	24	.52	608	.11	<2	1.18	.05	.63	<1	100
PD-E-94-128	1	89	10	95	.3	79	13	1102	6.07	4	<5	<2	2	14	<.2	3	5	163	.32	.034	5	27	1.09	670	.11	<2	2.08	.05	.81	<1	43
PD-E-94-129	2	164	10	72	.8	127	13	2444	6.38	<2	<5	<2	2	6	<.2	4	4	163	.04	.012	6	20	.35	1204	.09	<2	.82	.02	.48	<1	80
PD-E-94-130	2	175	<2	95	.1	37	27	288	6.07	3	<5	<2	<2	4	<.2	<2	3	210	.21	.123	<2	41	5.13	213	.10	<2	4.62	.02	.13	<1	4
PD-E-94-131	1	86	7	96	<.1	90	38	344	6.32	3	<5	<2	<2	3	<.2	4	5	258	.18	.031	<2	213	3.78	86	.15	<2	3.00	.04	.33	<1	3
PD-E-94-132	6	231	4	35	<.1	21	15	301	5.94	498	<5	<2	2	12	<.2	3	7	12	.43	.138	4	13	1.21	84	.08	<2	1.72	.10	.38	3	91
PD-E-94-133	2	54	<2	38	<.1	14	15	267	6.80	10	<5	<2	2	2	<.2	6	4	24	.11	.038	<2	13	1.66	44	.03	<2	1.87	.02	.39	3	20
PD-E-94-134	2	585	8	31	<.1	15	10	265	3.43	5	<5	<2	2	6	<.2	5	3	26	.21	.050	2	7	2.05	98	.05	2	2.14	.02	.16	4	3
PD-E-94-135	2	973	<2	68	<.1	51	25	345	6.42	3	<5	<2	<2	8	<.2	<2	5	154	.40	.022	<2	20	3.51	72	.09	<2	3.23	.09	.32	<1	9
PD-E-94-136	5	12683	6	113	9.5	28	97	33	5.65	2	<5	<2	<2	4	1.6	7	29	10	.13	.049	2	11	.05	26	<.01	<2	.48	.04	.16	2	490
PD-E-94-137	16	149	<2	1387	.4	162	24	258	4.34	<2	<5	<2	3	6	16.5	4	3	119	.18	.084	6	41	2.05	93	.04	<2	1.87	.02	.17	<1	10
PD-E-94-138	1	182	2	48	<.1	22	21	534	4.58	<2	<5	<2	<2	7	<.2	3	<2	84	.44	.036	<2	18	2.30	32	.12	<2	2.01	.06	.13	2	6
PD-E-94-139	1	52	3	162	<.1	36	13	277	2.57	<2	<5	<2	4	4	.7	4	2	12	.09	.026	2	14	.45	35	<.01	<2	.96	.03	.19	<1	10
PD-E-94-140	1	232	2	102	<.1	193	59	388	6.73	2	<5	<2	3	4	<.2	2	4	103	.10	.027	<2	14	2.88	35	.14	<2	3.64	.03	1.11	<1	8
PD-E-94-141	1	139	<2	101	<.1	39	25	715	7.23	3	<5	<2	3	7	<.2	<2	5	106	.31	.035	<2	14	3.14	39	.18	<2	4.30	.04	.41	<1	7
US-E-94-7	11	4264	<2	56	.6	9	17	391	4.65	4	<5	<2	<2	4	<.2	4	10	115	.17	.016	<2	8	3.61	231	.14	<2	3.71	.04	1.20	1	91
US-E-94-8	1	8193	<2	59	1.8	6	24	315	3.79	4	<5	<2	<2	8	.2	4	7	75	.44	.010	<2	7	1.71	182	.14	<2	2.26	.12	1.13	4	110
US-E-94-9	2	2439	6	89	1.9	174	66	488	13.96	2	<5	<2	3	4	<.2	4	11	54	.36	.011	<2	54	2.28	17	.06	<2	1.97	.07	.14	<1	8
US-E-94-10	1	947	4	82	.7	85	91	560	8.84	<2	<5	<2	<2	5	<.2	<2	3	81	.43	.016	<2	43	2.43	31	.10	<2	2.21	.09	.47	3	10
US-E-94-11	34	1673	2	94	1.2	59	36	1019	14.39	7	<5	<2	4	4	<.2	<2	12	154	.11	.024	<2	62	4.42	97	.20	<2	5.78	.02	1.69	12	16
STANDARD C/AU-R	19	57	38	122	6.8	74	30	1033	3.96	42	14	7	35	50	16.7	14	19	60	.51	.089	41	57	.91	183	.08	33	1.88	.06	.15	11	490

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 25 1994 DATE REPORT MAILED: Aug 31/94

SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3794

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
PD-94-E-200	4	188	37	253	1.6	81	12	504	17.32	19	8	<2	3	6	1.7	<2	7	403	.12	.264	23	171	1.49	59	.01	4	1.24	.01	.02	<1	6
PD-94-E-201	1	103	<2	108	.4	196	42	775	8.27	<2	6	<2	<2	6	<.2	<2	2	232	.44	.137	<2	347	5.43	101	.25	<2	5.12	.02	.07	1	11
RE PD-94-E-201	1	107	<2	112	.3	206	45	814	8.68	<2	10	<2	<2	6	<.2	<2	<2	243	.46	.145	<2	367	5.58	107	.27	4	5.44	.02	.07	<1	19
PD-94-E-202	4	530	<2	44	1.2	167	53	299	10.11	3	7	<2	<2	13	<.2	<2	<2	421	.69	.393	7	232	2.91	30	.09	4	2.15	.01	.10	2	12
PD-94-E-203	9	16453	218	1030	35.7	6	164	176	13.99	111	8	3	3	6	1.0	<2	16	35	.03	.033	<2	15	.68	7	.07	6	.76	.01	.20	<1	770
PD-94-E-204	3	90	23	60	1.0	21	12	431	4.47	111	<5	<2	<2	27	1.0	3	2	67	2.39	1.649	16	27	.05	62	.02	2	.20	.01	.07	3	19
PD-94-E-205	2	232	44	110	2.2	154	22	110	10.71	502	<5	<2	<2	10	<.2	<2	3	91	.82	.319	3	42	.32	13	.02	4	.35	<.01	.06	1	14
PD-94-E-206	24	16636	517	1885	63.0	54	18	399	9.97	1029	7	<2	<2	3	10.2	21	43	74	.25	.075	<2	7	1.11	44	.01	7	7.50	.03	.06	<1	910
PD-94-E-207	2	12	10	27	<.1	16	5	500	1.15	2	<5	<2	2	135	<.2	<2	<2	23	11.79	.048	2	57	4.03	102	.01	2	1.44	.01	.13	2	2
PD-94-E-208	3	17085	751	31429	41.7	15	123	177	18.27	70	<5	<2	3	5	93.9	<2	123	23	.22	.015	<2	15	.15	4	.01	6	.20	<.01	.02	<1	980
PD-94-E-209	2	494	13	1467	.5	20	21	487	7.69	<2	<5	<2	<2	6	2.3	<2	<2	120	.18	.043	<2	24	3.02	82	.22	4	2.61	.01	.30	<1	11
PD-94-E-210	5	182	437	54011	3.8	26	20	261	14.69	39	7	2	3	3	191.6	<2	11	23	.12	.006	<2	18	.19	5	.10	6	.45	.02	.28	2	35
PD-94-E-211	3	84	102	293	.6	28	2	64	3.99	31	6	<2	<2	10	3.4	3	<2	87	.54	.131	3	24	.10	45	.01	2	.17	<.01	.07	2	43
PD-94-E-212	5	383	6443	7084	27.7	39	42	743	7.14	<2	11	<2	<2	7	42.3	<2	60	108	.64	.044	<2	29	2.76	32	.26	3	2.24	.01	1.06	<1	120

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 20 1994 DATE REPORT MAILED: Oct 25/94 SIGNED BY..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-2651R

SAMPLE#	Cu %
PD-E-94-104	.915
PD-E-94-107	.396
PD-E-94-108	.619
PD-E-94-108A	.919
PD-E-94-109	.321
PD-E-94-110	.465
PD-E-94-111	1.290
PD-E-94-113	.335
RE PD-E-94-113	.331
PD-E-94-117	.787
PD-E-94-118	.459
PD-E-94-119	.429
US-E-94-1	.627
US-E-94-2	.243
US-E-94-3	.757
US-E-94-4	.480
US-E-94-5	.620

1 GM SAMPLE LEACHED IN 75 ML AQUA - REGIA, DILUTE TO 250 ML, ANALYSIS BY ICP.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 26 1994 DATE REPORT MAILED: Sept 6/94 SIGNED BY. C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-2651 Page 2
900 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Peter Delancey

SAMPLE#	Cu %	Zn %	Ag** oz/t	Au** oz/t	Ba* ppm
PD-E-94-112	.007	5.98	.41	.003	90321

1 GM SAMPLE LEACHED IN 75 ML AQUA - REGIA, DILUTE TO 250 ML, ANALYSIS BY ICP.
AG** & AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. BA* - .2 GM SAMPLE FUSED WITH 1.2 GM LIBO2, ANALYSIS BY ICP.
- SAMPLE TYPE: ROCK

DATE RECEIVED: AUG 15 1994 DATE REPORT MAILED: Aug 25/94 SIGNED BY. C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT E[illegible] ALL File # 94-2651 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Peter Delancey

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
PD-E-94-104	2	9212	2	289	5.0	8	3	143	2.28	<2	<5	<2	4	1	2.0	<2	11	9	.01	.006	2	8	.34	36	.01	3	.66	.03	.23	1	360
PD-E-94-105	15	133	13	159	.5	73	12	306	3.29	<2	<5	<2	4	29	4.3	<2	<2	146	.68	.044	11	33	1.01	24	.07	<2	1.36	.03	.06	<1	4
PD-E-94-106	13	83	8	92	.5	56	14	202	2.06	2	6	<2	9	12	1.4	3	<2	61	.33	.102	7	19	.88	67	.05	<2	1.15	.03	.14	1	1
PD-E-94-107	5	4012	3	31	.6	12	7	69	1.68	<2	<5	<2	3	12	.4	2	<2	18	.14	.013	3	9	.64	20	.03	<2	.75	.07	.11	3	130
PD-E-94-108	3	5958	4	39	2.0	9	7	354	4.24	<2	<5	<2	<2	7	.7	<2	6	96	.21	.030	<2	7	1.94	99	.11	<2	2.41	.08	.78	<1	270
PD-E-94-108A	81	9282	4	93	6.8	10	3	134	3.11	<2	<5	<2	2	3	1.4	2	<2	9	.10	.043	13	9	.67	57	.04	<2	.88	.03	.32	<1	670
PD-E-94-109	7	3040	7	35	1.1	14	6	276	2.56	<2	<5	<2	<2	22	.6	<2	8	128	.57	.034	<2	10	3.02	151	.09	2	3.42	.15	.36	2	550
PD-E-94-110	2	4271	6	88	1.4	17	13	334	4.11	<2	<5	<2	<2	23	.9	<2	3	79	1.35	.025	<2	5	2.77	101	.11	<2	2.83	.07	.58	<1	170
PD-E-94-111	4	12712	3	328	5.7	12	16	194	3.94	<2	<5	<2	<2	5	3.3	2	<2	40	.28	.040	<2	7	.93	131	.09	<2	1.28	.09	.62	<1	360
PD-E-94-113	3	3244	2	71	1.1	12	7	140	2.05	<2	<5	<2	2	4	.6	2	6	12	.11	.019	4	8	.64	56	.04	3	.99	.05	.40	2	91
RE PD-E-94-113	3	3335	2	73	1.1	11	7	142	2.10	<2	<5	<2	2	4	.5	<2	3	12	.12	.020	4	9	.66	57	.04	<2	1.02	.06	.41	1	79
PD-E-94-114	2	1983	3	88	.9	8	7	143	1.78	<2	<5	<2	4	3	.7	<2	3	11	.10	.025	4	6	.80	46	.05	<2	.95	.06	.43	1	53
PD-E-94-115	1	820	8	139	1.1	70	40	548	11.15	8	8	<2	<2	4	<.2	<2	<2	97	.26	.013	<2	48	3.35	57	.18	<2	3.85	.04	.92	2	5
PD-E-94-117	2	7523	4	81	2.5	8	11	226	3.32	<2	<5	<2	<2	7	1.1	<2	<2	58	.23	.028	<2	7	1.77	98	.09	<2	2.14	.06	.88	<1	290
PD-E-94-118	7	4476	2	46	1.5	8	4	240	1.85	<2	<5	<2	<2	2	.5	<2	6	36	.10	.030	<2	6	1.53	66	.04	<2	1.53	.05	.59	<1	340
PD-E-94-119	8	4383	<2	35	2.2	7	2	90	1.36	<2	<5	<2	<2	2	.4	<2	8	7	.08	.025	<2	7	.45	29	.01	2	.75	.04	.25	1	270
PD-E-94-120	7	82	5	98	.1	33	10	492	3.56	12	<5	<2	5	63	1.0	<2	<2	49	3.18	.021	5	11	1.95	149	.01	<2	1.12	.03	.20	<1	7
US-E-94-1	27	6401	8	159	1.2	12	29	401	4.01	4	<5	<2	3	5	1.8	<2	6	30	.48	.074	5	5	1.65	23	.06	<2	1.90	.06	.08	<1	47
US-E-94-2	2	2496	2	48	.3	7	12	269	2.29	<2	<5	<2	2	5	.4	<2	3	34	.47	.031	3	7	1.10	29	.05	<2	1.26	.06	.10	1	31
US-E-94-3	1	7616	6	74	.9	6	20	204	2.69	10	<5	<2	4	7	1.3	<2	4	25	.85	.072	7	4	1.31	25	.01	2	1.41	.08	.13	<1	91
US-E-94-4	2	4819	3	51	.5	9	15	203	2.30	<2	<5	<2	<2	4	.8	<2	<2	48	.35	.068	4	6	1.41	59	.08	<2	1.38	.06	.21	<1	65
US-E-94-5	2	5905	4	53	.5	14	24	111	2.37	7	<5	<2	<2	5	.9	2	2	73	.21	.056	3	6	1.77	37	.01	2	1.64	.03	.15	1	71
STANDARD C/AU-R	20	62	39	134	7.5	74	33	1072	4.09	43	17	8	35	54	19.3	15	21	62	.50	.094	40	61	.92	187	.09	34	1.94	.07	.16	13	520

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 15 1994 DATE REPORT MAILED: Aug 25/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Assay in progress for Cu > 0.2%

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-1663 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Peter Delancey

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au* ppb	Ba* ppm
PD-E-94-1	1	145	5	111	.1	27	25	215	5.42	2	<5	<2	<2	21	<.2	<2	<2	156	.97	.030	<2	35	3.54	59	.13	<2	2.66	.07	1.64	<1	<5	<1	24	1626
PD-E-94-2	3	71	8	34	.1	6	4	110	1.35	111	<5	<2	2	5	<.2	<2	<2	5	.09	.019	2	7	.19	99	.06	<2	.55	.04	.32	4	<5	<1	14	620
PD-E-94-3A	2	10877	4	127	6.2	17	13	41	1.88	5	<5	<2	2	2	3.6	<2	7	8	.05	.008	3	5	.14	25	<.01	<2	.45	.04	.06	<1	<5	<1	650	505
RE PD-E-94-3A	2	10618	3	127	6.5	17	13	37	1.85	3	<5	<2	2	2	3.6	2	7	8	.05	.008	4	5	.14	25	<.01	<2	.45	.04	.06	<1	<5	<1	540	502
PD-E-94-3B	4	59199	82	4463	95.0	30	157	285	14.64	20	<5	7	2	3	39.5	<2	29	16	.05	<.001	<2	14	.55	29	.02	2	1.19	.01	.12	<1	<5	<1	1060	522
PD-E-94-4	3	5031	<2	38	1.8	6	5	129	.98	3	<5	<2	6	4	.2	3	3	2	.03	.008	2	6	.01	19	<.01	<2	.28	.04	.07	1	<5	<1	260	375
PD-E-94-5	9	5218	4	100	1.9	11	8	125	1.73	15	<5	<2	3	9	.5	2	<2	13	.09	.027	6	10	.63	22	<.01	<2	1.10	.07	.13	2	<5	<1	200	283
STANDARD C/AU-R	20	59	38	124	6.9	73	33	1051	3.96	42	22	6	35	53	19.0	14	18	61	.49	.093	40	57	.93	182	.08	33	1.88	.06	.16	11	<5	2	510	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.
BA* .2 GM SAMPLE FUSED WITH 1.2 GM LIBO2, ANALYSIS BY ICP. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: JUN 13 1994 DATE REPORT MAILED: June 15/94 SIGNED BY..... C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-2340

900 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Peter Delancey

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au* ppb	Ba* ppm
PD-E-94-100	16	45	15	134	.5	55	7	398	2.03	<2	<5	<2	6	25	10.2	2	<2	106	.57	.077	7	26	.89	108	.04	<2	1.23	.02	.05	1	<5	<1	15	522
PD-E-94-101	11	38	21	70	.4	26	4	289	1.92	2	<5	<2	10	17	2.0	<2	2	76	.28	.069	4	29	.77	205	.05	<2	1.10	.03	.06	<1	<5	<1	8	1005
PD-E-94-102	15	2238	12	53	.8	12	3	144	1.16	<2	<5	<2	5	5	<.2	<2	<2	5	.14	.016	2	10	.31	176	.03	<2	.66	.04	.29	<1	<5	<1	170	708
PD-E-94-103	3	3800	6	31	.4	10	5	105	1.41	<2	<5	<2	5	3	.2	<2	<2	8	.06	.010	4	7	.37	95	.03	<2	.66	.04	.25	2	<5	<1	67	403
RE PD-E-94-103	3	3859	6	31	.4	9	5	108	1.44	<2	<5	<2	4	3	<.2	<2	<2	9	.06	.010	3	8	.38	93	.03	2	.66	.04	.26	2	<5	<1	59	380

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
BA* - BY LIBO2 FUSION, ANALYSIS BY ICP.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 2 1994 DATE REPORT MAILED: Aug 5/94 SIGNED BY..... C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL/ASSAY CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL CAMP File # 94-2947

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Cu %	Au** oz/t	SAMPLE lb
E94-T1-1	1	1019	2	32	<.1	24	18	363	3.59	<2	<5	<2	2	15	<.2	<2	<2	75	.68	.032	<2	35	2.32	106	.10	<2	2.33	.13	.45	<1	.112	.001	19.0
E94-T1-2 5-10	1	907	2	34	<.1	10	15	279	3.48	4	<5	<2	3	5	<.2	<2	<2	81	.41	.021	<2	6	1.87	141	.11	<2	1.96	.10	.62	<1	.100	<.001	13.0
E94-T1-3 10-15	2	2215	<2	48	.4	10	17	325	3.85	3	<5	<2	<2	5	<.2	<2	4	72	.35	.022	<2	12	1.85	132	.12	<2	2.13	.08	.58	<1	.244	.001	13.0
E94-T1-4	5	3013	<2	42	.4	6	17	295	3.73	<2	<5	<2	<2	4	<.2	<2	<2	66	.27	.021	<2	7	1.85	117	.12	<2	2.08	.06	.62	<1	.330	.001	9.0
E94-T2-1	1	1017	2	25	.5	3	11	176	2.46	<2	<5	<2	4	2	<.2	<2	<2	15	.04	.008	5	7	.39	38	.03	<2	.87	.05	.17	<1	.106	.001	12.0
E94-T3-1 0-5m	1	2926	<2	69	.7	6	20	375	4.58	2	<5	<2	3	6	<.2	<2	<2	103	.25	.024	<2	6	2.53	145	.12	<2	2.74	.05	.74	<1	.333	.002	24.0
E94-T3-2 5-10m	1	1653	3	41	.3	4	13	347	3.00	5	<5	<2	2	5	<.2	<2	<2	54	.23	.025	<2	6	1.83	115	.10	<2	2.03	.06	.74	<1	.179	.001	22.0
E94-T3-3 10-15m	1	2130	3	49	.4	8	13	372	3.15	<2	<5	<2	2	5	<.2	<2	2	74	.36	.028	<2	6	1.97	107	.10	<2	2.08	.08	.62	<1	.236	.001	20.0
E94-T3-4 15-20	3	3438	5	181	.8	7	11	358	2.99	3	<5	<2	<2	9	.4	<2	<2	63	.44	.026	<2	7	1.92	88	.08	<2	2.07	.06	.57	<1	.390	.003	22.0
RE E94-T3-4 15-20	3	3386	4	179	1.0	6	11	352	2.95	2	<5	<2	<2	9	.4	<2	5	62	.43	.026	<2	8	1.90	86	.07	<2	2.03	.06	.57	<1	.394	.002	-
E94-T3-5 20-25m	2	1878	10	64	.7	8	9	311	2.62	2	<5	<2	<2	6	<.2	<2	<2	43	.24	.021	<2	13	1.60	60	.07	<2	1.66	.04	.40	<1	.194	.001	29.0
E94-T3-6 25-30	2	524	3	58	.2	9	14	492	3.44	3	<5	<2	2	8	<.2	<2	3	92	.51	.031	<2	13	2.08	48	.11	<2	2.23	.10	.33	2	.058	.001	18.5
E94-T3-7 30-37m	6	1212	4	97	.9	4	6	335	2.34	3	<5	<2	<2	7	<.2	<2	2	60	.27	.027	<2	6	1.87	69	.08	<2	1.90	.06	.44	<1	.133	.004	28.0
TR-4-1 0-5	2	3576	4	37	.9	6	6	160	1.45	5	<5	<2	2	5	<.2	3	5	21	.32	.034	<2	10	1.07	47	.06	2	1.23	.05	.49	<1	.376	.004	17.5
TR-4 5-10	8	2737	2	130	2.2	5	10	279	2.73	<2	<5	<2	2	8	<.2	<2	3	53	.31	.031	<2	6	1.84	95	.11	2	1.96	.06	1.22	<1	.293	.004	16.0
TR-4 10-15	2	2500	3	77	1.5	6	10	244	2.19	<2	<5	<2	2	4	<.2	3	4	51	.18	.025	<2	8	1.76	66	.08	3	1.62	.05	.88	<1	.271	.003	15.5
TR-4-3 15-20	1	1323	<2	73	.4	6	9	320	2.67	<2	<5	<2	<2	12	<.2	5	2	62	.42	.024	<2	8	2.06	93	.11	2	2.26	.10	.95	<1	.150	.001	16.0
STANDARD C/R-1/AU-1	19	56	41	126	6.9	73	31	1042	3.96	42	15	7	38	53	19.0	15	21	62	.49	.092	40	59	.93	183	.08	34	1.88	.06	.15	10	.841	.098	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
CU BY REGULAR ASSAY ICP.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 1 1994 DATE REPORT MAILED: Sept 12/94 SIGNED BY. ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL/ASSAY CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3086 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Cu %	Au** oz/t
E94 T4 0-5m WEST	3	2839	6	42	1.5	6	3	145	1.15	<2	<5	<2	4	6	.3	<2	6	18	.22	.022	2	8	.81	38	.05	2	1.12	.05	.41	3	.302	.006
E94 T4 20-25m	3	1839	5	72	.8	6	7	278	2.57	<2	<5	<2	<2	11	.2	<2	3	48	.51	.068	<2	4	1.31	97	.09	<2	1.79	.07	.65	<1	.188	.003
E94 T4 25-30m	6	1778	4	53	1.1	4	4	189	1.70	<2	<5	<2	<2	16	.2	2	2	26	.43	.020	<2	6	1.13	36	.04	<2	1.85	.12	.43	2	.192	.003
E94 T4 30-35m	3	1195	3	40	.3	5	5	245	1.78	<2	<5	<2	2	8	<.2	<2	3	47	.21	.018	2	4	1.53	35	.04	2	1.88	.05	.40	1	.127	.003
E94 T5 0-5m	1	841	4	63	.4	5	7	163	2.06	<2	<5	<2	3	2	<.2	<2	<2	11	.10	.017	5	4	.75	39	.01	2	1.00	.03	.17	<1	.091	<.001
E94 T5 5-10m	3	2132	2	66	.6	10	14	299	3.69	<2	<5	<2	3	5	.3	2	3	50	.20	.027	4	5	1.54	71	.05	<2	1.77	.03	.28	<1	.231	.002
E94 T5 10-15m	6	3426	2	48	.7	9	11	198	2.74	<2	<5	<2	3	5	.5	2	3	29	.16	.030	4	5	1.20	66	.07	2	1.57	.04	.53	<1	.337	.002
E94 T5 15-20m	7	3225	4	45	.9	12	8	249	2.97	<2	<5	<2	2	12	.4	<2	3	56	.39	.022	3	5	1.65	93	.08	<2	2.36	.10	.70	2	.337	.002
E94 T5 20-24m	4	2344	5	53	.8	14	7	245	2.69	<2	<5	<2	2	14	.3	<2	4	57	.39	.024	3	15	1.66	95	.08	<2	2.17	.07	.57	1	.248	.002
E94 T5 25-30m	5	3163	2	57	1.4	13	7	237	2.19	<2	<5	<2	2	4	.5	<2	4	35	.24	.024	3	10	1.40	64	.03	2	1.58	.03	.26	1	.347	.005
RE E94 T5 25-30m	5	3162	2	55	1.3	13	7	231	2.15	<2	<5	<2	2	4	.5	<2	4	34	.23	.023	2	10	1.37	63	.03	2	1.56	.03	.26	<1	.346	.004
E94 T6-1 0-5m	3	1443	11	74	.9	6	2	145	1.18	<2	<5	<2	2	3	.4	<2	2	9	.13	.023	<2	5	.53	30	.05	2	.83	.03	.28	1	.151	.004
E94 T6-2 5-10m	3	809	5	27	.6	6	2	122	.87	<2	<5	<2	3	4	.2	<2	<2	14	.17	.021	2	6	.50	33	.07	2	.77	.03	.27	1	.083	.005
E94 T6-3 10-15m	5	1676	2	23	1.2	9	2	120	1.15	<2	<5	<2	3	3	<.2	<2	5	15	.20	.020	2	15	.48	33	.04	<2	.75	.05	.28	1	.170	.006
E94 T6-4 15-20m	2	3487	3	74	1.2	8	5	264	2.39	<2	<5	<2	2	13	.5	2	4	41	.37	.041	3	6	1.50	101	.09	<2	2.20	.10	.81	1	.356	.005
E94 T7-1 0-5m	2	7709	<2	92	1.9	6	9	205	3.09	<2	<5	<2	<2	9	1.0	2	10	49	.20	.030	2	5	1.49	82	.07	<2	1.97	.05	.69	1	.800	.006
E94 T7-2 5-7.5m	1	4048	4	102	2.1	6	8	274	3.59	<2	<5	<2	<2	8	1.0	2	6	74	.26	.031	<2	6	1.80	139	.13	<2	2.33	.06	.88	<1	.424	.006
E94 T8-1 0-5m	3	3597	5	39	2.6	7	8	114	2.40	<2	<5	<2	3	4	.3	<2	5	12	.11	.013	3	7	.44	91	.07	<2	.76	.04	.34	1	.371	.003
E94 T9-1 0-5m	1	1103	4	32	.8	3	4	135	1.76	<2	<5	<2	4	2	<.2	<2	<2	9	.07	.016	5	4	.37	76	.07	2	.69	.04	.32	2	.114	.002
E94 TR-10 0-2m	4	1184	2	14	.7	5	3	91	.78	<2	<5	<2	6	1	<.2	<2	<2	6	.03	.008	4	5	.35	19	.01	<2	.51	.04	.15	1	.125	.003
E94 TR-11 0-5m	9	3460	4	45	1.5	6	3	206	1.47	<2	<5	<2	2	4	.4	2	6	33	.20	.025	2	5	1.15	47	.06	2	1.26	.05	.32	3	.353	.008
RE E94 TR-11 0-5m	9	3449	4	46	1.4	6	3	205	1.47	<2	<5	<2	2	4	.5	<2	3	32	.20	.026	<2	5	1.14	48	.06	<2	1.26	.05	.31	2	.355	.008
PK-E-94-017	3	12446	5	108	3.9	6	5	165	3.13	2	<5	<2	<2	30	2.2	2	9	66	.39	.020	<2	5	.81	82	.10	<2	1.65	.14	.45	<1	1.312	.025
PK-E-94-018	2	5979	4	201	2.5	8	5	306	2.72	2	<5	<2	<2	12	1.3	3	3	34	.23	.020	<2	7	1.21	94	.14	<2	1.73	.06	.98	<1	.650	.006
BL-E-94-6	2	4635	2	58	1.4	50	15	529	4.17	<2	<5	<2	<2	10	.6	<2	5	120	.26	.018	<2	86	3.82	104	.10	<2	3.88	.04	.56	2	.502	.009
BL-E-94-7	1	369	3	28	.2	3	7	116	3.78	<2	<5	<2	3	7	<.2	2	<2	50	.20	.044	6	2	1.01	102	.18	<2	1.51	.07	.86	<1	.040	<.001
STANDARD C/R-1/AU-1	19	59	37	123	6.8	72	32	1034	3.96	44	17	7	36	49	17.9	14	21	60	.51	.092	42	58	.89	189	.08	34	1.88	.05	.14	11	.851	.101

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
CU BY REGULAR ASSAY ICP.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: P1 TO P3 ROCK P4 SILT AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 9 1994 DATE REPORT MAILED: Sept 15/94. SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE (604) 253-3158 FAX (604) 253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3205 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	SAMPLE lb
E94 T4 5-10	4	3763	7	622	1.3	7	3	189	1.34	<2	<5	<2	5	5	2.6	2	2	22	.23	.028	3	8	.96	45	.06	2	1.06	.05	.41	<1	140	12
E94 T4 10-12	3	3130	3	45	1.1	4	2	161	1.20	<2	<5	<2	3	4	.3	2	3	26	.16	.029	4	7	1.05	35	.06	4	1.16	.05	.52	1	130	3
E94 T5 30-35	2	2784	2	44	1.2	5	5	186	1.64	<2	<5	<2	3	9	.2	2	<2	32	.29	.034	3	4	.95	30	.05	4	1.21	.07	.29	<1	240	10
E94 T5 35-38	5	2172	<2	42	1.0	7	4	234	1.82	<2	<5	<2	3	7	.2	<2	2	31	.24	.033	4	8	.89	70	.07	3	1.17	.07	.39	<1	99	5
E94 T12 0-5	1	324	3	38	.1	14	16	348	4.24	5	<5	<2	<2	7	<.2	<2	<2	83	.59	.040	3	12	1.72	69	.09	2	2.08	.10	.18	<1	5	11
E94 T12 5-10	5	4157	27	308	2.0	6	15	234	3.49	3	<5	<2	2	3	2.0	<2	4	62	.13	.027	3	4	1.33	74	.06	2	1.67	.03	.36	<1	62	16
E94 T12 10-13	4	1607	8	193	.6	8	23	216	3.16	4	<5	<2	2	6	.2	<2	<2	45	.26	.028	3	8	1.13	84	.09	3	1.50	.05	.46	<1	19	7
E94 T12 16-20	5	2168	<2	35	.7	7	14	219	2.96	5	<5	<2	2	10	<.2	5	<2	98	.30	.038	3	7	1.60	138	.11	2	1.85	.06	.61	1	53	6
E94 T12 20-25	4	2332	3	28	.5	8	8	153	1.76	3	<5	<2	4	12	<.2	3	<2	26	.21	.031	4	9	.84	70	.03	2	1.20	.07	.24	<1	40	11
E94 T13 0-5	1	427	2	26	<.1	9	9	287	3.28	<2	<5	<2	3	4	<.2	<2	2	34	.21	.026	4	16	1.26	26	.05	2	1.52	.04	.10	<1	7	12
E94 T13 5-10	3	2261	7	59	.9	4	17	578	3.30	9	<5	<2	<2	6	.3	<2	2	51	.27	.036	4	5	1.26	92	.05	4	1.65	.04	.33	<1	23	16
E94 T13 10-15	10	1816	<2	32	.3	4	10	151	1.77	<2	<5	<2	3	6	.2	2	<2	34	.29	.032	5	4	1.03	115	.06	5	1.35	.06	.40	<1	24	14
E94 T14 0-5	1	2149	3	55	.7	5	14	270	3.23	6	<5	<2	4	5	.2	2	<2	29	.45	.058	6	6	1.16	29	.05	3	1.44	.05	.10	<1	25	15
E94 T14 5-10	2	3867	3	40	.5	9	16	147	2.03	7	<5	<2	3	6	.3	2	<2	29	.35	.052	5	6	1.15	34	.02	5	1.29	.04	.14	1	33	17
E94 T14 10-15	3	3352	4	38	.8	5	7	111	1.17	4	<5	<2	3	5	.5	3	<2	21	.33	.049	4	4	.78	28	.01	4	.94	.04	.12	<1	47	12
E94 T14 15-20	3	2405	7	85	.7	6	4	196	1.50	<2	<5	<2	3	6	.4	3	2	30	.25	.035	4	6	.94	29	.04	3	1.16	.05	.11	<1	45	15
E94 T14 20-25	15	2595	<2	59	.6	5	4	86	.89	2	<5	<2	4	4	.5	3	<2	5	.19	.042	6	5	.49	20	<.01	3	.66	.04	.11	<1	79	15
E94 T14 25-30	5	1056	2	25	.3	4	3	129	.81	<2	<5	<2	4	5	<.2	3	<2	18	.20	.040	3	4	.72	26	<.01	3	.94	.05	.10	<1	23	16
E94 T14 30-35	3	1234	2	23	.2	3	3	96	.71	<2	<5	<2	5	9	.2	2	2	10	.31	.040	4	4	.52	18	<.01	2	.90	.07	.08	1	23	14
E94 T14 35-40	5	5224	3	81	1.2	5	6	92	1.60	15	<5	<2	4	6	.7	<2	6	11	.16	.045	4	3	.67	21	<.01	2	.98	.05	.11	<1	110	15
E94 T14 40-45	3	1225	<2	42	.3	8	5	231	1.48	2	<5	<2	3	7	.2	<2	<2	30	.42	.052	5	11	1.02	28	.01	3	1.27	.06	.11	<1	43	17
RE E94 T14 40-45	3	1226	<2	41	.1	7	4	219	1.41	<2	<5	<2	4	7	<.2	<2	<2	28	.40	.050	5	11	.97	28	.01	2	1.24	.06	.12	<1	47	-
E94 T14 45-50	3	654	2	34	.2	2	3	105	.59	<2	<5	<2	5	6	<.2	<2	<2	8	.26	.038	4	5	.56	17	<.01	4	.76	.05	.08	1	10	12
E94 T14 50-55	6	683	<2	47	.3	4	8	162	1.91	<2	<5	<2	4	4	<.2	3	<2	32	.23	.058	5	5	1.17	19	.03	3	1.30	.04	.09	1	18	15
E94 T14 55-60	3	972	2	85	.6	6	8	166	1.29	7	<5	<2	5	3	.4	4	<2	20	.16	.041	4	7	.90	26	.02	3	1.00	.04	.12	1	29	13
E94 T14 60-65	4	1154	4	30	.2	4	6	117	1.42	<2	<5	<2	3	4	<.2	<2	<2	18	.20	.061	4	5	.92	28	.01	4	1.11	.04	.16	2	22	12
E94 T14 65-70	2	1133	3	39	.2	4	7	154	1.77	2	<5	<2	3	3	<.2	<2	<2	25	.16	.039	4	6	1.15	39	.02	2	1.27	.03	.18	<1	30	12
E94 T14 70-75	4	673	5	68	.4	8	9	249	2.58	2	<5	<2	3	6	<.2	<2	<2	43	.24	.048	4	9	1.60	31	.03	2	1.82	.04	.16	<1	37	14
E94 T14 75-80	2	1829	5	73	.6	3	4	151	1.47	<2	<5	<2	3	4	.3	<2	3	18	.14	.047	5	5	.93	16	.01	2	1.09	.03	.13	<1	56	12
E94 T14 80-85	5	2415	7	110	1.0	5	8	159	3.81	3	<5	<2	4	4	.5	<2	3	18	.18	.051	4	4	1.16	17	.01	2	1.35	.03	.16	<1	65	16
STANDARD C/AU-R	21	59	39	139	7.3	75	32	1070	4.16	42	14	7	37	54	18.7	14	23	61	.51	.093	41	60	.92	185	.09	33	1.97	.06	.16	11	500	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 16 1994 DATE REPORT MAILED: Sept 23/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3393 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
E94 T14 85-90	10	4712	5	67	1.1	6	11	162	1.77	5	<5	<2	3	5	.3	2	4	36	.19	.044	5	7	1.25	38	.03	<2	1.33	.04	.27	<1	180
E94 T14 90-95	2	2627	6	40	.4	6	8	212	1.68	6	<5	<2	2	15	<.2	<2	2	26	.60	.078	2	9	1.34	45	.03	<2	1.71	.12	.25	1	150
E94 T14 95-100	4	1304	6	43	.5	4	9	162	1.54	2	<5	<2	3	5	.2	<2	2	21	.26	.064	5	8	.98	31	.02	<2	1.18	.04	.20	2	120
E94 T14 100-105	6	1731	8	51	.8	3	10	159	1.66	5	<5	<2	2	4	.4	<2	7	21	.18	.054	4	3	1.15	42	.04	<2	1.27	.04	.47	2	170
E94 T14 105-110	3	1100	3	30	.3	4	7	147	1.43	3	<5	<2	3	4	<.2	<2	<2	16	.26	.079	5	6	1.16	33	.02	<2	1.23	.04	.22	1	36
RE E94 T14 105-110	3	1131	2	31	.3	4	7	151	1.46	2	<5	<2	3	4	<.2	<2	<2	17	.26	.080	5	6	1.20	33	.02	<2	1.26	.04	.23	1	34
E94 T14 110-115	12	1522	6	36	.4	5	10	297	2.41	5	<5	<2	2	6	<.2	<2	3	54	.43	.055	4	9	1.68	25	.03	<2	1.83	.06	.14	1	47
E94 T14 115-119	3	1408	2	39	.3	3	6	160	1.42	5	<5	<2	3	5	<.2	<2	<2	17	.20	.043	6	5	1.07	19	.01	<2	1.27	.05	.10	1	46
E94 T15 0-5	5	1229	3	11	.3	6	2	70	.79	<2	<5	<2	4	5	<.2	<2	<2	10	.07	.019	5	10	.63	20	<.01	<2	.86	.05	.11	<1	100
E94 T15 5-10	4	1507	5	31	.4	3	34	200	2.32	10	<5	<2	4	2	<.2	<2	4	24	.11	.037	3	4	1.06	181	.07	<2	1.30	.03	.75	1	74
E94 T15 10-15	2	229	4	48	.1	29	12	348	3.44	10	<5	<2	<2	1	<.2	<2	2	79	.22	.030	2	89	2.00	641	.17	<2	2.13	.06	1.24	<1	8
E94 T15 15-20	6	91	5	79	.2	18	10	291	2.95	3	<5	<2	2	6	.4	<2	2	67	.63	.032	2	30	1.29	350	.18	<2	1.58	.06	1.28	<1	4
E94 T15 20-25	1	90	5	52	<.1	50	20	548	4.26	4	<5	<2	<2	4	<.2	<2	<2	140	.50	.026	<2	169	3.56	94	.10	<2	3.12	.05	.49	1	2
PK-E-94-034	4	32	8	26	.4	9	2	222	5.18	<2	<5	<2	6	14	<.2	<2	2	35	.38	.112	7	33	.90	314	.19	<2	1.06	.01	.24	1	2
PK-E-94-035	5	29	8	30	.3	15	4	228	5.07	<2	<5	<2	4	23	<.2	<2	3	31	.57	.107	4	12	1.33	217	.22	<2	1.45	.02	.29	2	2
PK-E-94-036	13	121	93	70509	.9	7	92	797	1.88	2	<5	<2	<2	14	659.8	<2	3	9	1.56	.033	<2	4	.30	36	.07	<2	.40	.03	.04	<1	19
PK-E-94-037	2	294	2	319	.1	3	9	186	3.18	<2	<5	<2	4	2	3.4	<2	2	27	.10	.024	6	4	.83	81	.10	<2	1.18	.06	.62	<1	6
PK-E-94-038	3	616	2	29	.5	17	19	100	12.32	14	<5	<2	2	4	<.2	<2	2	64	.16	.026	<2	46	1.09	10	.09	<2	1.40	.05	.75	2	9
PK-E-94-039	<1	286	9	308	1.2	382	21	50	27.76	266	<5	<2	<2	9	2.5	2	4	23	.47	.132	<2	19	.03	33	.05	<2	.28	.03	.13	<1	4
BL-E-94-14	1	28	<2	56	.2	4	9	358	4.18	<2	<5	<2	2	3	<.2	<2	<2	73	.23	.050	3	6	1.21	106	.11	<2	1.51	.08	.54	<1	3
BL-E-94-15	2	135	3	7	.1	5	9	122	3.09	8	<5	<2	4	2	<.2	<2	<2	3	.04	.010	6	5	.59	26	.03	<2	.95	.06	.13	1	5
STANDARD C/AU-R	20	60	40	123	7.1	69	32	1051	3.96	43	19	7	35	50	18.4	14	18	60	.51	.094	40	62	.92	182	.08	33	1.88	.07	.16	10	540

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: P1 ROCK P2 SILT AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: SEP 27 1994 DATE REPORT MAILED: Oct 4/94 SIGNED BY. .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3393R

SAMPLE#	Cu %
E94 T14 85-90	.492
E94 T14 90-95	.269
E94 T14 95-100	.129
E94 T14 100-105	.171
E94 T14 105-110	.109
E94 T14 110-115	.141
E94 T14 115-119	.137
E94 T15 0-5	.123
E94 T15 5-10	.145

1 GM SAMPLE LEACHED IN 75 ML AQUA - REGIA, DILUTE TO 250 ML, ANALYSIS BY ICP.
- SAMPLE TYPE: ROCK PULP

DATE RECEIVED: OCT 14 1994 DATE REPORT MAILED: Oct 19/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	SAMPLE lb
E94 T14 0W-5W	4	2438	64	492	1.8	9	20	255	3.73	4	<5	<2	3	4	2.4	<2	3	25	.47	.041	4	5	1.08	43	.04	<2	1.43	.03	.11	<1	32	15
E94 T14 5W-10W	1	509	4	36	.2	5	12	272	4.30	3	<5	<2	2	4	.3	<2	<2	38	.55	.041	5	4	1.13	24	.05	<2	1.66	.03	.10	1	7	14
RE E94 T14 5W-10W	1	520	4	36	.2	4	12	273	4.39	<2	<5	<2	3	5	.3	<2	2	38	.56	.041	4	3	1.16	25	.05	<2	1.69	.03	.10	<1	6	-
E94 T14 10W-15W	2	395	2	39	.2	8	11	411	4.27	2	<5	<2	3	6	<.2	<2	<2	50	.66	.041	6	8	1.40	25	.02	<2	1.94	.03	.10	<1	18	15
E94 T14 15W-20W	1	197	3	26	<.1	22	12	347	3.34	<2	<5	<2	<2	4	<.2	<2	<2	69	.49	.028	2	12	2.33	34	.05	2	2.12	.07	.07	1	4	13
E94 T14 20W-25W	1	102	3	25	<.1	5	9	279	4.00	<2	<5	<2	<2	3	<.2	2	<2	71	.16	.027	3	6	1.38	187	.13	<2	1.75	.05	.63	1	4	14
E94 T14 25W-30W	2	70	<2	39	<.1	7	8	278	3.57	<2	<5	<2	2	2	.2	2	<2	63	.15	.027	4	8	1.41	177	.13	<2	1.72	.04	.62	<1	5	13
E94 T14 30W-35W	2	125	2	38	.1	6	6	233	3.33	3	<5	<2	3	2	<.2	<2	<2	32	.09	.021	5	5	.91	126	.09	<2	1.34	.04	.43	1	5	15
E94 T16 25-30	4	398	2	41	.1	7	7	282	1.86	<2	<5	<2	<2	13	.3	<2	<2	55	.46	.034	<2	10	1.44	23	.05	<2	1.68	.07	.20	1	10	13
E94 T16 30-35	3	308	<2	20	.1	6	3	153	.74	<2	<5	<2	2	3	<.2	<2	<2	23	.14	.034	<2	5	.79	24	.02	<2	.91	.03	.20	<1	25	15
E94 T16 35-39	4	1213	4	21	.2	6	2	88	.72	<2	<5	<2	2	7	.2	<2	<2	15	.18	.042	3	5	.63	24	.01	<2	.85	.03	.13	1	76	17
E94 T16 44-50	4	2142	<2	29	.6	5	4	116	1.05	<2	<5	<2	4	4	.3	<2	<2	11	.11	.029	5	6	.75	21	<.01	<2	.91	.03	.12	1	48	17
E94 T16 50-55	4	1842	<2	56	.4	7	5	163	1.19	<2	<5	<2	4	3	.4	<2	3	14	.13	.031	4	8	.79	30	.01	<2	1.00	.03	.17	<1	62	16
E94 T16 55-60	3	1021	<2	44	.3	7	6	212	1.96	<2	<5	<2	3	6	.2	<2	<2	39	.27	.037	4	5	1.04	32	.03	<2	1.35	.05	.13	1	58	17
STANDARD C/AU-R	19	63	38	126	7.0	73	32	1059	3.96	41	16	7	35	51	18.4	15	17	61	.49	.093	40	60	.93	182	.08	34	1.88	.06	.15	11	480	-

Sample type: ROCK. Samples beginning 'RE' are duplicate samples.
AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-3795 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
E94 T5 0W-5W	<1	1305	8	45	.5	6	9	198	2.69	4	<5	<2	5	3	<.2	<2	2	15	.11	.013	6	7	.83	37	.05	<2	1.14	.04	.15	4	24
E94 T5 5W-10W	3	1024	6	55	.2	8	10	218	2.58	3	<5	<2	4	3	<.2	<2	<2	22	.18	.035	6	11	.96	78	.06	<2	1.21	.05	.29	3	25
E94 T5 10W-15W	2	732	5	30	.3	5	9	157	2.50	<2	<5	<2	4	3	<.2	<2	<2	17	.10	.021	6	7	.75	67	.05	3	1.04	.04	.23	1	37
E94 T5 15W-20W	2	103	5	21	<.1	9	8	198	2.26	<2	<5	<2	5	4	<.2	2	<2	23	.12	.018	7	11	.87	93	.08	<2	1.15	.05	.26	2	5
RE E94 T5 15W-20W	1	96	6	20	.2	8	7	183	2.10	3	<5	<2	4	3	<.2	2	<2	22	.11	.018	7	12	.83	88	.07	3	1.09	.04	.25	2	1
E94 T5 20W-25W	3	22	4	29	.2	10	4	267	2.22	3	6	<2	6	4	<.2	<2	<2	17	.05	.004	8	7	.74	145	.10	3	1.04	.06	.49	1	1
E94 T5 30W-35W	3	1581	8	54	.5	6	12	354	3.06	<2	<5	<2	3	7	<.2	<2	<2	85	.37	.047	2	4	1.50	129	.14	<2	1.74	.06	.85	1	100
E94 T5 35W-40W	1	1219	8	47	.3	7	13	371	3.39	5	<5	<2	2	7	<.2	<2	<2	97	.37	.034	2	4	1.65	177	.17	<2	2.10	.07	1.12	4	110
E94 T5 40W-45W	2	733	12	66	.6	7	9	307	2.79	<2	<5	<2	2	6	<.2	<2	<2	61	.19	.028	2	10	1.22	173	.15	2	1.63	.05	1.12	1	61
STANDARD C/AU-R	20	59	43	139	7.3	73	33	1078	4.16	44	13	7	38	51	19.3	14	18	61	.50	.093	41	60	.95	186	.09	34	1.97	.07	.16	13	500

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: P1 ROCK P2 STREAM SED. AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: OCT 20 1994 DATE REPORT MAILED: Oct 31/94 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE (604) 253-3158 FAX (604) 253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT ECSTALL File # 94-2865 Page 1

900 - 409 Granville St., Vancouver BC V6C 1T2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
101+80N 11+00E	<1	5	<2	12	<.1	3	2	71	1.09	2	<5	<2	<2	2	<.2	4	5	64	.11	.004	<2	4	.24	6	.10	4	.36	.02	<.01	2	1
101+80N 11+20E	1	49	3	33	<.1	5	6	201	4.41	<2	<5	<2	<2	2	<.2	<2	<2	96	.10	.028	<2	9	.56	42	.19	3	2.28	.01	.11	<1	2
101+80N 11+40E	<1	28	4	21	<.1	7	5	102	2.71	5	<5	<2	<2	3	<.2	<2	3	95	.14	.012	<2	3	.51	39	.17	2	1.04	.01	.10	<1	2
101+80N 11+60E	1	392	<2	25	.2	3	12	560	3.99	4	<5	<2	2	2	<.2	<2	<2	112	.07	.017	2	5	.45	18	.18	4	1.19	<.01	.04	<1	11
101+80N 12+00E	2	1319	<2	45	<.1	6	38	1006	4.53	12	<5	<2	2	4	<.2	<2	<2	88	.16	.046	<2	12	.90	75	.14	2	2.18	.01	.17	<1	16
101+80N 12+20E	4	2400	5	35	.3	<1	3	222	4.89	<2	<5	<2	2	3	.3	<2	<2	107	.08	.056	<2	6	.54	21	.16	4	2.85	.01	.05	<1	36
101+80N 12+40E	6	882	6	31	.4	5	4	261	3.27	<2	<5	<2	<2	4	<.2	3	<2	89	.11	.059	<2	13	.64	36	.14	<2	2.23	.01	.07	<1	71
101+80N 12+60E	5	279	2	51	<.1	8	4	266	5.19	2	<5	<2	3	2	<.2	<2	<2	163	.06	.017	<2	33	1.13	26	.29	3	3.00	<.01	.06	<1	11
101+80N 12+80E	2	2538	8	95	<.1	9	18	686	3.96	6	<5	<2	2	7	<.2	<2	<2	98	.20	.074	2	17	1.22	121	.17	<2	3.22	.01	.23	<1	11
101+80N 13+00E	1	6548	2	209	<.1	26	30	1050	4.40	7	<5	<2	3	5	.3	<2	4	88	.21	.058	3	18	1.45	141	.22	2	3.76	.01	.46	<1	14
101+80N 13+20E	2	19	3	30	.2	3	4	185	3.51	5	<5	<2	<2	5	<.2	2	<2	135	.07	.019	<2	9	.47	14	.28	3	1.06	<.01	.01	<1	4
101+40N 11+00E	1	23	<2	13	<.1	1	2	89	1.94	<2	<5	<2	<2	3	.2	2	<2	108	.09	.008	<2	2	.34	6	.17	<2	.56	.01	.02	<1	2
101+40N 11+20E	<1	32	4	24	<.1	4	3	112	3.76	3	<5	<2	<2	2	<.2	2	<2	136	.09	.014	<2	4	.43	9	.22	<2	1.22	.01	.02	<1	1
101+40N 11+40E	<1	49	<2	38	<.1	8	7	175	4.40	4	<5	<2	3	2	.2	<2	<2	113	.10	.023	<2	11	.82	58	.21	3	3.00	.01	.13	<1	2
RE 101+40N 11+40E	1	48	4	37	<.1	8	6	171	4.31	4	<5	<2	2	2	.2	2	<2	110	.10	.023	<2	12	.81	57	.21	<2	2.95	.01	.13	<1	2
101+40N 11+60E	<1	20	<2	27	.1	1	2	98	4.58	4	<5	<2	2	3	<.2	2	<2	141	.09	.016	<2	6	.38	14	.22	3	1.03	.01	.03	<1	1
101+40N 11+80E	1	82	<2	17	.1	4	2	72	1.22	<2	<5	<2	<2	3	<.2	2	6	55	.09	.010	<2	2	.27	24	.12	<2	.52	.01	.03	<1	5
101+40N 12+00E	<1	353	3	28	.2	3	5	175	2.35	5	<5	<2	<2	2	<.2	<2	<2	66	.09	.028	<2	3	.92	53	.12	<2	1.36	.01	.26	<1	32
101+40N 12+60E	4	580	5	36	.2	4	3	198	4.83	3	<5	<2	3	2	<.2	<2	<2	118	.05	.013	<2	5	.75	61	.26	2	2.60	.01	.18	<1	55
101+40N 12+80E	2	176	6	46	<.1	19	6	271	2.92	4	<5	<2	<2	2	<.2	<2	<2	83	.03	.018	2	84	1.20	74	.15	<2	1.59	.01	.23	<1	5
101+40N 13+00E	4	204	10	46	<.1	10	11	538	4.01	6	<5	<2	<2	3	<.2	<2	<2	101	.12	.022	<2	24	1.12	70	.20	3	3.85	<.01	.16	<1	6
101+40N 13+20E	2	511	<2	65	<.1	15	15	349	4.25	2	<5	<2	<2	4	<.2	<2	<2	96	.15	.032	<2	32	1.41	119	.23	<2	3.47	.02	.22	<1	4
101+40N 13+40E	1	116	4	41	<.1	4	6	203	4.31	6	<5	<2	<2	4	.2	<2	2	120	.10	.028	<2	23	.82	54	.27	<2	2.17	.01	.11	<1	3
101+40N 13+60E	2	162	5	47	<.1	19	11	343	4.32	5	<5	<2	<2	5	.3	<2	<2	114	.15	.016	<2	36	1.44	99	.27	4	3.37	.02	.22	<1	5
101+00N 11+00E	1	253	4	40	.2	7	8	248	5.52	<2	<5	<2	3	3	<.2	<2	<2	113	.09	.025	2	9	.89	58	.20	2	2.89	.01	.17	<1	5
101+00N 11+20E	<1	183	2	30	<.1	3	6	201	8.37	4	<5	<2	5	3	.2	<2	<2	147	.10	.041	<2	15	.65	30	.22	2	4.15	.01	.06	<1	3
101+00N 11+40E	<1	13	<2	15	<.1	3	4	108	2.69	7	<5	<2	<2	3	<.2	3	<2	84	.11	.010	<2	3	.37	15	.15	2	.83	.02	.02	<1	3
101+00N 11+60E	<1	21	<2	21	.2	4	3	98	4.30	6	<5	<2	2	2	<.2	2	<2	104	.09	.013	<2	14	.49	25	.20	<2	1.45	.01	.07	<1	1
101+00N 12+00E	2	176	2	18	.1	<1	2	123	2.49	2	<5	<2	<2	3	<.2	<2	<2	64	.09	.011	<2	14	.38	18	.13	<2	.93	.01	.02	<1	32
101+00N 12+20E	2	365	4	27	.2	8	4	161	2.77	2	<5	<2	<2	2	.2	<2	<2	75	.10	.019	<2	18	.67	33	.13	<2	1.42	.01	.11	<1	55
101+00N 12+40E	6	308	6	22	.1	5	3	132	3.35	9	<5	<2	2	3	.2	<2	<2	90	.09	.010	<2	10	.54	25	.15	3	1.70	.02	.05	<1	120
101+00N 12+60E	2	35	<2	11	.2	<1	<1	36	1.64	2	<5	<2	<2	2	<.2	2	5	82	.03	.008	<2	1	.14	13	.12	<2	.43	.01	.01	1	28
101+00N 12+80E	4	322	5	58	.2	7	3	126	3.30	<2	<5	<2	<2	2	<.2	2	<2	43	.03	.013	2	9	.92	90	.16	<2	1.69	.01	.41	<1	8
101+00N 13+00E	2	83	4	49	<.1	10	9	310	4.67	3	<5	<2	<2	5	<.2	<2	<2	138	.10	.015	<2	20	1.50	98	.26	<2	2.29	.01	.28	<1	5
101+00N 13+20E	1	42	<2	35	.2	8	5	199	5.81	6	<5	<2	2	4	<.2	<2	<2	163	.11	.018	<2	20	.84	38	.35	<2	2.08	.01	.06	<1	3
STANDARD C/AU-S	19	58	38	128	6.8	66	30	1031	3.96	42	17	7	37	47	16.9	15	18	60	.50	.087	39	54	.90	176	.08	32	1.88	.06	.15	11	53

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 25 1994 DATE REPORT MAILED: Aug 31/94. SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
101+00N 13+40E	1	127	8	98	.2	10	27	1021	6.18	<2	<5	<2	3	10	<.2	<2	3	63	.23	.034	6	15	1.26	68	.18	<2	3.43	.02	.06	<1	1
101+00N 13+60E	1	10	3	24	<.1	3	5	160	1.28	<2	<5	<2	<2	4	<.2	2	5	28	.17	.013	2	11	.59	22	.06	<2	.81	.02	.06	1	1
100+00N 11+00E	<1	1	2	7	.1	1	2	66	.60	<2	<5	<2	<2	2	<.2	2	<2	28	.11	.006	<2	1	.17	5	.05	2	.27	.02	.01	<1	1
100+00N 11+20E	<1	64	2	28	.2	6	5	175	5.70	<2	<5	<2	3	3	<.2	<2	<2	141	.15	.013	2	38	.94	50	.26	3	2.61	.03	.13	2	1
100+00N 11+40E	<1	35	<2	22	<.1	1	5	362	3.88	<2	<5	<2	2	2	<.2	2	<2	100	.13	.022	<2	13	.52	19	.15	<2	1.80	.02	.06	1	1
100+00N 11+60E	<1	33	<2	17	.1	3	4	92	3.88	<2	<5	<2	3	3	<.2	2	<2	118	.12	.008	2	15	.37	48	.21	<2	2.89	.02	.04	1	2
100+00N 12+00E	<1	86	<2	17	.6	<1	1	32	.93	<2	<5	<2	2	1	<.2	2	<2	27	.01	.011	2	2	.15	12	.02	2	.34	<.01	.05	<1	110
100+00N 12+20E	<1	67	<2	7	.4	<1	<1	9	.12	<2	<5	<2	<2	1	.4	<2	<2	2	.02	.010	2	1	.01	7	.01	<2	.09	.01	.01	<1	8
100+00N 12+40E	6	334	4	105	.9	<1	3	221	4.23	5	<5	<2	3	13	.3	3	<2	61	.22	.021	<2	2	1.58	58	.23	2	2.54	.02	.56	<1	82
100+00N 12+60E	2	18	<2	20	.2	1	1	44	.51	<2	<5	<2	<2	2	.2	2	4	19	.03	.006	3	2	.15	16	.05	<2	.39	<.01	.03	1	15
100+00N 12+80E	4	15	3	10	.2	<1	1	26	.25	<2	<5	<2	<2	2	<.2	<2	<2	22	.02	.003	4	1	.13	4	.07	2	.20	.01	.01	<1	120
100+00N 13+00E	2	108	3	27	.2	4	2	111	2.02	<2	<5	<2	2	2	<.2	<2	2	78	.06	.011	2	16	.62	20	.13	<2	.84	.01	.06	1	18
100+00N 13+20E	1	131	3	15	.6	<1	1	72	.76	2	<5	<2	<2	2	.2	2	2	34	.05	.011	2	1	.40	14	.07	<2	.55	.01	.07	<1	160
100+00N 13+60E	<1	8	2	10	.9	<1	2	24	.18	5	<5	<2	<2	1	<.2	2	2	6	.03	.018	<2	1	.12	14	.03	2	.19	.01	.05	<1	44
100+00N 14+00E	<1	27	<2	5	<.1	<1	1	37	.37	<2	<5	<2	2	2	<.2	2	<2	5	.04	.010	4	1	.19	14	.04	<2	.25	.01	.05	<1	16
99+00N 11+60E	<1	44	4	36	.3	10	10	256	6.02	<2	<5	<2	3	5	<.2	<2	<2	119	.19	.020	2	45	.85	34	.18	<2	2.40	.03	.07	<1	3
99+00N 11+80E	<1	4	3	17	.1	1	2	80	1.07	<2	<5	<2	<2	4	<.2	2	3	36	.12	.012	<2	6	.35	9	.04	<2	.57	.03	.02	1	2
RE 99+00N 11+80E	<1	3	3	14	<.1	1	1	74	.99	<2	<5	<2	<2	3	<.2	<2	<2	33	.12	.011	<2	5	.33	6	.04	<2	.54	.02	.02	<1	2
99+00N 12+00E	1	74	2	21	.8	5	3	96	2.87	6	<5	<2	<2	2	<.2	3	8	82	.11	.011	2	23	.50	12	.12	<2	1.08	.02	.01	1	5
99+00N 12+80E	2	319	2	21	1.7	1	1	67	.73	<2	<5	<2	<2	2	<.2	3	4	17	.04	.029	3	2	.32	6	.03	<2	.61	.01	.03	<1	110
99+00N 13+00E	11	1826	5	52	.5	3	4	285	2.62	<2	<5	<2	3	3	.2	4	2	41	.12	.041	3	5	.71	16	.08	<2	1.97	.01	.09	<1	95
99+00N 13+20E	12	2341	9	68	.9	1	6	393	3.73	<2	<5	<2	4	3	.2	2	3	63	.09	.063	2	5	.86	34	.10	<2	2.97	.01	.16	1	140
99+00N 13+40E	5	259	4	16	1.2	1	1	36	.34	<2	<5	<2	<2	4	<.2	2	<2	10	.06	.024	2	2	.13	14	.01	2	.52	.01	.02	<1	230
99+00N 13+60E	1	88	<2	9	.5	<1	1	16	.12	<2	<5	<2	<2	1	<.2	2	2	2	.01	.015	2	1	.05	9	.01	<2	.24	.01	.01	<1	53
99+00N 13+80E	16	256	13	31	2.7	3	1	137	4.41	<2	<5	<2	2	4	.2	3	2	90	.06	.058	7	13	.48	11	.09	<2	1.90	.01	.02	3	56
97+00N 12+00E	3	113	4	14	.6	<1	1	52	.83	2	<5	<2	<2	2	<.2	3	7	35	.04	.018	4	3	.25	14	.09	<2	.48	.01	.04	1	150
97+00N 12+20E	6	23	4	11	.5	<1	<1	23	.28	<2	<5	<2	<2	1	<.2	<2	<2	11	.03	.015	2	1	.08	11	.04	2	.21	.01	.01	<1	89
97+00N 12+60E	2	627	2	38	.6	5	3	143	5.33	<2	<5	<2	3	2	<.2	3	<2	84	.07	.028	4	23	.83	77	.15	<2	1.83	.01	.20	1	17
97+00N 12+80E	4	242	3	25	1.3	3	3	108	1.37	<2	<5	<2	<2	2	<.2	2	3	48	.04	.022	2	4	.61	10	.08	2	.81	<.01	.04	<1	140
97+00N 13+40E	3	871	5	48	.7	3	6	162	4.01	2	<5	<2	2	2	<.2	4	4	90	.03	.020	<2	10	1.27	94	.19	<2	2.63	.01	.36	2	71
97+00N 13+60E	3	198	2	17	.9	<1	1	47	1.25	<2	<5	<2	<2	1	<.2	<2	<2	40	.02	.013	4	2	.29	15	.09	3	.58	<.01	.04	<1	53
97+00N 13+80E	3	221	<2	15	1.2	4	2	54	1.47	4	<5	<2	2	1	<.2	3	<2	41	.02	.015	5	2	.34	21	.11	<2	.68	.01	.05	<1	64
AW 001	4	173	5	43	.3	6	5	202	4.91	<2	<5	<2	2	3	.2	2	<2	122	.08	.024	2	23	.96	26	.22	<2	2.44	.01	.05	2	19
AW 002	1	194	6	54	.2	18	28	516	3.69	<2	<5	<2	<2	5	<.2	<2	3	84	.23	.035	3	28	1.19	91	.15	<2	2.00	.02	.10	<1	6
AW 003	<1	29	<2	35	.1	5	6	177	2.37	<2	<5	<2	<2	4	.2	3	<2	75	.13	.044	2	10	1.17	237	.17	<2	1.45	.01	.44	<1	5
STANDARD C/AU-S	19	58	38	128	6.9	67	31	1036	3.96	41	20	7	36	50	17.1	15	18	61	.51	.090	41	56	.92	187	.08	35	1.88	.07	.16	13	46

Sample type: SOIL. Samples beginning 'RE' are duplicate samples.

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
AW 004	2	164	3	62	.5	23	12	219	3.95	<2	<5	<2	<2	10	.3	<2	<2	81	.48	.034	2	50	.92	162	.14	2	1.72	.02	.12	<1	3
AW 005	<1	23	<2	37	<.1	12	8	229	1.38	<2	<5	<2	<2	6	<.2	<2	<2	32	.34	.026	2	25	.60	120	.06	2	.89	.02	.09	1	3
AW 006	1	342	<2	37	.4	36	21	396	5.14	4	<5	<2	<2	8	<.2	<2	<2	69	.37	.094	<2	69	1.13	66	.08	<2	1.37	.03	.18	1	11
AW 007	<1	95	3	36	.3	20	11	251	4.03	2	<5	<2	<2	3	<.2	<2	<2	96	.15	.020	2	30	1.02	60	.19	2	3.04	.01	.11	1	3
RE AW 007	<1	90	3	36	.1	19	11	253	4.13	<2	<5	<2	<2	3	.2	<2	<2	97	.16	.020	2	32	1.02	60	.19	<2	3.07	.02	.11	<1	3

Sample type: SOIL. Samples beginning 'RE' are duplicate samples.

Appendix C

ROCK SAMPLE DESCRIPTION

APPENDIX C

ROCK SAMPLE DESCRIPTIONS

Rock Sample Description - Peter DeLancey

Ecstall Project, B.C.

Sample No. : PD-E-94-1
Description:
Traverse up Red Gulch with Alan McNut; boulder of calcareous? chl-arg schist with < 5% py.

Sample No. : PD-E-94-2
Description:
Angular float from local source; white qtz-felds-ser sch; < 5% strung out diss py and cpy.

Sample No. : PD-E-94-3A
Description:
Thirteen Cr cirque; just up from snow bridge in cirque; Angular float boulder of felsic gn with 2% strung out cpy along foliation.

Sample No. : PD-E-94-3B
Description:
Same location as above. Float boulder of mafic gneiss (amphibolite) with 10% cpy in ftactures and diss.

Sample No. : PD-E-94-4
Description:
Upper Thirteen Cr grid; qtz-ser-sch; <5% cpy/py

Sample No. : PD-E-94-5
Description:
Location as above ; qtz-ser sch.

Sample No. : PD-E-94-100
Description:
Lower Thirteen Cr. up from Beaver Pond. Sil arg float in area of predominantly felsic gneiss (gn) float.

Sample No. : PD-E-94-101
Description:
As above, near 9,900 on BL; sil arg float.

Sample No. : PD-E-94-102
Description:
At north end of BL. Felsic gn. to sch. locally with diss cpy and minor CuOx on fractures

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Sample No. : PD-E-94-103
Description:
As PD-E-94-102.

Sample No. : PD-E-94-104
Description:
In main Cr. flowing to Beaver Pond, at approx. 9580 N of BL. Well beded argillite and siltstone, Az 340/85W. Sampled large slab of foliated felds. intrusive? with diss. and foliation controlled cpy.

Sample No. : PD-E-94-105
Description:
On Cr just down from small pond. Oc of arg with up to 10% fine Py. Arg is at Az 340/90.

Sample No. : PD-E-94-106
Description:
Arg. oc in creek.

Sample No. : PD-E-94-107
Description:
Ign. boulder with hb. xls and diss cpy.

Sample No. : PD-E-94-108
Description:
Boulder on BL near 101. Felsic gneiss, Hb xls, dis. cpy.

Sample No. : PD-E-94-108A
Description:
Slab of felsic gn from cliff above, just north of 108.

Sample No. : PD-E-94-109
Description:
At Phoeby Cr. oc of ser-qtz-kay-sch, relatively masive, kay xls tend to be conc. in bands and therefore have good exposures on vert.faces. Some bio.' difficult to distinguish from felsic gn.

Sample No. : PD-E-94-110
Description:
In Phoeby Cr. Mixed gn. with some mafic. Felsic units have bio., minor garnets.

Sample No. : PD-E-94-111
Description:
In Phoeby Cr. Rock is well banded , locally folded in sericitic units, other units appear igneous. Slightly rusted bands have >5% diss. cpy. usually with brown bio. Other very micaceous units have cpy along foliation. Local exposure shows felds. laths? parallel foliation. Az 340/90.

Sample No. : PD-E-94-112
Description:
In Red Gulch at south end of North Lens and 50 m south of waterfall. Massive sulphides in place at mouth of small creek entering Red Gulch from E. Massive bands of sphalerite and pyrite adj. to folded zone. Zinc-rich zone is burried but is min..3 m wide.

Sample No. : PD-E-94-113
Description:
Up Phoeby Cr. Siliceous rock with local fine brown biotite disseminated bands and also throughout sil. rock also diss. cpy and lesser py. area is approx. 30 m wide with diss. cpy (0.2% Cu).

Sample No. : PD-E-94-114
Description:
10 m futher up creek at minor waterfall and INCO sample site SX210183
Rock is banded sil.gn/sch with diss cpy and py. Cpy is finely diss and associated with silicification and/or fine diss py and lesser chl.

Sample No. : PD-E-94-115
Description:
At creek junction, rusted amphidolite float with > 10% Py and local cpy. Contact with felsic unit is intermixed.

Sample No. : PD-E-94-116
Description:
Thirteen Grid at 9500 cross-line west. Large oc, also site of Falconbridge sample 87/14PM098 (AD 1983 on map). Rock is a bio (after hb?)-felds-qtz gn at Az. 350/90, only very minor cpy diss.

Sample No. : PD-E-94-117
Description:
On 9500 cross-line at station 1340E. Well exposed width of altered Hb-bio felsic gneiss with cpy as diss. along foliation direction. Mafics are converted to chl. and bio. Minor bornite and chalcocite also. Foliation at Az. 350/90. On north side this altered rock is in contact with fine grained banded hornblendite with local gneiss. Sample for analyses is compositional grab over 7 m and is same as Falconbridge 87/14 JD161-162. Creek follows this altered zone because of recessive weathering.

Sample No. : PD-E-94-118
Description:
At cliffs (same area as 117). Rock is felsic gn to ser-qtz sch. Cpy content is better in more siliceous bands. Up cliff to west is Hb-gn with only minor cpy and py. Az 360/80 E. Felsic and hornblendite bands are intermixed.

Sample No. : PD-E-94-119
Description:
Traverse up creek exposing altered rock. The Quartz-feldspar-porphyry nature of many units is apparent with micaceous minerals "flowing" around feldspar like phenocrysts. The porphyritic rocks appears to be intimately associated with the cpy mineralization although adjacent felsic gn (dioritic) rock is also mineralized; possibly the felsic gn is just finer grained and less porphyritic phase. Sample is typical grab; cpy along foliation.

Sample No. : PD-E-94-120
Description:
Traverse along Ecstall Ridge to west. Close to LCP, well foliated at AZ 350/90; 1-2 cm bands of semi-massive py with very local and minor cpy and sph?. Bands can only be followed for 10-20 m but overall mineralized zone is continuous. Rock is qtz-chl sch. Falconbridge 1879?

Sample No. : PD-E-94-121
Description:
Rock is variably altered and foliated Hb-gn with interbeds of locally garnetiferous chl sch and local amphibolite. Very minor local sulphides.

Sample No. : PD-E-94-122
Description:
Marble unit 3m wide. Unit tends to form depressions and therefore show up as linears on photos. Adj rock is chloritic and garnetiferous. Very local py.

Sample No. : PD-E-94-123
Description:
Marble unit 4 m wide; Az.350/85E. Adj rock to east is Hb-bio-gn is possibly qtzite.

Sample No. : PD-E-94-124
Description:
Coarse grained poorly foliated rock, probably intrusive, qtz-bio gn with bands of bio-chl with garnets.

Sample No. : PD-E-94-125
Description:
Spotted bio-chl sch after mafic volc. Cut by sills/dykes of Hb-gn leucoratic pyritic rocks. Is this the same "dyke/sill" swarm as Thirteen Cr.

Sample No. : PD-E-94-126
Description:
Medium foliated Hb-bio leucoratic gn; locally garnetiferous with bio-chl sch.

Sample No. : PD-E-94-127
Description:
Location is just west side of peak above Red Gulch Cr. To east is mostly chl sch and at peak rock type changes to well bedded siltstone, locally altered to ser sch.
Gossanous rocks, 3-4 m wide alt chl-ser-py schist; foliation is contourted. Immediate footwall is garnetiferous chl sch . Host rock to narrow bands of magnetite is very well bedded to laminated siltstone.

Sample No. : PD-E-94-128
Description:
Same zone as above but of chloritic footwall.

Sample No. : PD-E-94-129
Description:
Same unit as 127 but lesser magnetite.

Sample No. : PD-E-94-130
Upslope NE of LCP. Leached bio-ser-qtz sch; minor cpy, py. Local cross bedding noted in area.

Sample No. : PD-E-94-131
Description:
Elevation 1080 on strike with above; qtz-bio-gn with po. and minor cpy.

Sample No. : PD-E-94-132
Description:
Rusted boulder in place. Sills? cutting bio-chl sch ; Az 010/90, Po along foliation.

Sample No. : PD-E-94-133
Description:
In small creek near #1 post west. Quartz-felds-porph sills cut and altered sil chl schist; + py some po and minor cpy.

Sample No. : PD-E-94-134
Description:
In Thirteen Cr cirque at base of creek second from most easterly. Leucoratic gn, possibly QFP with diss py and cpy.

Sample No. : PD-E-94-135
Description:
Location as above; bio-chl sch with diss py and cpy. az 350/80E. Shear zone up creek at 030/90. At next creek to west is a 0.3 m wide mariposite/sericite sch bed.

Sample No. : PD-E-94-136
Description:
On Thirteen grid at 700 m west of base line. Diss cpy/py in leuco gn.

Sample No. : PD-E-94-137
Description:
Traverse from Fisheries cabin to gossanous scar on east side of Thirteen cr. El 140; rock alternates from chl sch to felds porph to argillite with narrow ser sch bands ; 5% diss Py.

Sample No. : PD-E-94-138
Description:
Outcrop to east is chl sch with some porphyry sills? At station 138 elev is 390 m and rock is exposed in minor creek just below plateau swamp. Bio-chl sch with alteration bands or porph bands; Az 360/90; 5% diss py, very minor cpy.

Sample No. : PD-E-94-139
Description:
Outcrop on strike and immediately north of gossanous slide scar. Sheared qtz-ser sch with 5% diss py and local mariposite.

Sample No. : PD-E-94-141
Description:
At 340 m; angular float in small creek; bio-felds gn (appears to be after greywack) with local diss cpy and minor py.

Sample No. : PD-E-94-206
Description:
Red Gulch Cr at North Lens exposure on east wall. Sample of sericitic white contorted inclusion in massive py. Inclusion is thought to be baritic.

Sample No. : PD-E-94-207
Description:
North lens area. Sample is on banded calcareous angular float persumably derived from hanging wall rocks east of massive sulphide horizon.

Rock Sample Descriptions - U.Schmidt

Ecstall Project - Thirteen Creek

Sample No.: 099+00N-12+30E Elev.:
Description:
Leucocratic chl-biot qtzo-fldsp gneiss, pale green mica, rusty weatherin.

Sample No.: 099+00N-12+85E Elev.:
Description:
Sqm, chloritic qtz-musc schist, with malachite and 1-2%cpy.

Sample No.: 100+00N-12+50E Elev.:
Description:
Leucocratic chl-biot qtzo-fldsp gneiss, pale green micas.

Sample No.: 100+00N-12+80E Elev.:
Description:
Leucocratic chl-biot qtzo-fldsp gneiss, pale green mica, rusty weatherin.

Sample No.: 100+00N-13+05E Elev.:
Description:
Sqm, qtz-musc qtzo-fldsp gneiss.

Sample No.: 100+75N-13+00E Elev.:
Description:
Pale green meta-lapilli tuff?

Sample No.: 101+40N-11+60E Elev.:
Description:
Coarse grained hbl-qtzo-fldsp gneiss.

Sample No.: 101+40N-11+90E Elev.:
Description:
Leucocratic chl-biot qtzo-fldsp gneiss, pale green mica, rusty weatherin.

Sample No.: 101+75N-11+00E Elev.:
Description:
Hbl-chl-biot qtzo-fldsp gneiss.

Sample No.: 101+80N-11+70E Elev.:
Description:
Leucocratic biot-chl-qtzo-fldsp gneiss, emerald green mica, brown biot.

Sample No.: 101+80N-12+20E Elev.:

Description:

Leucocratic chl-biot qtzo-fldsp gneiss, pale green mica, rusty weatherin.

Rock Sample Descriptions - U.Schmidt

Ecstall Project - Red Gulch Creek

Sample No.: US-E-94-12 Elev.: 90 m
Description:
Massive sulphide boulder on east bank of creek, south of station 9 60 to 80% sulphide in banded quartz, 20% cpy in py.

Sample No.: US-E-94-13 Elev.: 155 m
Description:
Thinly laminated siliceous micaceous rock with 15-20% diss. pyrr & cpy occurs at the north end of a massive py lens that pinches out.

Sample No.: US-E-94-14 Elev.: 156 m
Description:
Qtz-musc schist, pyritic, 10-15% py, chip sample of hanging wall of the sulphide lens located east and at south end of North Lens.

Sample No.: US-E-94-15 Elev.: 129 m
Description:
1m wide chipsample across hanging wall qtz-musc schist of North Lens approx 10m south of adit.

Sample No.: US-E-94-15A Elev.: 129 m
Description:
Duplicate sample taken in the same area as 15, to test correlation.

Sample No.: US-E-94-16 Elev.: 122 m
Description:
Hanging wall pyritic qtz-musc schist taken 25 m south of 15.

Sample No.: US-E-94-16A Elev.: 122 m
Description:
Duplicate sample taken near 16.

Sample No.: US-E-94-17 Elev.: 121 m
Description:
Foot wall qtz-musc schist of South Lens, approx. 40cm width.

Sample No.: US-E-94-17A Elev.: 121 m
Description:
Duplicate of 17 taken about a metre away.

Sample No.: US-E-94-18 Elev.: 137 m
Description:
Centre of shear zone between two adits east of water fall, qtz-musc schist.

Sample No.: US-E-94-19 Elev.: 137 m
Description:
Hanging wall qtz-musc-chl schist of South Lens, up to 20% py.

Sample No.: US-E-94-20 Elev.: 136 m
Description:
Qtz-musc-mariposite schist of North Lens foot wall, just south of adit.

Sample No.: US-E-94-21 Elev.: 184 m
Description:
Sqm- footwall sericite-quartz schist unit of North Lens, 20% pyrite sample taken for geochemical zoning study.

Sample No.: US-E-94-22 Elev.: 112 m
Description:
South Lens hanging wall, qtz-musc schist, over 1m ,20-40% py old sample PD-E-93-2.

Sample No.: US-E-94-23 Elev.: 112 m
Description:
South Lens hanging wall, qtz-musc schist, over 1m ,20-40% py, 19m up stream from 22.

Sample No.: US-E-94-24 Elev.: 117 m
Description:
South Lens hanging wall, qtz-musc schist, over 1m ,20-40% py, 20m up stream from 23.

Sample No.: US-E-94-25 Elev.: 123 m
Description:
Foot wall South Lens, 50cm sample width of sheared chloritic qtz-musc schist, 20 -40 % py, 12m west of 24.

Sample No.: US-E-94-26 Elev.: 133 m
Description:
Sheared, pyritic, foot wall qtz-musc schist of South Lens.

Sample No.: US-E-94-27 Elev.: 171 m
Description:
Sheared, pyritic, foot wall qtz-musc schist of North Lens.

Sample No.: US-E-94-28 Elev.: 178 m
Description:
Pyritic, foot wall qtz-musc schist of North Lens, 70cm width, north of 2.

Sample No.: US-E-94-29 Elev.: 175 m
Description:
West side of creek, qtz-musc-mariposite schist, should be foot wall of South Lens, but relationship is unclaear.

Sample No.: US-E-94-30 Elev.: 182 m
Description:
Sqm footwall of North Lens on west side of creek at point below where the lens narrows to about 1m width, very hard unsheared o/c.

Sample No.: US-E-94-31 Elev.: 195 m
Description:
Sqm footwall of North Lens on west side of creek at point where the lens has narrowed to about 1m width, sheared o/c, appears to be on strike with unsheared o/c below, the two areas may be separated by thrust fault.

Sample No.: US-E-94-32 Elev.: 196 m
Description:
Sqm hanging wall of North Lens on west side of creek at point where the lens has narrowed to about 1m width, chloritic Sqm.

Sample No.: US-E-94-34 Elev.: 194 m
Description:
Foot wall of North Lens, at north end where lens splits in two.

Sample No.: US-E-94-35 Third Outcrop Elev.: 460 m
Description:
Qtz-musc schist up stream from Third o/c, white Sqm grades to black, graphitic qtz-sericite schist to the north, frequent qtz-carbonate segregations on this horizon.

Sample No.: US-E-94-36 Third Outcrop Elev.: 415 m
Description:
Several narrow pyritic horizons occur in qtz-musc schist unit over 4m width, chip sample across the zone.

Sample No.: US-E-94-37 Third Outcrop Elev.: 406 m
Description:
Hanging wall qtz-musc schist of Third o/c, across 1m width.

Sample No.: US-E-94-38 Third Outcrop Elev.: 405 m
Description:
Sheared foot wall qtz-musc schist of Third o/c, across 1m width, 10-15% pyrite.

Sample No.: US-E-94-39 Elev.: 130 m
Description:
Pyritic qtz-musc schist from footwall of py lens abve loweradit on west of creek.

Sample No.: US-E-94-40 Elev.:
Description:
Black, pyritic, musc-graphitic phyllite at the footwall contact of the southern extension of the South Lens.

Sample No.: US-E-94-41 Elev.: 161 m
Description:
Hanging wall pyritic Sqm, south of South Lens exposure, on west side of creek.

Sample No.: US-E-94-42 Elev.: 198 m
Description:
Sqm hanging wall, North Lens, east of station 26, cpy, minor bornite in banded pyritic qtz-musc schist, disseminations and irregular segregations of cpy in py, chip sample across 3m.

Sample No.: US-E-94-43 Elev.: 311 m
Description:
Pyritic Sqm, north of North Lens pinch out, located on western tributary of Red Gulch Creek, just north of the pinch out.

Sample No.: US-E-94-44 Elev.: 278 m
Description:
Pyritic Sqm, north of North Lens pinch out, located on western tributary of Red Gulch Creek, just north of the pinch out.

Sample No.: US-E-94-45 Elev.: 199 m
Description:
Cpy in pyritic Sqm, qtz-musc schist, located 7 m south of sample 94-42 1 m wide chip sample.

Sample No.: US-E-94-46 Elev.: 195 m
Description:
Blue and purple layers in massive pyrite of North Lens,(bornite?) bands appear over 30-40cm, along a 2m strike length, bands have the of a secondary coating on py and carbonate matrix.

Sample No.: US-E-94-47 Elev.: 170 m
Description:
Cpy in banded pyritic Sqm Boulder found in Red Gulch Creek below North Lens, looks like boulder farther down stream which assayed .202 opt Au 2.5x1.2x0.8m size, sampled accross 60cm.

Sample No.: US-E-94-48 Elev.: 214 m
Description:
Cpy in pyritic Sqm uphill from US-E-94-47 and a possible source for this boulder, hanging wall Sqm unit.

Sample No.: US-E-94-52 Elev.:
Description:
North Lens massive sulphide near adit at waterfall, 1m wide chip sample taken from hanging wall contact across brown banded massive pyrite.

Sample No.: US-E-94-53 Elev.:
Description:
North Lens massive sulphide near adit at waterfall, 1m wide chip sample taken from 1 to 2m from hanging wall contact across massive pyrite.

Sample No.: US-E-94-54 Elev.:
Description:
North Lens massive sulphide near adit at waterfall, spot sample taken 3 m from hanging wall.

Sample No.: US-E-94-55 Elev.:
Description:
North Lens massive sulphide near adit at waterfall, spot sample taken 4 m from hanging wall.

Sample No.: US-E-94-56 Elev.:
Description:
North Lens massive sulphide near adit at waterfall, spot sample taken 4.7 m from hanging wall, just above foot wall.

Sample No.: US-E-94-57 Elev.:
Description:
North Lens pinch out, upper pinch out, qtz.-cpy-pyrr.

Sample No.: US-E-94-58 Elev.:
Description:
North Lens pinch out, massive pyrite a few metres south of cpy. about 20-30 cm in width, along lower pinch out.

Sample No.: US940911-1 Elev.:
Description:
Cpy blebs and disseminations in black quatrz-muscovite phyllite, elongated lens in hanging wall of North Lens.

Sample No.: US940911-2 Elev.:
Description:
Leucocratic gneiss overlying phyllite in hanging wall of North Lens, galena, cpy associated with quartz, with green minerals in a granular pyritic micaceous rock.

Rock Sample Description - Paul Kallock

Ecstall Project, B.C.

Sample No. : PK-E-94-08-19-001
Description:
50m east of mountain top, el. 4600 ft., north side near glacier, 0.5m chip sample across purplish brown biolite quartz schist with 3 - 5% disseminated pyrite, trace chalcopyrite, foliation - 008/80°E.

Sample No. : PK-E-94-08-19-002
Description:
Elevation 4160 ft.; 0.3m chip of gossanous, Fe Ox, sericite, mariposite schist. 10% (?) sulfide boxwork structures, iron stained quartz sericite schist is 10 - 15 m wide and hosted within calcareous schist.

Sample No. : PK-E-94-08-19-003
Description:
Northwest side of saddle on projected north extension of Ecstall zone; 0.5m chip of quartz-chlerite schist with 5% sulfides and strong boxwork structures, trends 010/85°E, metaseds (argillite) to East and West.

Sample No. : PK-E-94-004
Description:
Marmot Prospect, elevation 3530 ft, chip of 0.2 m float boulder (comes from vertical creek bank) 50% pyrite, trace disseminated black minerals, strongly iron stained, weak to moderately weathered with <5% boxwork structures.

Sample No. : PK-E-94-005
Description:
Marmot Prospect, elevation 1900 ft. grab sampe from outcrop of quartz-sericite-pyrite, sulfides are very fine grained, 5%.

Sample No. : PK-E-94-006
Description:
7230 N 1575E Thirteen Creek Cirque, quartz biotite gneiss with 3 - 4% pyrite, 2 - 3% chalcopyrite as fine disseminated strong surficial iron oxide. Float boulder. Elevation 1600 ft.

Sample No. : PK-E-94-007
Description:
7200 N 1560E Outcrop in creek, 0.5m chip sample across central iron oxide zone which is approximately 1.0 m wide. Zone trends N - S vertical. 20% pyrite and 25% chalcopyrite. P.D. saw similiar sulfides including bornite 10 m to north.

Sample No. : PK-E-94-008
Description:
North of Ecstall River, elevation 150 ft. Felsic gneiss zone 3 - 4 m wide with numerous quartz veins some of which have irregular pyrite, chalcopyrite veins, quartz is conformable and also cross cutting at least 30 m long in scattered pods 2 - 4 m apart. Grab sample of ~10 cm of best sulfide mineralization.

Sample No. : PK-E-94-009
Description:
Float cobble, 10% fine grained pyrite 1/2 - 1% chalcopyrite, strongly iron stained quartz biote gneiss with minor garnets.

Sample No. : PK-E-94-010
Description:
In Phoebe Creek, approximately 93+40N 12+60E 0.5 m chip-channel sample across sulfide zone hosted in purplish brown (altered) biotite quartz schist within a broader quartz sericite zone. 10% py, 5 - 7% cpy as conformable stringers up to 1 cm wide.

Sample No. : PK-E-94-011
Description:
At lowest part of meadow approximately 92+00N 13+75E 0.1 m chip sample of silicified gray quartz-ser schist with 20 - 25% sulfides which are 15% cpy. Adjacent to 2 cm quartz vein. Trace malachite.

Sample No. : PK-E-94-012
Description:
Near 94+00N 13+42E. Select of quartz biotite schist with 3% disseminated chalcopyrite.

Sample No. : PK-E-94-013
Description:
Near 94+00N 12+92E at head of small stream. 0.8 m chip of quartz sericite schist, strong iron oxide. 5% disseminate and stringer chalcopyrite.

Sample No. : PK-E-94-014
Description:
at 95+10N 13+00E, 0.2 m chip of outcrop of very siliceous quartzose gneiss with brown biotite occasional amphibolite horizon (barren) cpy = 5 - 8%, most float is equally mineralized.

Sample No. : PK-E-94-015
Description:
Near 94+90N 13+25E chips of boulder in-place (?) 0.1 m thick, quartz, brown biotite gneiss with 15 - 20% disseminated pervasive chalcopyrite near barren 0.75 m amphibolite horizon.

Sample No. : PK-E-94-016
Description:
At cliff face near 95+00N 12+70E, 0.2 m chip of quartz-sericite-kyanite schist with 3% chalcopy 0.5% malachite.

Sample No. : PK-E-94-017
Description:
Approximately 94+50N 13+40E, 0.1m chip sample of outcrop at quartz-sericite-biotite schist contain 5 - 10% disseminated pyrite and up to 15% chalcopyrite.

Sample No. : PK-E-94-018
Description:
Approximately 95+70N 12+50E, quartz-brown biotite hosted in quartz-sericite schist with 10% disseminated chalcopyrite, trace malachite; 0.2 m chip sample.

Sample No. : PK-LL-94-01
Description:
From Ec claim Quaal River; elevation 280 feet float from north creek, sample of black argillite with 10% very fine grained pyrite which makes up 5% of float; most float is green chloritic schist.

Sample No. : PK-LL-94-02
Description:
Float boulder of very silicified and brecciated metasediment (?) with 20 - 25% pyrite from Quaal River, Ec claim elevation 200 feet.

Sample No. : PK-E-94-019
Description:
at 8772N 1312E 0.1m chip sample across vein of 30 - 40% pyrite, trace chalcopyrite, hosted in amphibolite; has central 2 cm massive pyrite vein.

Sample No. : PK-E-94-020
Description:
at 8885N 1600E, chips of 5 cm of very siliceous (almost cherty?) pyritic vein (?) within 2m wide quartz-sericit schist outcrop. Entire outcrop is strongly iron stained and has 1 - 5% disseminated pyrite below the weathered surface.

Sample No. : PK-E-94-021
Description:
In North Elaine at approximately 8820N, 1610E Outcrop of quartz-sericite schist, 3 to 4 m wide at waterfall, elevation 800 ft. sample of 0.15m of very siliceous, pyritic vein near west wall, 10% pyrite 1 - 2% chalcopyrite strong quartz minor carbonate in quartz.

Sample No. : PK-E-94-022
Description:
Float boulder from N. Elaine Creek, elevation 940 ft. approximately 8810N 1585E brown biotite gneiss with 15% very fine grained pyrite, 3 - 5% chalcopyrite.

Sample No. : PK-E-94-023
Description:
approximately 8806N, 1575E in N. Elaine Creek, 0.4 m chip across fault zone in graphitic schist, contorted and sheared, 20% crushed fine grained pyrite, trace chalcopyrite.

Sample No. : PK-E-94-024
Description:
~8560N, 1462E; central Elaine Creek; 0.55 m chip of 5 - 8% chalcopyrite in quartz-sericite schist.

Sample No. : PK-E-94-025
Description:
~8556N, 1458E; Central Elaine Creek; 0.42 m chip, 2 - 3% chalcopyrite, 2 - 3% pyrite in quartz-sericite schist.

Sample No. : PK-E-94-026
Description:
~8555N 1457E; Central Elaine Creek; 0.75 m chip, 10% pyrite, 6% chalcopyrite, local bull quartz, hosted in quartz-sericite schist.

Sample No. : PK-E-94-027
Description:
~8630N, 1434E 0.4m chip of numerous chalcopyrite-bormite veinlets each less than 1 cm, hosted in quartz sericite schist with central 2 - 5 cm quartz vein trend N5°E 75°E.

Sample No. : PK-E-94-028
Description:
~8650N, 1460E 0.1 m chip of massive chalcopyrite, pyrite, bornite vein, host is grey-green silicous chlorite-sericite schist (?).

Sample No. : PK-E-94-029
Description:
~8545N 1512E 1.0 m chip of quartz-muscovite schist near chlorite schist contact; 15% pyrite, 2 - 4 % chalcopyrite.

Sample No. : PK-E-94-030
Description:
~8910N, 1830E Approximately 300 ft elevation, west bank Elaine Creek, 0.3 m chip of quartz-gossan vein 25% limonite boxwork, hosted in blenched and foliated metasediments.

Sample No. : PK-E-94-031
Description:
~8466N 1462N 0.18 m chip of chalcopyrite-bornite vein 1.5 cm thick with numerous minor parallel chacopyrite-pyrite veinlets hosted in choritiitic shear zone near quartz-muscovite schist.

Sample No. : PK-E-94-032
Description:
~8378N, 1450E 0.1 m chip of 20% bornite-chalcopyrite vein in quartz-muscovite schist near footwall of amphibolite sill.

Sample No. : PK-E-94-034
Description:
7910N 1625E 2.0 m chip sample at pyrite graphitic schist on hanging wall of marble, metasediment are dark grey strongly folded with 5 - 10% very fine grained mottled pyrite.

Sample No. : PK-E-94-035
Description:
7912N, 1624E 1.0 m chip of more silicified and bleached graphitic schist at marble contact 1 m north of #034, pyrite content is 5 - 10 %.

Sample No. : PK-E-94-036
Description:
7915N, 1600E 0.08 m chip of outcrop on footwall of marble at chlorite schist contact, silicification with very fine grained pyrite and 3 - 5 % sphalerite (?).

Sample No. : PK-E-94-037
Description:
at 7728N 1390E 2.0 m chip of bleached and weakly silicified granular biotite brown gneiss adjacent to but not including 1/2 m quartz with pods of chalcopyrite and pyrite.

Sample No. : PK-E-94-038
Description:
Near 7460N 1515E 0.15 m chip of 30% disseminated pyrite hosted in gray biotite-chlorite-quartz gneiss.

Sample No. : PK-E-94-039
Description:
7200N 1600E Float boulder of 25 - 30% very fine grained pyrite in tan phyllite; very strong surficial iron oxide.

Sample No. : PK-E-94-040
Description:
8455N 1245E 0.5 m chip of 20% pyrite, 5 - 10% chalcopyrite in dark green coarse grained hornblende (?) gneiss.

Sample No. : PK-E-94-041
Description:
8530N 1500E 0.1 m chip of grey iron stained phyllite containing minor quartz and 5% pervassive very fine grained pyrite, 1% (?) chalcopyrite.

Sample No. : PK-E-94-042
Description:
9640N 1435E 0.1 m chip of very fine grained pyrite (10 - 20%) in a quartz sericite chlorite altered rock, strong surficial iron oxide; adjacent to quartz, muscovite, kyanite schist on west and 4 m east to chlorite schist.

Sample No. : PK-E-94-043
Description:
9625N 1435E 0.2 m chip of pink and green (brown biotite + chlorite) pyritic mottled silicous altered gneiss (?) with 10 - 15% pyrite, trace chalcopyrite.

Sample No. : PK-E-94-044
Description:
Approximately 8700N 2200E East of Thirteen Creek; 0.1 m chip of outcrop in creek, grey quartz-sericite schist with 5% disseminated pyrite foliation is N-S 79°E.

Rock Descriptions - Brian Lennon
Thirteen Creek Grid Area

Specimen No. 98+00N, 13+93E (Outcrop)
Description:
Very fine grained silvery grey to black graphite schist or phyllite? In places intensely folded with internal crenulations within broader folds. Foliation 352°/46 SW. Rusty weathering but only minor pyrite is observed sporadically.

Specimen No. 98+00N, 13+20 (Float)
Description:
Felsic laminated quartz-sericite gneiss biotite 10 - 15% brownish. Weak rusting on foliation planes. No visible sulphide in specimen.

Specimen No. 98+50N, 13+60E (Float Boulder)
Description:
Approximate location. Malachite stained quartz-sericite-biotite gneiss. Overall light coloured with brown biotite on foliation planes w/sericite. Finely disseminated chalcopyrite grains occur throughout boulder. Cpy is found on foliation planes and is most after found with biotite.

Specimen No. 98+87N, 13+77E (Outcrop)
Description:
Finely laminated graphitic schist. Dark grey fissile and very fine grained. Rusty fractures and open foliation surface but no visible pyrite.

Specimen No. 99+00N, 13+17E
Description:
Laminated-greenish grey, fine to medium grey amphibolite w/abundant sugary qtz. No sulphides visible. Upper contact w/fissile qtz-sericite schist then to massive-qtz-sericite kyanite schist.

Specimen No. 98+40N, 13+20E
Description:
Massive quartz-sericite-kyanite? schist. Unit is hard and massive appearing. White colour with quartz knots or avgen-like features up to 10 cm diameter. Lower contact is with a sheared? fissile qtz-sericite schist, "Avgens" stretched in planes of foliation. Overlies 99+00N, 13+17E amphibolite.

Specimen No. 99+00N, 13+10E (Outcrop)
Description:
Fine grained, laminated biotite-qtz-sericite schist. Sugary textured with fine biotite laminations. Two blobs of chalcopyrite along qtz rich lense.

Specimen No. 99+06N, 13+00E (Outcrop)
Description:
3 specimen. Mixed package of gneiss across a section of o/c 6-meters high. Primarily fine to medium grained dark green amphibolitic gneiss interlayered w/qtz-sericite chlorite schist.

Specimen No. 99+06N, 12+83E (Float)
Description:
Biotite-qtz-sericite gneiss occasionally crenulated. Possibly qtzo feldspathic with variable biotite. Some malachite staining and bleb to fine grains of dissem. chalcopyrite.

Specimen No. 99+10N, 12+65E (Float)
Description:
Biotite-qtz-sericite gneiss boulders, some finely laminated, others less and more qtzo feldspathic. Abundant malachite staining and disseminated chalcopyrite.

Specimen No. 99+00N, 12+40E (O/c?)
Description:
Brownish to purplish biotite-qtz-sericite gneiss. Sugary textural with fine lamination w/biotite on foliation planes.
Weak malachite and minor dissem cpy.

Specimen No. 99+00N, 12+07E (Float)
Description:
Brownish to purplish. Biotite-qtzoze-gneiss. Sugary textured similar to 99+00N, 12+40E. No visible sulphides mixed with amphibolite.

Specimen No. 99+00N, 1+40aE (O/c, Fine grained)
Description:
Amphibolite. Dark green coarse grained to fine grained laminated amphibolite w/qtz lamellae Attitude 348°/82SW.

Specimen No. 99+00N, 1+40bE (O/c, coarse grained)
Description:
Coarse grained amphibolite with hbld lath to 5 mm length. Attitude 342°/85 SW. Coarse qtz lamellae.

Specimen No. 99+45N, 13+30E (O/c)
Description:
Amphibolite. Fine to medium grained. Dark grey green. Some biotite rich bands. Some translucent apple green mineral (amphibole?). On weathered surface shows malti compositioned layering. No readily visible sulphides.

Specimen No. BL-E-94-2, 99+50N, 13+00E (O/c)
Description:
Small o/c of quartzo-feldspathic gneiss w/biotite, very fine grained chalcopyrite disseminated along foliation plans. Rusty weathering. Lustrous sericite on foliation plans.

Specimen No. 99+56N, 13+04E (O/c)
Description:
Immediately E of BL-E-94-2. Qtz-sericite-kyanite? Schist with lamellae of biotite. No chalcopyrite observe.

Specimen No. 99+50N, 12+60E (Float)
Description:
Large slide area with boulders to 3 m diameter. Mixed composition in boulder. Malachite stained, felsic to leacocratic. Qtz-sericite kyanite unit and biotite quartzo feldspathic sericite gneiss. Quartzo feldspathic boulder showing fine grain size & brown colour due to biotite. Both contain malachite & chalcopyrite.

Specimen No. 98+00N, 13+20E (Float)
Description:
White lustrous quartz-sericite-kyanite schist. Sericite on widely space foliation planes gives a lustrous sheen. Minor specks of chalcopyrite < 0.5%.

Specimen No. L96+00N, 12+28E (O/c)
Description:
Greyish brown biotite-quartzo-feldspathic gneiss with up to 2% chalcopyrite along foliation planes. Malachite staining. Forms base of large bluff extending westward to 12+00E. Attitude 360°/90, sericite occurs w/biotite along foliation planes.

Specimen No. BL-E-94-6 (O/c)
Description:
14.5 m south of L96+00N 12+28E. Biotite rich (coarse grained) quartz-feldspathic gneiss - possibly some amphibolite mixed in. Malachite staining and chalcopyrite to 1% along foliation planes.

Specimen No. L96+15N, 12+40E
Description:
Fine grained sugary textured quartz feldspathic gneiss with very fine biotite (brown) along foliation planes along with sericite. No visible sulphides in this section of bluff.

Specimen No. BL-E-94-7
Description:
Fresh biotite-qtzo feldspathic gneiss. Fine grained equigranular. Disseminated chalcopyrite & pyrite to 5%. Rusty weathering sulphides on foliation planes.

Specimen No. BL-E-94-8
Description:
2m chip sample in rusty. Qtz-ser-ky sch. Brownish biotite and some silicification occur. Cpy is disseminated claim foliation plans.

Specimen No. BL-E-94-9
Description:
Quartz-sericite-ky-schist mixed with biotite qtzo-feldspathic gneiss. Dissm. cpy to 1% along foliation planes.

Specimen No. BL-E-94-10
Description:
FeOx stained silicified Qtz-ser-ky-schist. Finely disseminated chalcopyrite throughout. Some brownish biotite along foliations.

Specimen No. BL-E-94-11
Description:
White silicified qtz-ser-ky schist. Hard massive surfaces. 1 - 2% chalcopyrite and some bornite disseminated throughout.

Specimen No. BL-E-94-12
Description:
Transitional contact zone between mixed gneiss unit and coarse and fine grained amphibolite. Very rusty with dissem. py (3%) and minor chalcopyrite (< 1%).

Specimen No. BL-E-94-13
Description:
Fault zone - silicified amphibolite? Greyish green bleached. Rusty with disseminated pyrite and phyrrhotite? (2%). Some float slabs knots of pyrite w/chalcopyrite.

Specimen No. BL-E-94-14
Description:
FeOx stained medium to coarse grained amphibolite dissem. pyrite. 1 - 2% along foliation planes. Dark green with little qtzo-feldspathic matrix.

Specimen No. BL-E-94-15
Description:
FeOx stained - muscovite coarse grained amphibolite with some bleaching and chlorite alteration. Pyrite is 2 - 5% as cubic crystals.

466200E
466500E
129°00'45"
53°52'30"
5969500N
5968800N

0 250 500 750 1000
metres

LEGEND

MIDDLE DEVONIAN AND/OR OLDER

Pv METAVOLCANIC UNIT: (GSC Open File 2337)
mafic and intermediate metavolcanic rockswith minor metasedimentary and felsic metavolcanic interlayers
(property scale mappable units, stratigraphic sequence unknown)

Q quartz vein:
milky white quartz vein or lens

Gbqfp biotite-quartz-feldspar Gneiss:
pale grey-green, weakly to moderately foliated, coarse grained, biotite-quartz-feldspar gneiss, has the appearance of a weakly to moderately foliated porphyritic intrusion

Py Massive Sulphide Horizon:
massive sulphide, primarily medium to coarse grained euhedral pyrite in a carbonate and barite in matrix, sphalerite occurs locally in brown banded horizons, chalcopyrite rarely visible

Ar Argillite:
black argillite and phyllite, occurring as a thin intermittent horizon, often associated with Sqm, bleached varieties grade into Sqm, known localities restricted to hanging wall of North Lens and foot wall of South Lens, distinctive but uncommon unit, most occurrences are too small to map

Sqm quartz-muscovite/sericite Schist:
rusty weathering to white ,quartz-muscovite/sericite schist, envelopes massive sulphide horizon in most areas, generally contains from 5 to 30% euhedral disseminated pyrite, commonly sheared, with quartz porphyroblasts in a talcose groundmass, mariposite may be present locally

Gqmb quartz-muscovite-biotite Gneiss:
fine grained, quartz dominant, thinly laminated leucocratic gneiss, sugary texture, low concentrations and variable ratios of muscovite, biotite, pyrite and hornblende, interbanded chlorite schist can be a significant component, these areas are mapped as Gqmb/Sqc: interbanded quartz-muscovite-biotite gneiss and quartz-chlorite schist, 30 to 50 cm bands

Sqc quartz-chlorite Schist:
olive green, fine grained, chlorite schist with highly deformed quartz segregations ranging in size from centimetre to metre scale

Scb chlorite-biotite Schist:
pale olive green chlorite schist, with alternating medium brown biotite-bearing layers

Ghqfp hornblende-quartz-feldspar Gneiss:
pale green, coarse grained, weakly foliated hornblende porphyritic metavolanic?

Gbm biotite-muscovite Gneiss:
thinly laminated biotite-muscovite quartzo-feldspathic gneiss, light and dark laminations pinch out over tens of centimetres to metre scale

Symbols

- Geological Boundary: defined, inferred, assumed
- Fault: defined, inferred
- Thrust Fault
- Joint plane with evidence of displacement
- Joint: inclined
- Foliation: vertical, inclined
- outcrop
- small outcrop
- cliff
- adit, waste dump
- rock sample location: bedrock, float
- mineralized float occurrence
- ferricrete

py pyrite
cpy chalcopyrite
gn galena
sph sphalerite
ba barite

Red Gulch Creek,
showing rapids, chutes and falls

NORTH LENS
SOUTH LENS
Steep slope not mapped

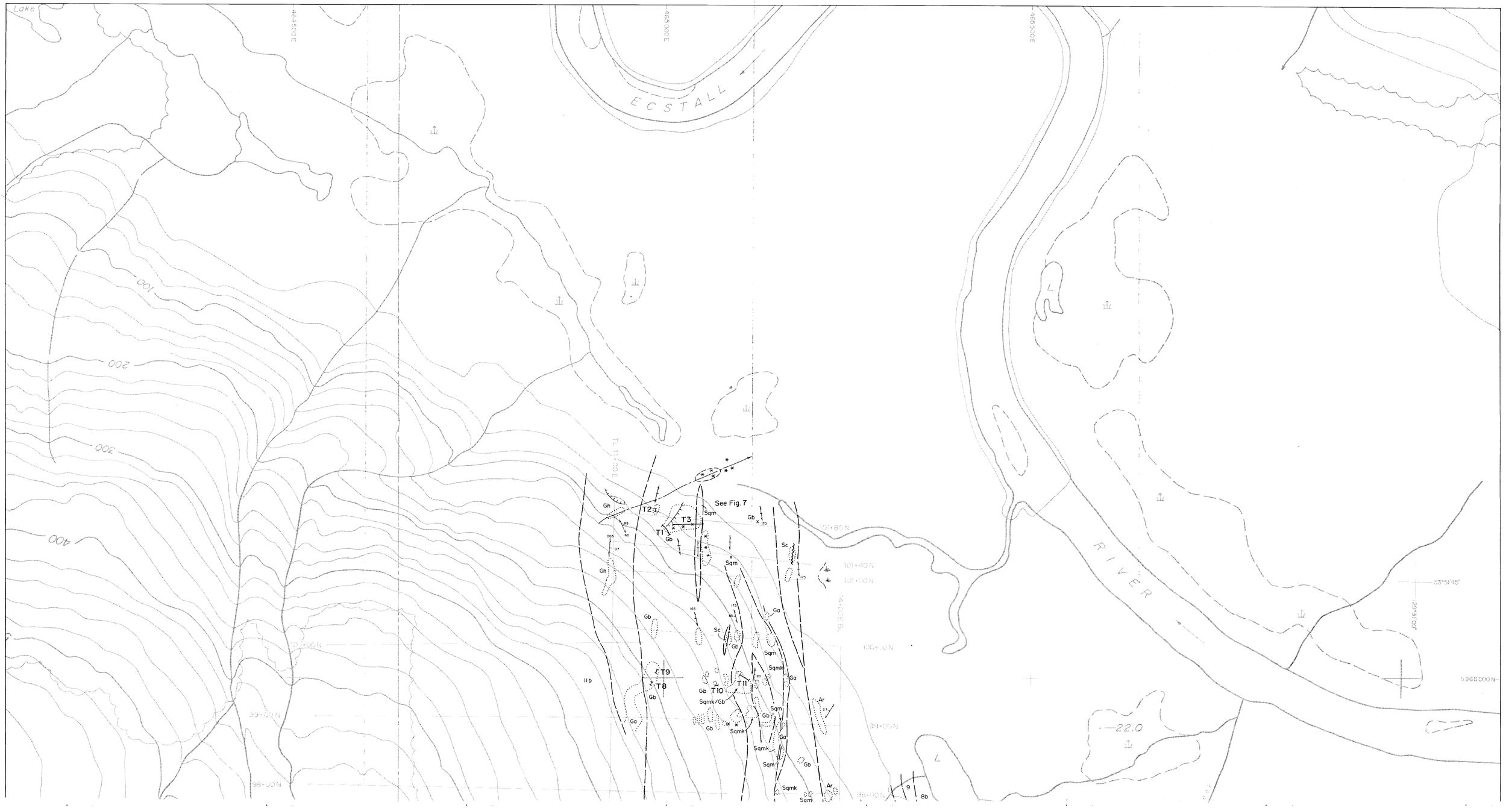
SAMPLE LOCATION DETAIL
US-33 US-57 US-58

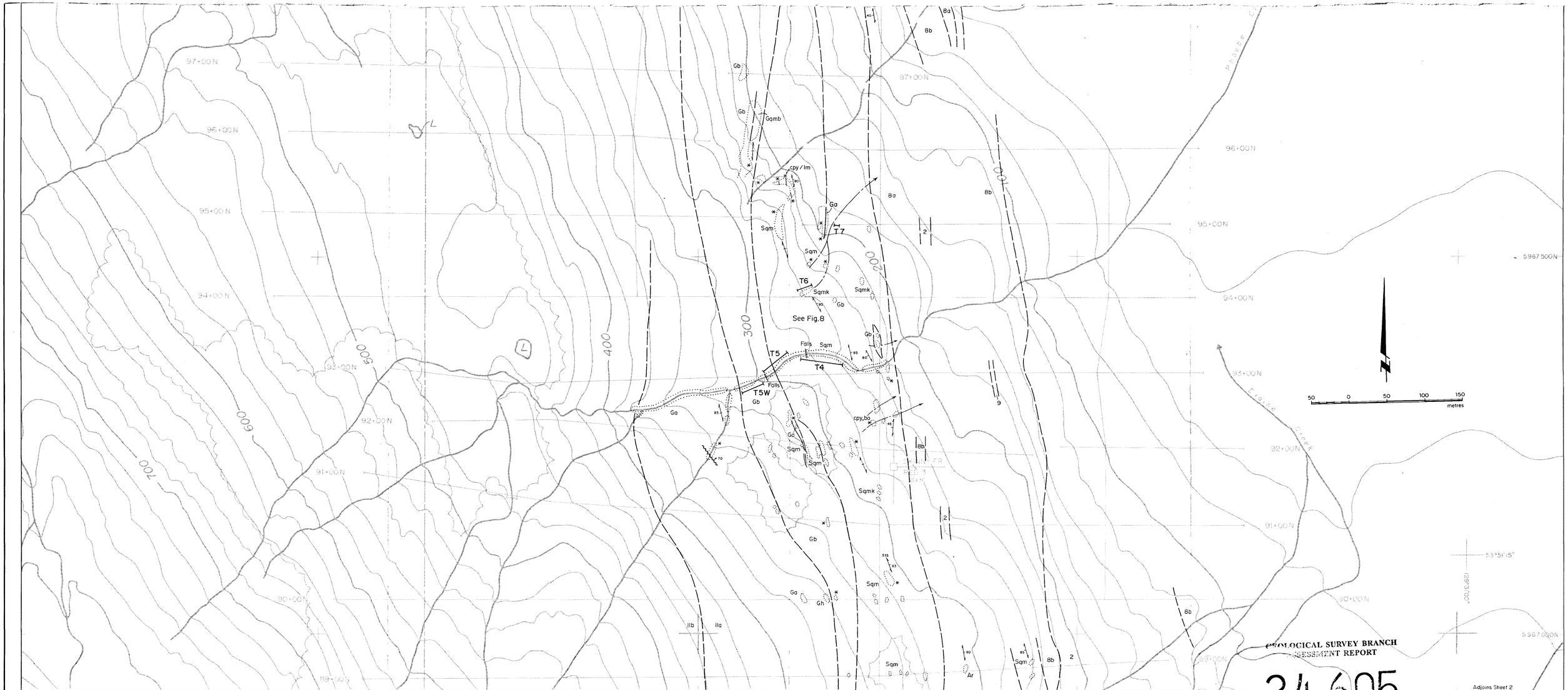
SAMPLE LOCATION DETAIL
US-18 US-19 US-52 (sph) -53 (sph) -54 -55 -56 US-20 Py Sqm

Rock Geochemical Analyses and Assay

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Zn %	Au ppb	Au opt	Ag opt
PD-E-94-001	145	5	111	0.1	1626			24		
PD-E-94-002	71	8	34	0.1	620			14		
PD-E-94-112					90321	0.007	5.98		0.003	0.41
PD-E-94-206	16636	517	1885	63.0	191939			910		
PD-E-94-207	12	10	27	0.1	2909			2		
US-E-94-012	59551	69	3410	70.6		5.750	0.43	0	0.202	
US-E-94-013	13745	1160	2656	54.5				280		
US-E-94-014	952	816	3.1					43		
US-E-94-015	65	157	347	0.6				11		
US-E-94-015A	214	328	682	1.5				15		
US-E-94-016	1955	24	266	1.3				18		
US-E-94-016A	2074	15	349	1.4				26		
US-E-94-017	47	10	86	0.4				23		
US-E-94-017A	27	3	49	0.3				33		
US-E-94-018	76	9	34	0.6				15		
US-E-94-019	578	10	31	1.0				46		
US-E-94-020	346	18	12	0.8				42		
US-E-94-021	26	12	44	1.5				50		
US-E-94-022	1236	174	180	17.5		0.133		620		
US-E-94-023	843	28	130	23.9				730		
US-E-94-024	45	8	48	1.1				35		
US-E-94-025	175	4	256	3.3				150		
US-E-94-026	121	48	120	2.7				37		
US-E-94-027	97	93	88	2.4				88		
US-E-94-028	203	241	187	4.2				110		
US-E-94-029	112	24	28	0.9				28		
US-E-94-030	307	22	387	0.7				24		
US-E-94-031	15	19	22	0.4				22		
US-E-94-032	272	24	198	1.3				46		
US-E-94-033	81248	10	5089	185.2		10.429		3660		
US-E-94-034	325	538	175	11.9				100		
US-E-94-039	51	50	225	1.0				19		
US-E-94-040	215	324	52	12.1				270		
US-E-94-041	27	43	11	2.8				67		
US-E-94-042	15583	63	519	38.6				320		
US-E-94-043	164	297	514	1.0				21		
US-E-94-044	48	29	194	0.1				5		
US-E-94-045	4635	60	247	14.2				390		
US-E-94-046	6027	497	54855	49.3				380		
US-E-94-047	30582	29	1348	45.1	1353			1390		
US-E-94-048	38797	54	1605	60.5	1369			790		
US-E-94-052	4778	4585	65218	43.8	158682			660		
US-E-94-053	7028	751	9580	42.1	54572			910		
US-E-94-054	16332	139	4813	19.2	16407			870		
US-E-94-055	17480	322	3965	27.3	18247			760		
US-E-94-056	2838	47	46187	7.5	99920			390		
US-E-94-057	99999	191	18340	206.2	3425			6140		
US-E-94-058	14216	513	7483	70.4	1489			380		
Rx223626					650	23.300	1.65	1420		11.00

MAPPED BY	ATNA RESOURCES LTD.			
U.Schmidt 09/94	ECSTALL PROPERTY			
	RED GULCH CREEK			
REVISED BY	GEOLOGY			
	SCALE	NTS	DATE	FIG. Nº
	1:1000	103H/13	Feb.1995	4


Lake
464500E
465000E
465500E
ECSTALL
RIVER
100
200
300
400
See Fig. 7
T1
T2
T3
T8
T9
T10
T11
Gh
Gb
Sqm
Sc
Ga
Sqmk
Sqmk/Gb
Ar
11b
9
8b
101+80N
101+40N
101+00N
100+40N
100+00N
99+00N
98+00N
TL 115.00E
TL 114.20E
53°51'45"
293'00"
5968000N
22.0



GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,605

SHEET 1

Symbols

Claim boundary

Grid line, line number — 90+00N

Lake

Intermittent lake

Swamp

Geological Boundary: defined, inferred, assumed

Fault: defined, inferred

Thrust Fault

Joint: vertical, inclined

Foliation: vertical, inclined

outcrop, sub-outcrop

small outcrop

cliff, water fall

intermittent stream

trench/chip sample line — T6

rock sample location: bedrock, float

diamond drill hole

mineralized occurrence: chalcopyrite with pyrite, unless noted

vein

py pyrite
cpy chalcopyrite
bo bornite
gn galena
sph sphalerite

LEGEND

MIDDLE DEVONIAN AND/OR OLDER

Pv METAVOLCANIC UNIT: (GSC Open File 2337)
mafic and intermediate metavolcanic rocks with minor metasedimentary and felsic metavolcanic interlayers

(property scale mappable units, stratigraphic sequence unknown)

(equivalent 1987 map units)

Q quartz vein
milky white quartz vein or lens

Scgp chlorite-quartz-pyrite schist
coarse, knotty chlorite schist, contains coarse irregular quartz blebs and large euhedral pyrite cubes, late metamorphic fault zone?

Ga Amphibolite (11a)
fine to coarse grained, medium to dark green amphibolite, generally dense resistant weathering, in sharp contact with leucocratic gneisses, contacts are often faulted, grades to amphibole dominant feldspathic gneiss (Gh). includes biotite, chlorite porphyroblastic "meta-lamprohyre" variety, may contain pyrite, chalcopyrite and garnet

Gqf quartzo-feldspathic gneiss (11b)
medium to coarse grained, leucocratic biotite-quartzo-feldspathic gneiss of metaplutonic ? affinity, massive homogeneous outcrops, locally may contain chlorite and garnet

Ar Argillite (8a)
black argillite and phyllite,

Ma Marble (9)
massive grey to white coarse crystalline marble, recessive weathering

Sc chlorite Schist (1)
pale olive green chlorite schist, gradational contacts with (Scb) chlorite-biotite Schist, chlorite schist with alternating medium brown biotite-bearing layers

Sqmk quartz-muscovite/sericite-kyanite Schist (6b)
leucocratic muscovite-kyanite quartzo-feldspathic gneiss and schist, gneissic varieties more common, pale grey to white kyanite can be a significant and distinctive component, grades kyanite-free varieties (Sqm) (6a), gradational contacts with other micaceous leucocratic quartzo-feldspathic gneisses, may contain minor biotite, chlorite and talc, commonly contains 3-5% sulphides including pyrite, chalcopyrite +/- bornite

Gqmb quartz-muscovite-biotite Gneiss (7)
fine grained, quartz dominant, thinly laminated leucocratic gneiss, sugary texture, low concentrations and variable ratios of muscovite, biotite, and hornblende, commonly contains 3-5% sulphides including pyrite, chalcopyrite +/- bornite

Gb biotite-quartzo-feldspathic Gneiss (7)
grey to grey-green medium grained, leucocratic biotite-quartzo-feldspathic gneiss, grades to brown and light green interbanded biotite-chlorite gneissic varieties, commonly contains 3-5% disseminated sulphides including pyrite, chalcopyrite +/- bornite

1987 map units

13 granodiorite
10 chert
6b quartz-biotite-chlorite-sericite+/-garnet greywacke
3 quartz-chlorite-biotite schist
2 quartz-chlorite schist

MAPPED BY	ATNA RESOURCES LTD.		
P. Kallock B. Lennon U. Schmidt P. DeLancey	ECSTALL PROPERTY THIRTEEN CREEK GRID GEOLOGY		
REVISED BY			
	SCALE	NTS	DATE	FIG. №
		103H/13	Feb. 1995	5a

Adjoins Sheet 1

Adjoins Sheet 3

See Fig.9

North Branch Elaine Creek

Central Branch Elaine Creek

South Branch Elaine Creek

Thirteen Creek

T12 T13 T14 T15 T16

50 0 50 100 150 metres

Symbols

- Claim boundary
- Grid line, line number — 90+00N
- Lake
- Intermittent lake
- Swamp
- Geological Boundary: defined, inferred, assumed
- Fault: defined, inferred
- Thrust Fault
- Joint: vertical, inclined
- Foliation: vertical, inclined
- outcrop, sub-outcrop
- small outcrop
- cliff, water fall
- intermittent stream
- trench/chip sample line — T6
- rock sample location: bedrock, float
- diamond drill hole
- mineralized occurrence: chalcopyrite with pyrite, unless noted
- vein
- py pyrite; cpy chalcopyrite; bo bornite; gn galena; sph sphalerite

LEGEND

MIDDLE DEVONIAN AND/OR OLDER

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1987 map units

- 13 granodiorite
- 10 chert
- 8b quartz-biotite-chlorite-sericite+/-garnet greywacke
- 3 quartz-chlorite-biotite schist
- 2 quartz-chlorite schist

SHEET 2

MAPPED BY	ATNA RESOURCES LTD.			
P. Kallock B. Lennan	ECSTALL PROPERTY THIRTEEN CREEK GRID GEOLOGY			
REVISED BY	SCALE	NTS	DATE	FIG. NO
	1:2000	103H/13	Feb. 1995	5b

Adjoins Sheet 2

DDH 86-EC-2

DDH 86-EC-3

Thirteen Creek

Ice Field

Boulder Creek

GREEN 1
1N x 2W

BLUE 2
8S x 2W

50 0 50 100 150
metres

Symbols

- Claim boundary
- Grid line, line number — 90+00N
- Lake
- Intermittent lake
- Swamp

Geological Boundary: defined, inferred, assumed

Fault: defined, inferred

Thrust Fault

Joint: vertical, inclined

Foliation: vertical, inclined

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py pyrite
cpy chalcopyrite
bo bornite
gn galena
sph sphalerite

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1987 map units

13 granodiorite
10 chert
8b quartz-biotite-chlorite-sericite+/-garnet greywacke
3 quartz-chlorite-biotite schist
2 quartz-chlorite schist

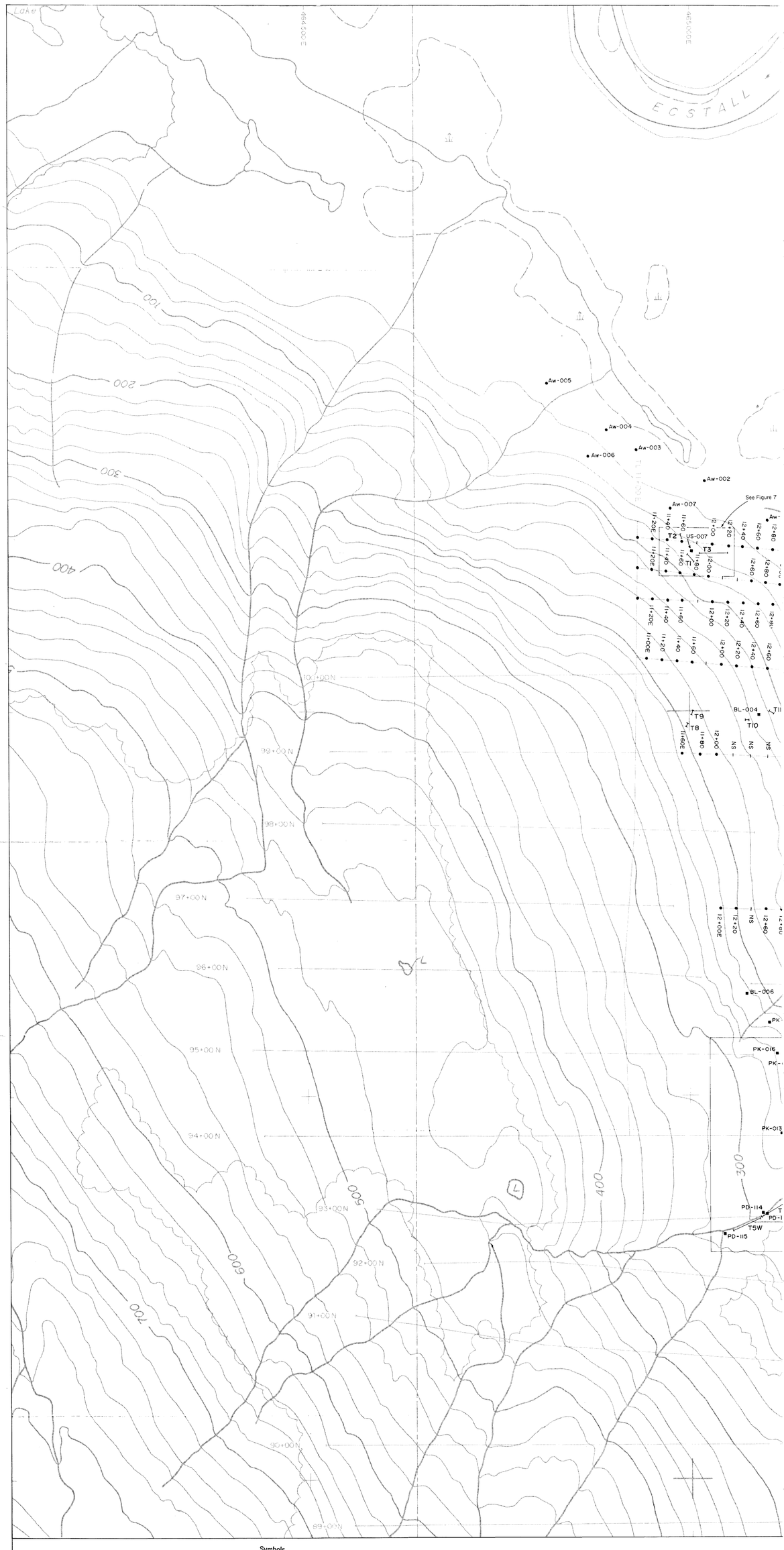
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,605

SHEET 3

MAPPED BY	ATNA RESOURCES LTD.
P. Kallock	ECSTALL PROPERTY THIRTEEN CREEK GRID
REVISED BY	GEOLOGY

SCALE	NTS	DATE	FIG. №
	103H/13	Feb. 1995	5c



Symbols

- Claim boundary
- 90+00N — Grid line, line number
- Lake
- Intermittent lake
- Swamp
- Intermittent stream
- T6 — hand trench/chip sample line
- rock sample location: bedrock, float
  sample numbers shortened: PK-20 = PK-E-94-20
- NS — No sample
- 12+60E 13+00N — soil sample location

Soil Geochemistry

SAMPLE NUMBER	Cu ppb	Pb ppb	Zn ppb	Ag ppb	Au* ppb	Ba ppb
101+80N 11+00E	5	2	12	0.1	1	6
101+80N 11+20E	49	3	33	0.1	2	42
101+80N 11+40E	28	4	21	0.1	2	39
101+80N 11+60E	382	2	25	0.2	11	18
101+80N 12+00E	1319	2	45	0.1	16	75
101+80N 12+20E	2400	5	35	0.3	36	21
101+80N 12+40E	862	6	31	0.4	71	36
101+80N 12+60E	279	2	51	0.1	11	26
101+80N 12+80E	2538	8	95	0.1	11	121
101+80N 13+00E	6548	2	209	0.1	14	141
101+80N 13+20E	19	3	30	0.2	4	14
101+40N 11+00E	23	2	13	0.1	2	6
101+40N 11+20E	32	4	24	0.1	1	9
101+40N 11+40E	49	2	38	0.1	2	58
101+40N 11+60E	20	2	27	0.1	1	14
101+40N 11+80E	82	2	17	0.1	5	24
101+40N 12+00E	353	3	28	0.2	32	53
101+40N 12+60E	580	5	36	0.2	56	61
101+40N 12+80E	178	6	46	0.1	5	74
101+40N 13+00E	204	10	46	0.1	6	70
101+40N 13+20E	511	2	65	0.1	4	119
101+40N 13+40E	116	4	41	0.1	3	54
101+40N 13+60E	162	5	47	0.1	5	89
101+00N 11+00E	253	4	40	0.2	5	58
101+00N 11+20E	183	2	30	0.1	3	30
101+00N 11+40E	13	2	15	0.1	3	15
101+00N 11+60E	21	2	21	0.2	1	25
101+00N 12+00E	176	2	18	0.1	32	18
101+00N 12+20E	365	4	27	0.2	55	33
101+00N 12+40E	308	6	22	0.1	120	25
101+00N 12+60E	35	2	11	0.2	28	13
101+00N 12+80E	322	5	58	0.2	8	90
101+00N 13+00E	83	4	49	0.1	5	98
101+00N 13+20E	42	2	35	0.2	3	38
101+00N 13+40E	127	8	98	0.2	1	68
101+00N 13+60E	10	3	24	0.1	1	22
100+00N 11+00E	1	2	7	0.1	1	5
100+00N 11+20E	64	2	28	0.2	1	50
100+00N 11+40E	35	2	22	0.1	1	19
100+00N 11+60E	33	2	17	0.1	2	48
100+00N 11+80E	86	2	17	0.6	110	12
100+00N 12+20E	67	2	7	0.4	8	7
100+00N 12+40E	334	4	105	0.9	82	58
100+00N 12+60E	18	2	20	0.2	15	16
100+00N 12+80E	15	3	10	0.2	120	4
100+00N 13+00E	108	3	27	0.2	18	20
100+00N 13+20E	131	3	15	0.6	160	14
100+00N 13+60E	8	2	10	0.9	44	14
100+00N 14+00E	27	2	5	0.1	16	14
99+00N 11+60E	44	4	36	0.3	3	34
99+00N 11+80E	4	3	17	0.1	2	9
99+00N 12+00E	74	2	21	0.8	5	12
99+00N 12+80E	319	2	21	1.7	110	6
99+00N 13+00E	1826	5	52	0.5	95	16
99+00N 13+20E	2341	9	68	0.9	140	34
99+00N 13+40E	259	4	16	1.2	230	14
99+00N 13+60E	88	2	9	0.5	53	9
99+00N 13+80E	256	13	31	2.7	56	11
97+00N 12+00E	113	4	14	0.6	150	14
97+00N 12+20E	23	4	11	0.5	89	11
97+00N 12+60E	627	2	38	0.6	17	77
97+00N 12+80E	242	3	25	1.3	140	10
97+00N 13+40E	871	5	48	0.7	71	94
97+00N 13+60E	198	2	17	0.9	53	11
97+00N 13+80E	221	2	15	1.2	64	21
AW 001	173	5	43	0.3	19	26
AW 002	194	6	54	0.2	6	91
AW 003	29	2	35	0.1	5	237
AW 004	164	3	62	0.5	3	162
AW 005	23	2	37	0.1	3	120
AW 006	342	2	37	0.4	11	68
AW 007	95	3	36	0.3	3	60

Rock Geochemistry and Assay

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Zn %	Au ppb	Au oz/t
BL-E-94-001	3621	3	12	1.5				380	
BL-E-94-002	1924	2	22	1.7				400	
BL-E-94-003	5286	2	34	0.9				180	
BL-E-94-004	909	2	22	0.5				180	
BL-E-94-005	2072	9	25	1.5				58	
BL-E-94-006	4635	2	58	1.4		0.522			0.009
BL-E-94-007	369	3	28	0.2		0.040			0.001
BL-E-94-008	1887	9	26	0.5				86	
BL-E-94-009	2923	14	44	0.6				47	
PD-E-94-100	45	15	134	0.5	522			47	
PD-E-94-101	38	21	70	0.4	1005			8	
PD-E-94-102	2238	12	53	0.8	708			170	
PD-E-94-103	3800	6	31	0.4	403			67	
PD-E-94-104	9212	2	289	5.9				360	
PD-E-94-105	133	13	158	0.5				4	
PD-E-94-106	83	8	92	0.5				1	
PD-E-94-107	4012	3	31	0.6		0.396		130	
PD-E-94-108	5958	4	39	2.9		0.619		270	
PD-E-94-108A	9282	4	53	6.8		0.919		570	
PD-E-94-109	3090	7	35	1.1		0.321		550	
PD-E-94-110	4271	6	88	1.4		0.465		170	
PD-E-94-111	12712	3	28	5.7		1.290		360	
PD-E-94-113	3244	2	1	1.1		0.336		51	
PD-E-94-114	1963	3	8	0.9				53	
PD-E-94-115	639	8	39	1.1				5	
PD-E-94-117	7523	4	81	2.5		0.787		290	
PD-E-94-118	4476	2	45	1.5		0.459		340	
PD-E-94-119	4383	2	35	2.2		0.429		270	
PK-E-94-010	8452	8	163	7.0				300	
PK-E-94-011	28750	22	230	60.8				1640	
PK-E-94-012	6452	2	44	2.5				600	
PK-E-94-013	5479	13	241	3.0				390	
PK-E-94-014	5521	2	70	2.6				630	
PK-E-94-015	8086	2	34	2.0				850	
PK-E-94-016	2831	2	33	1.7				240	
PK-E-94-017	12448	5	108	3.9	1.312				0.025
PK-E-94-018	5079	4	201	2.5	0.650				0.006
PK-E-94-020	209	2	52	0.6				22	
US-E-94-007	4264	2	56	0.6				91	

Chip Sample Analyses and Assay

Sample Number	Interval (m)	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Au ppb	Au oz/t
E94 T01	0-5	1019	2	32	0.1		0.112	0.001	
E94 T01	5-10	907	2	34	0.1		0.100	0.001	
E94 T01	10-15	2215	2	48	0.4		0.244	0.001	
E94 T01	12-17	3013	2	42	0.4		0.330	0.001	
E94 T02	0-5	1017	2	25	0.5		0.106	0.001	
E94 T03	0-5	2926	2	69	0.7		0.333	0.002	
E94 T03	5-10	1653	3	41	0.3		0.179	0.001	
E94 T03	10-15	2130	3	49	0.4		0.236	0.001	
E94 T03	15-20	3438	5	181	0.8		0.390	0.003	
E94 T03	20-25	1878	10	64	0.7		0.194	0.001	
E94 T03	25-30	524	3	58	0.2		0.058	0.001	
E94 T03	30-37	1212	4	97	0.9		0.133	0.004	
E94 T04	10-12W	3130	3	45	1.1			130	
E94 T04	5-10W	3703	7	622	1.3			140	
E94 T04	0-5W	2839	6	42	1.5		0.302		0.006
E94 T04	0-5	3576	4	57	0.9		0.376		0.004
E94 T04	5-10	2737	2	130	2.2		0.293		0.004
E94 T04	10-15	2500	3	77	1.5		0.271		0.003
E94 T04	15-20	1323	2	73	0.4		0.150		0.001
E94 T04	20-25	1639	5	72	0.8		0.188		0.003
E94 T04	25-30	1778	4	53	1.1		0.192		0.003
E94 T04	30-35	1195	3	40	0.3		0.127		0.003
E94 T05	40-45W	733	12	66	0.6			61	
E94 T05	35-40W	1219	8	47	0.3			110	
E94 T05	30-35W	1561	8	54	0.5			100	
E94 T05	20-25W	22	4	29	0.2			1	
E94 T05	15-20W	103	5	21	0.1			5	
E94 T05	10-15W	732	5	36	0.3			37	
E94 T05	5-10W	1024	6	55	0.2			25	
E94 T05	0-5W	1305	8	45	0.5			24	
E94 T05	0-5	841	4	63	0.4		0.091		0.001
E94 T05	5-10	2132	2	66	0.6		0.231		0.002
E94 T05	10-15	3426	2	48	0.7		0.337		0.002
E94 T05	15-20	3225	4	45	0.9		0.337		0.002
E94 T05	20-24	2344	5	53	0.8		0.248		0.002
E94 T05	25-30	3163	2	57	1.4		0.347		0.005
E94 T05	30-35	2784	2	44	1.2			240	
E94 T05	35-38	2172	2	42	1.0			99	
E94 T06	0-5	1443	11	74	0.9		0.151		0.004
E94 T06	5-10	809	5	27	0.6		0.093		0.005
E94 T06	10-15	1678	3	73	1.2		0.170		0.006
E94 T06	15-20	3487	3	74	1.2		0.356		0.005
E94 T07	0-5	7709	2	92	1.9		0.800		0.006
E94 T07	5-7.5	4048	4	102	2.1		0.424		0.006
E94 T08	0-5	3597	5	39	2.6		0.371		0.003
E94 T09	0-5	1103	4	32	0.8		0.114		0.002
E94 T10	0-2	1184	2	14	0.7		0.125		0.003
E94 T11	0-5	3400	4	45	1.5		0.353		0.009

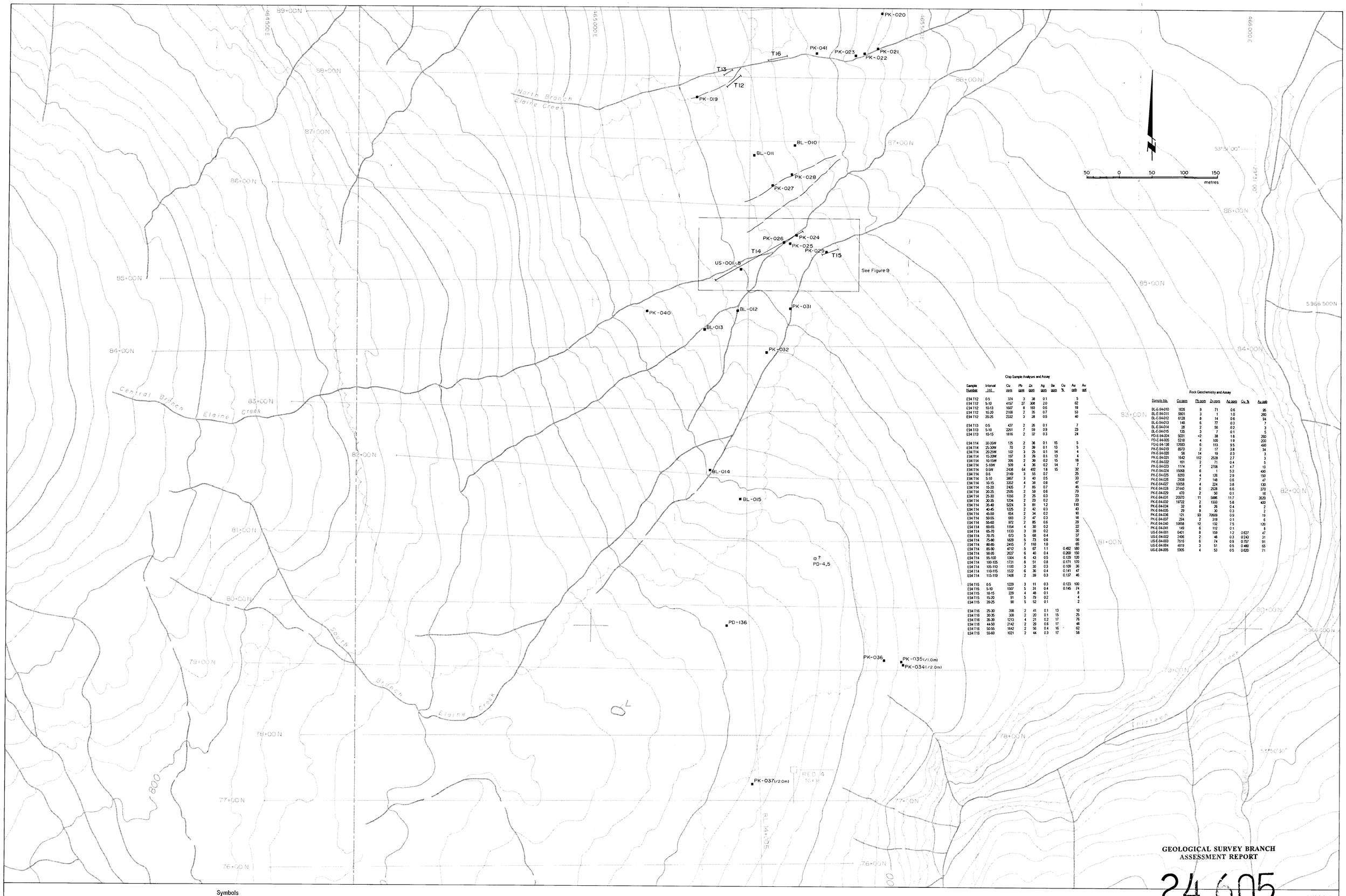
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,605

SHEET 1

MAPPED BY	ATNA RESOURCES LTD.
	ECSTALL PROPERTY
	THIRTEEN CREEK GRID
REVISED BY	SOIL & ROCK SAMPLE ANALYSES AND SAMPLE LOCATION

SCALE	NTS	DATE	FIG. No
1: 2000	103H/13	Feb.1995	6a



Chip Sample Analyses and Assay

Sample Number	Interval (m)	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Au ppb	Au opt
E94 T12	0-5	374	3	38	0.1			5	
E94 T12	5-10	4157	27	308	2.0			62	
E94 T12	10-13	1607	8	193	0.6			19	
E94 T12	15-20	2168	2	35	0.7			53	
E94 T12	20-25	2332	3	28	0.5			40	
E94 T13	0-5	477	2	26	0.1			7	
E94 T13	5-10	2251	7	59	0.9			23	
E94 T13	10-15	1816	7	72	0.3			24	
E94 T14	30-35W	125	2	36	0.1	15		5	
E94 T14	25-30W	70	2	39	0.1	13		5	
E94 T14	20-25W	102	3	25	0.1	14		4	
E94 T14	15-20W	197	3	26	0.1	13		4	
E94 T14	10-15W	395	2	39	0.2	15		18	
E94 T14	5-10W	509	4	36	0.2	14		7	
E94 T14	0-5W	2438	64	492	1.8	15		32	
E94 T14	0-5	2149	3	55	0.7			25	
E94 T14	5-10	3867	3	40	0.5			33	
E94 T14	10-15	3352	4	38	0.8			47	
E94 T14	15-20	2405	7	85	0.7			45	
E94 T14	20-25	2595	2	59	0.6			73	
E94 T14	25-30	1056	2	25	0.3			23	
E94 T14	30-35	1234	2	23	0.2			23	
E94 T14	35-40	5274	3	81	1.2			130	
E94 T14	40-45	1225	2	42	0.3			43	
E94 T14	45-50	654	2	34	0.2			10	
E94 T14	50-55	683	2	47	0.3			16	
E94 T14	55-60	972	2	85	0.6			29	
E94 T14	60-65	1154	4	30	0.2			22	
E94 T14	65-70	1133	3	39	0.2			30	
E94 T14	70-75	673	5	68	0.4			37	
E94 T14	75-80	1629	5	73	0.6			56	
E94 T14	80-85	2415	7	110	1.0			85	
E94 T14	85-90	4712	5	67	1.1		0.482	180	
E94 T14	90-95	2627	6	40	0.4		0.269	150	
E94 T14	95-100	1304	6	43	0.5		0.129	120	
E94 T14	100-105	1731	8	51	0.8		0.171	170	
E94 T14	105-110	1100	3	30	0.3		0.109	36	
E94 T14	110-115	1522	6	36	0.4		0.141	47	
E94 T14	115-119	1408	2	39	0.3		0.137	46	
E94 T15	0-5	1229	3	11	0.3		0.123	100	
E94 T15	5-10	1507	5	31	0.4		0.145	74	
E94 T15	10-15	229	4	46	0.1			8	
E94 T15	15-20	91	5	79	0.2			4	
E94 T15	20-25	90	5	52	0.1			2	
E94 T16	25-30	398	2	41	0.1	13		19	
E94 T16	30-35	308	2	20	0.1	15		25	
E94 T16	35-39	1213	4	21	0.2	17		76	
E94 T16	44-50	2142	2	29	0.6	17		48	
E94 T16	50-55	1842	2	56	0.4	16		62	
E94 T16	55-60	1021	2	44	0.3	17		58	

Rock Geochemistry and Assay

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Cu %	Au ppb
BL-E-94-010	1635	9	71	0.6		95
BL-E-94-011	5601	3	1	1.0		260
BL-E-94-012	6128	8	14	0.6		94
BL-E-94-013	148	6	77	0.3		7
BL-E-94-014	28	2	56	0.2		3
BL-E-94-015	135	3	7	0.1		5
PD-E-94-004	5201	<2	38	1.8		260
PD-E-94-005	5218	4	100	1.9		220
PD-E-94-136	12583	6	113	3.5		430
PK-E-94-019	8570	2	17	3.8		34
PK-E-94-020	56	14	19	0.3		3
PK-E-94-021	1642	112	2528	2.7		3
PK-E-94-022	161	2	71	0.4		5
PK-E-94-023	1174	7	2706	4.7		19
PK-E-94-024	15068	6	1	5.2		430
PK-E-94-025	8293	4	126	2.9		150
PK-E-94-026	2908	7	148	0.6		47
PK-E-94-027	10058	4	224	3.8		130
PK-E-94-028	27440	6	2528	6.6		370
PK-E-94-029	470	2	50	0.1		16
PK-E-94-031	20970	11	5886	11.7		3520
PK-E-94-032	19722	2	1033	5.8		400
PK-E-94-034	32	8	26	0.4		2
PK-E-94-035	29	8	30	0.3		2
PK-E-94-036	121	93	70509	0.9		19
PK-E-94-037	294	2	319	0.1		6
PK-E-94-040	19858	12	132	7.5		120
PK-E-94-041	149	6	112	0.1		8
US-E-94-001	6401	8	159	1.2	0.627	47
US-E-94-002	2496	2	48	0.3	0.243	31
US-E-94-003	7616	6	74	0.9	0.757	91
US-E-94-004	4819	3	51	0.5	0.460	65
US-E-94-005	5905	4	53	0.5	0.620	71

Symbols

- Claim boundary
- 90+00N — Grid line, line number
- Lake
- Intermittent lake
- Swamp
- intermittent stream
- T6 — hand trench/chip sample line
- rock sample location: bedrock, float; sample numbers shortened: PK-20 = PK-E-94-20
- soil sample location (N.S. = No sample)

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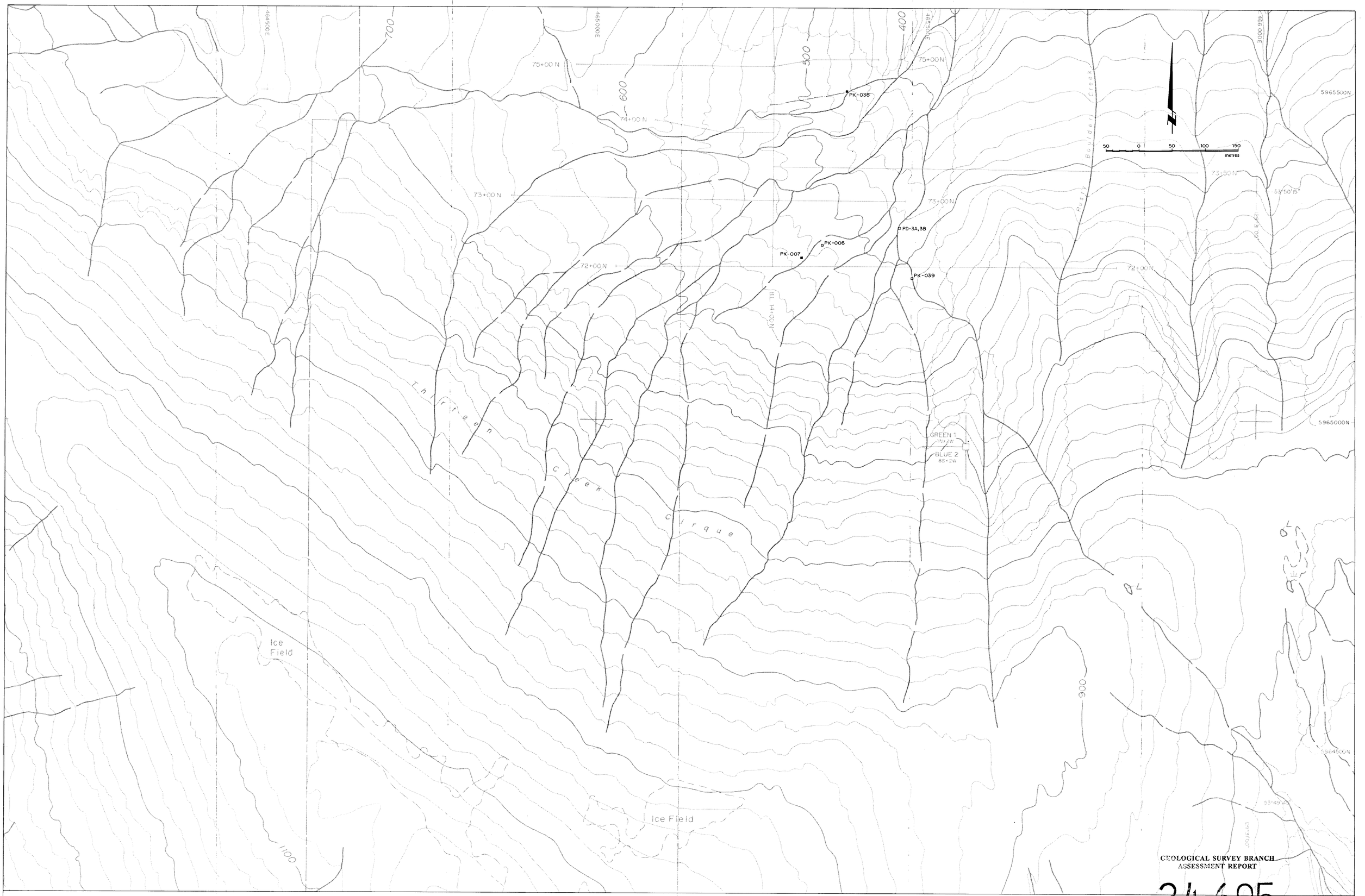
SHEET 7

MAPPED BY	ATNA RESOURCES LTD.
	ECSTALL PROPERTY
	THIRTEEN CREEK GRID
	ROCK SAMPLE ANALYSES AND SAMPLE LOCATION
REVISED BY	

SCALE	NTS	DATE	FIG. Nº
1:2000	103H/13	Feb.1995	6b



Symbols

- Claim boundary
- 90+00N — Grid line, line number
- Lake
- Intermittent lake
- Swamp
- intermittent stream
- T6 — hand trench/chip sample line
- rock sample location: bedrock, float; sample numbers shortened: PK-20 = PK-E-94-20
- 12+80N 13+00E NS — No sample — soil sample location

Rock Geochemistry and Assay

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
PK-E-94-006	2294	2	52	1.1	140
PK-E-94-007	15565	4	144	8.3	220
PK-E-94-038	616	2	29	0.5	9
PK-E-94-039	286	9	308	1.2	4
PD-E-94-3A	52877	4	127	6.2	650
PD-E-94-3B	59199	82	4463	95.0	1060

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SHEET 3

MAPPED BY	ATNA RESOURCES LTD.
REVISED BY	ECSTALL PROPERTY THIRTEEN CREEK GRID ROCK SAMPLE ANALYSES AND SAMPLE LOCATION

SCALE	NTS	DATE	FIG. Nº
1:2000	103H/13	Feb.1995	6c

GEOLOGICAL SURVEY BRANCH
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N

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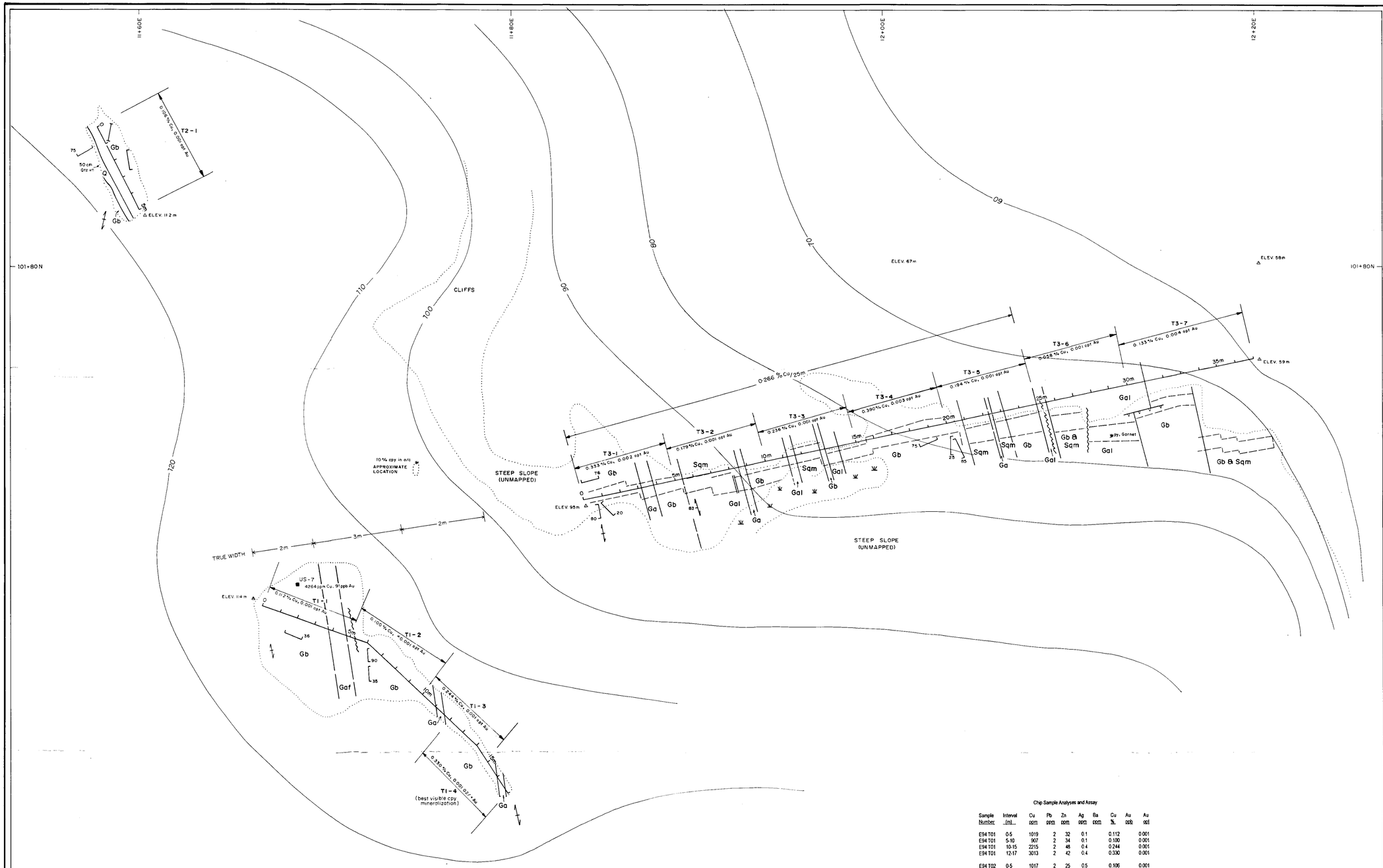
metres



LEGEND

(property scale mappable units, stratigraphic sequence unknown)

Q quartz vein
milky white quartz vein or lens

Ga Amphibolite (coarse grained)
medium to coarse grained, dark grey-green amphibolite, 30-40% amphiboles, chlorite, quartz, feldspar, may contain pyrite, chalcopyrite and garnet

Gaf Amphibolite (fine grained)
medium to dark green, fine grained, dense, siliceous amphibolite, grades to coarse variety

Gal Amphibolite ("lamprophyre")
fine grained, dark green amphibolite with chlorite and biotite porphyroblasts, grades to weakly foliated varieties

Gb biotite quartzo-feldspathic Gneiss
grey to grey-green medium grained, leucocratic biotite-quartzo-feldspathic gneiss, minor interbanded brown and light green interbanded biotite-chlorite gneissic varieties, commonly contains 3-5% dissominated sulphides including pyrite, chalcopyrite +/- bornite +/- malachite

Sqm quartz-muscovite/sericite Schist
leucocratic musocvite quartzo-feldspathic gneiss and schist, gneissic varieties more common, gradational contacts with other leucocratic quartzo-feldspathic gneisses, may contain minor biotite, chlorite and talc, commonly contains 3-5% sulphides including pyrite, chalcopyrite +/- bornite +/-malachite

Symbols

- Geological Boundary: defined, inferred
- Fault: defined, inferred
- Joint: vertical, inclined
- movement indicated along joint surface
- Foliation: vertical, inclined
- outcrop, sub-outcrop
- hand trench/chip sample line
- ▵90 altimeter reading +/- 1m
- 70 approximate elevation contour
- ■ rock sample location
- ✱ mineralized occurrence
  py pyrite
  cpy chalcopyrite
  bo bornite

Chip Sample Analyses and Assay

Sample Number	Interval (m)	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Au ppb	Au opt
E94 T01	0-5	1019	2	32	0.1		0.112		0.001
E94 T01	5-10	907	2	34	0.1		0.100		0.001
E94 T01	10-15	2215	2	48	0.4		0.244		0.001
E94 T01	12-17	3013	2	42	0.4		0.330		0.001
E94 T02	0-5	1017	2	25	0.5		0.106		0.001
E94 T03	0-5	2926	2	69	0.7		0.333		0.002
E94 T03	5-10	1653	3	41	0.3		0.179		0.001
E94 T03	10-15	2130	3	49	0.4		0.236		0.001
E94 T03	15-20	3438	5	181	0.8		0.380		0.003
E94 T03	20-25	1678	10	64	0.7		0.194		0.001
E94 T03	25-30	524	3	58	0.2		0.058		0.001
E94 T03	30-37	1212	4	97	0.9		0.133		0.004

MAPPED BY	ATNA RESOURCES LTD.			
U.Schmidt 9/94	ECSTALL PROPERTY THIRTEEN CREEK GRID GEOLOGY & SAMPLING Trenches T1, T2, T3			
REVISED BY	SCALE	NTS	DATE	FIG. N9
	1:100	103H/13	Feb.1995	7

GEOLOGICAL SURVEY BRANCH
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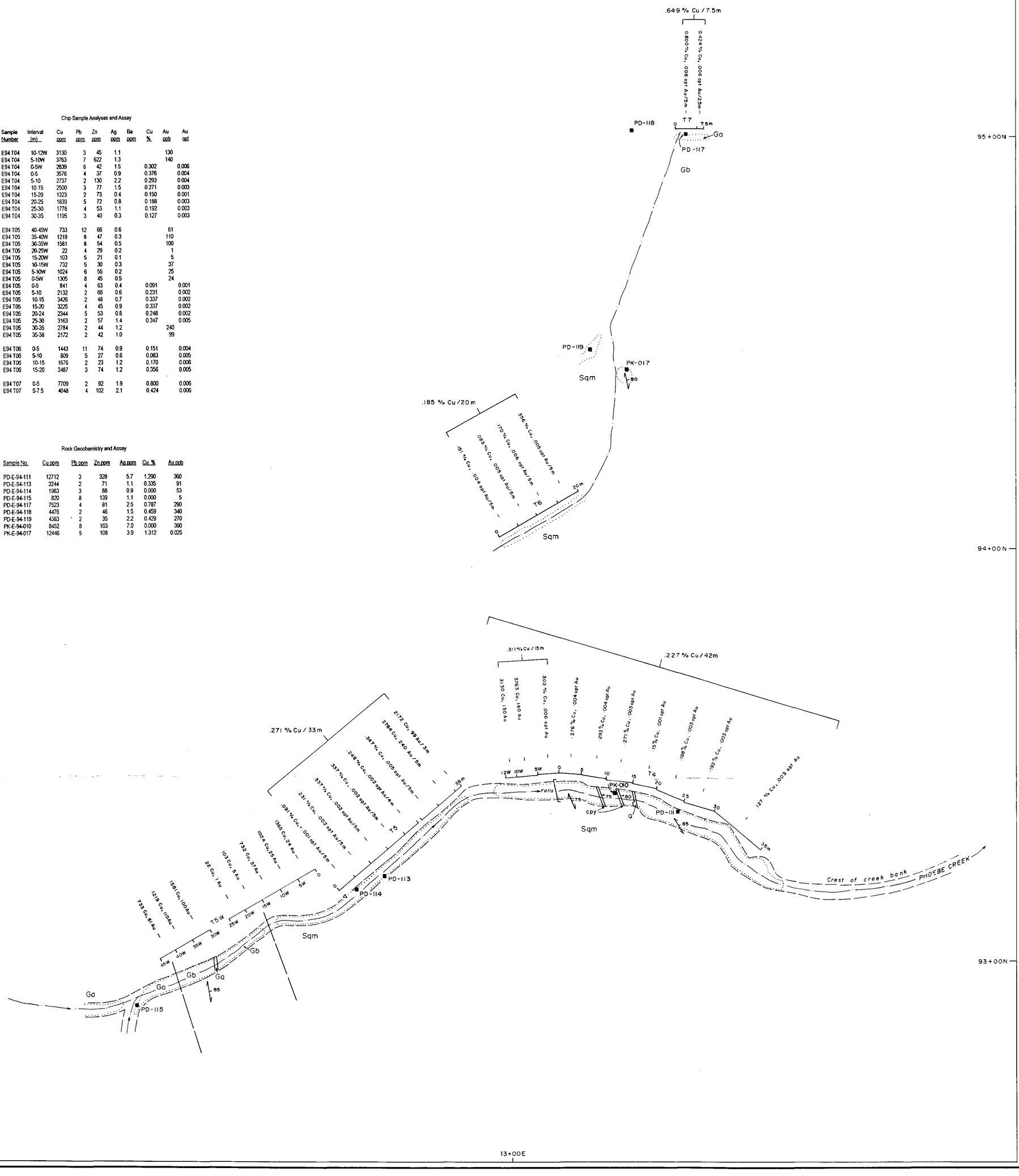
Chip Sample Analyses and Assay

Sample Number	Interval (m)	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Au ppb	Au opt
E94 T04	10-12W	3130	3	45	1.1			130	
E94 T04	5-10W	3763	7	622	1.3			140	
E94 T04	0-5W	2639	6	42	1.5		0.302		0.006
E94 T04	0-5	3576	4	37	0.9		0.376		0.004
E94 T04	5-10	2737	2	130	2.2		0.293		0.004
E94 T04	10-15	2500	3	77	1.5		0.271		0.003
E94 T04	15-20	1323	2	73	0.4		0.150		0.001
E94 T04	20-25	1839	5	72	0.8		0.188		0.003
E94 T04	25-30	1778	4	53	1.1		0.192		0.003
E94 T04	30-35	1195	3	40	0.3		0.127		0.003
E94 T05	40-45W	733	12	66	0.6			61	
E94 T05	35-40W	1219	8	47	0.3			110	
E94 T05	30-35W	1581	8	54	0.5			100	
E94 T05	20-25W	22	4	29	0.2			1	
E94 T05	15-20W	103	5	21	0.1			5	
E94 T05	10-15W	732	5	30	0.3			37	
E94 T05	5-10W	1024	6	55	0.2			25	
E94 T05	0-5W	1305	8	45	0.5			24	
E94 T05	0-5	841	4	63	0.4		0.091		0.001
E94 T05	5-10	2132	2	66	0.6		0.231		0.002
E94 T05	10-15	3426	2	48	0.7		0.337		0.002
E94 T05	15-20	3225	4	45	0.9		0.337		0.002
E94 T05	20-24	2344	5	53	0.8		0.248		0.002
E94 T05	25-30	3163	2	57	1.4		0.347		0.005
E94 T05	30-35	2784	2	44	1.2			240	
E94 T05	35-38	2172	2	42	1.0			99	
E94 T06	0-5	1443	11	74	0.9		0.151		0.004
E94 T06	5-10	809	5	27	0.6		0.083		0.005
E94 T06	10-15	1676	2	23	1.2		0.170		0.006
E94 T06	15-20	3487	3	74	1.2		0.356		0.005
E94 T07	0-5	7709	2	92	1.9		0.800		0.006
E94 T07	5-7.5	4048	4	102	2.1		0.424		0.006

Rock Geochemistry and Assay

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Cu %	Au ppb
PD-E-94-111	12712	3	328	5.7	1.290	360
PD-E-94-113	3244	2	71	1.1	0.335	91
PD-E-94-114	1963	3	88	0.9	0.000	53
PD-E-94-115	820	8	139	1.1	0.000	5
PD-E-94-117	7523	4	81	2.5	0.787	290
PD-E-94-118	4476	2	46	1.5	0.459	340
PD-E-94-119	4383	2	35	2.2	0.429	270
PK-E-94-010	8452	8	163	7.0	0.000	390
PK-E-94-017	12446	5	108	3.9	1.312	0.025



0 25 50
metres

LEGEND

(property scale mappable units, stratigraphic sequence unknown)

Q quartz vein or lens

Ga Amphibolite
fine to coarse grained, medium to dark green amphibolite, generally dense resistant weathering, in sharp contact with leucocratic gneisses, contacts are often faulted, grades to amphibole dominant feldspathic gneiss (Gh), includes biotite, chlorite porphyroblastic "meta-lamprohyre" variety, may contain pyrite, chalcopyrite and garnet

Sqm quartz-muscovite/sericite Schist
leucocratic muscovite quartzo-feldspathic gneiss and schist, gneissic varieties more common, pale grey to white kyanite can be a significant and distinctive component, grades to kyanite-bearing varieties (Sqmk), gradational contacts with other micaceous leucocratic quartzo-feldspathic gneisses, may contain minor biotite, chlorite and talc, commonly contains 3-5% sulphides including pyrite, chalcopyrite +/- bornite

Gb biotite quartzo-feldspathic Gneiss
grey to grey-green medium grained, leucocratic biotite-quartzo-feldspathic gneiss, grades to brown and light green interbanded biotite-chlorite gneissic varieties, commonly contains 3-5% disseminated sulphides including pyrite, chalcopyrite +/- bornite

Symbols

- Geological Boundary: defined, inferred, assumed
- Joint: vertical, inclined
- Foliation: vertical, inclined
- outcrop, sub-outcrop
- T6 — hand trench/chip sample line: distance in metres
- ■ □ — rock sample location: bedrock, float
- 70 — vein

py pyrite
cpy chalcopyrite
bo bornite

MAPPED BY	ATNA RESOURCES LTD.			
P KALLOCK	ECSTALL PROPERTY THIRTEEN CREEK GRID GEOLOGY & SAMPLING TRENCHES T4, T5W, T5, T6, T7			
REVISED BY	SCALE	NTS	DATE	FIG. Nº
	1:500	103H/13	Feb.1995	8

GEOLOGICAL SURVEY BRANCH
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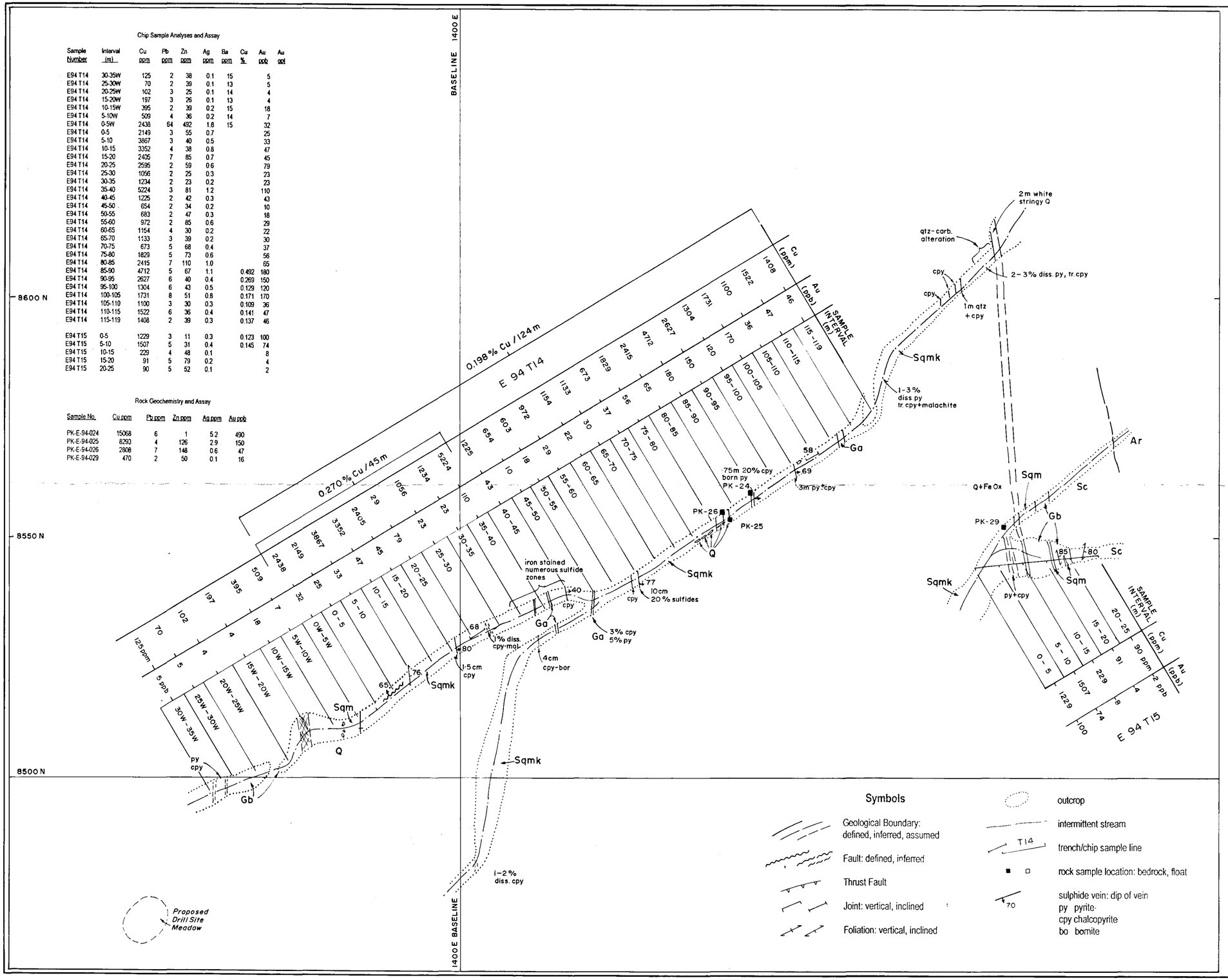
24,605

Chip Sample Analyses and Assay

Sample Number	Interval (m)	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ba ppm	Cu %	Au ppb	Au opt
E94 T14	30-35W	125	2	38	0.1	15		5	
E94 T14	25-30W	70	2	39	0.1	13		5	
E94 T14	20-25W	102	3	25	0.1	14		4	
E94 T14	15-20W	197	3	26	0.1	13		4	
E94 T14	10-15W	395	2	39	0.2	15		18	
E94 T14	5-10W	509	4	36	0.2	14		7	
E94 T14	0-5W	2438	64	492	1.8	15		32	
E94 T14	0-5	2149	3	55	0.7			25	
E94 T14	5-10	3867	3	40	0.5			33	
E94 T14	10-15	3352	4	38	0.8			47	
E94 T14	15-20	2405	7	85	0.7			45	
E94 T14	20-25	2595	2	59	0.6			79	
E94 T14	25-30	1056	2	25	0.3			23	
E94 T14	30-35	1234	2	23	0.2			23	
E94 T14	35-40	5224	3	81	1.2			110	
E94 T14	40-45	1225	2	42	0.3			43	
E94 T14	45-50	654	2	34	0.2			10	
E94 T14	50-55	683	2	47	0.3			18	
E94 T14	55-60	972	2	85	0.6			29	
E94 T14	60-65	1154	4	30	0.2			22	
E94 T14	65-70	1133	3	39	0.2			30	
E94 T14	70-75	673	5	68	0.4			37	
E94 T14	75-80	1829	5	73	0.6			56	
E94 T14	80-85	2415	7	110	1.0			65	
E94 T14	85-90	4712	5	67	1.1		0.492	180	
E94 T14	90-95	2627	6	40	0.4		0.269	150	
E94 T14	95-100	1304	6	43	0.5		0.129	120	
E94 T14	100-105	1731	8	51	0.8		0.171	170	
E94 T14	105-110	1100	3	30	0.3		0.109	36	
E94 T14	110-115	1522	6	36	0.4		0.141	47	
E94 T14	115-119	1408	2	39	0.3		0.137	46	
E94 T15	0-5	1229	3	11	0.3		0.123	100	
E94 T15	5-10	1507	5	31	0.4		0.145	74	
E94 T15	10-15	229	4	48	0.1			8	
E94 T15	15-20	91	5	79	0.2			4	
E94 T15	20-25	90	5	52	0.1			2	

Rock Geochemistry and Assay

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
PK-E-94-024	15068	6	1	5.2	490
PK-E-94-025	8293	4	126	2.9	150
PK-E-94-026	2808	7	148	0.6	47
PK-E-94-029	470	2	50	0.1	16



SCALE 1:500

0 10 20 30 40

METRES

(1 cm = 5 m)

LEGEND

(property scale mappable units, stratigraphic sequence unknown)

Q quartz vein
milky white quartz vein or lens

Scqp chlorite-quartz-pyrite schist
coarse, knotty chlorite schist, contains coarse irregular quartz blebs and large euhedral pyrite cubes, late metamorphic fault zone?

Ga Amphibolite
fine to coarse grained, medium to dark green amphibolite, generally dense resistant weathering, in sharp contact with leucocratic gneisses, contacts are often faulted, grades to amphibole dominant feldspathic gneiss (Gh), includes biotite, chlorite porphyroblastic "meta-lamprohyre" variety, may contain pyrite, chalcopyrite and garnet

Ar Argillite
black argillite and phyllite,

Sc chlorite Schist
pale olive green chlorite schist; gradational contacts with (Scb) chlorite-biotite Schist, chlorite schist with alternating medium brown biotite-bearing layers

Sqmk quartz-muscovite/sericite-kyanite Schist
leucocratic muscovite-kyanite quartzo-feldspathic gneiss and schist, gneissic varieties more common, pale grey to white kyanite can be a significant and distinctive component, grades kyanite-free varieties (Sqm), gradational contacts with other micaceous leucocratic quartzo-feldspathic gneisses, may contain minor biotite, chlorite and talc, commonly contains 3-5% sulphides including pyrite, chalcopyrite +/- bornite

Gb biotite quartzo-feldspathic Gneiss
grey to grey-green medium grained, leucocratic biotite-quartzo-feldspathic gneiss, grades to brown and light green interbanded biotite-chlorite gneissic varieties, commonly contains 3-5% disseminated sulphides including pyrite, chalcopyrite +/- bornite

Symbols

- Geological Boundary: defined, inferred, assumed
- Fault: defined, inferred
- Thrust Fault
- Joint: vertical, inclined
- Foliation: vertical, inclined
- outcrop
- intermittent stream
- T14 trench/chip sample line
- rock sample location: bedrock, float
- 70 sulphide vein: dip of vein
  py pyrite
  cpy chalcopyrite
  bo bornite

MAPPED BY	ATNA RESOURCES LTD.			
P. KALLOCK	ECSTALL PROPERTY THIRTEEN CREEK GRID GEOLOGY & SAMPLING **TRENCHES T14 & T15**			
DRAWN BY				
R. N. GOPAL				
REVISED BY				
	SCALE	NTS	DATE	FIG. No
	1:500	103H/13	Feb. 1995	9

50 0 50 100 150
metres

SCALE 1:2000

14+00E BL

101+80N
101+40N
101+00N
100+00N
99+00N
98+00N
97+00N
96+

RIVER

22.0

Prairie Creek

LEGEND

256 37 — Au>50ppb / Cu>300ppm

No Sample — Au(ppb) / Cu(ppm) — Soil Sample site

ATNA RESOURCES LTD.			
ECSTALL PROPERTY THIRTEEN CREEK GRID Cu, Au SOIL GEOCHEMISTRY			
SCALE	NTS	DATE	FIG. Nº
1:2000	103H/13	Feb.1995	10