REPORT ON

GEOLOGY, GEOPHYSICS AND DIAMOND DRILLING

OF THE

HORSEFLY PROPERTY

SKEENA MINING DIVISION

NTS 103H/14

Lat.: 53° 46' N. Long.: 129° 29' W.

BY

Uwe Schmidt, P.Geo.

FOR

ATNA RESOURCES LTD.

Feb. 27, 1996

PART 1 OF 2

TABLE OF CONTENTS

List of Illustrations

1. SUMMARY

From August 11 to October 18, 1995, Atna Resources Ltd. explored the Horsefly property under an option agreement with Ecstall Mining Corporation. The property is located 53 km southwest of Kitimat B.C and consists of 54 mineral claims. Exploration included line-cutting, mapping, Max-Min Electromagnetic survey and 1,076 metres of diamond drilling.

The property is underlain by Middle Devonian metavolcanic rocks comprising a complex interbedded sequence of calcareous, intermediate to felsic volcaniclastic, sedimentary and minor volcanic rocks. Foliations strike in a northerly direction with an average of 170° and a steep westerly dip ranging from 60° to 85°.

A 20 metre wide zone of strong chloritic alteration and disseminated and semi-massive copper-bearing sulphide mineralization was outlined by two drill holes on the south end of the Horsefly grid. This zone has a strike length of 90 metres and is open along strike and down dip. Additional diamond drilling of this discovery is recommended.

Drill testing of three E.M. anomalies is also recommended. These anomalies were outlined in 1995 but not drilled.

2. INTRODUCTION

From August 11 to October 18, 1995, Atna Resources Ltd. explored the 1,000 hectare Horsefly property under an option agreement with Ecstall Mining Corporation. The Horsefly property is located 53 km southwest of Kitimat B.C and consists of 54 mineral claims. Exploration included line-cutting, geological mapping, Max-Min Electromagnetic survey and diamond drilling.

Work was carried out from three fly camps which were located on the property. Crew size varied from two to three and included combinations of one geologist or one geophysicist and one or two field assistants. The writer was contracted by Atna Resources to provide field management and supply field and camp equipment through Northwest Geological Consulting Ltd. Field assistants Ron Beauchamp, Regan Moran and Kris Carruthers were employed by Atna Resources and were assigned to the project. Geophysicist Matt Chamberland was employed by Delta Geoscience Ltd. who were contracted by Atna Resources to carry out an Electromagnetic survey. Overall program supervision was provided by Peter DeLancey, P.Eng., president of Atna Resources Ltd.

3. PROPERTY, LOCATION AND ACCESS

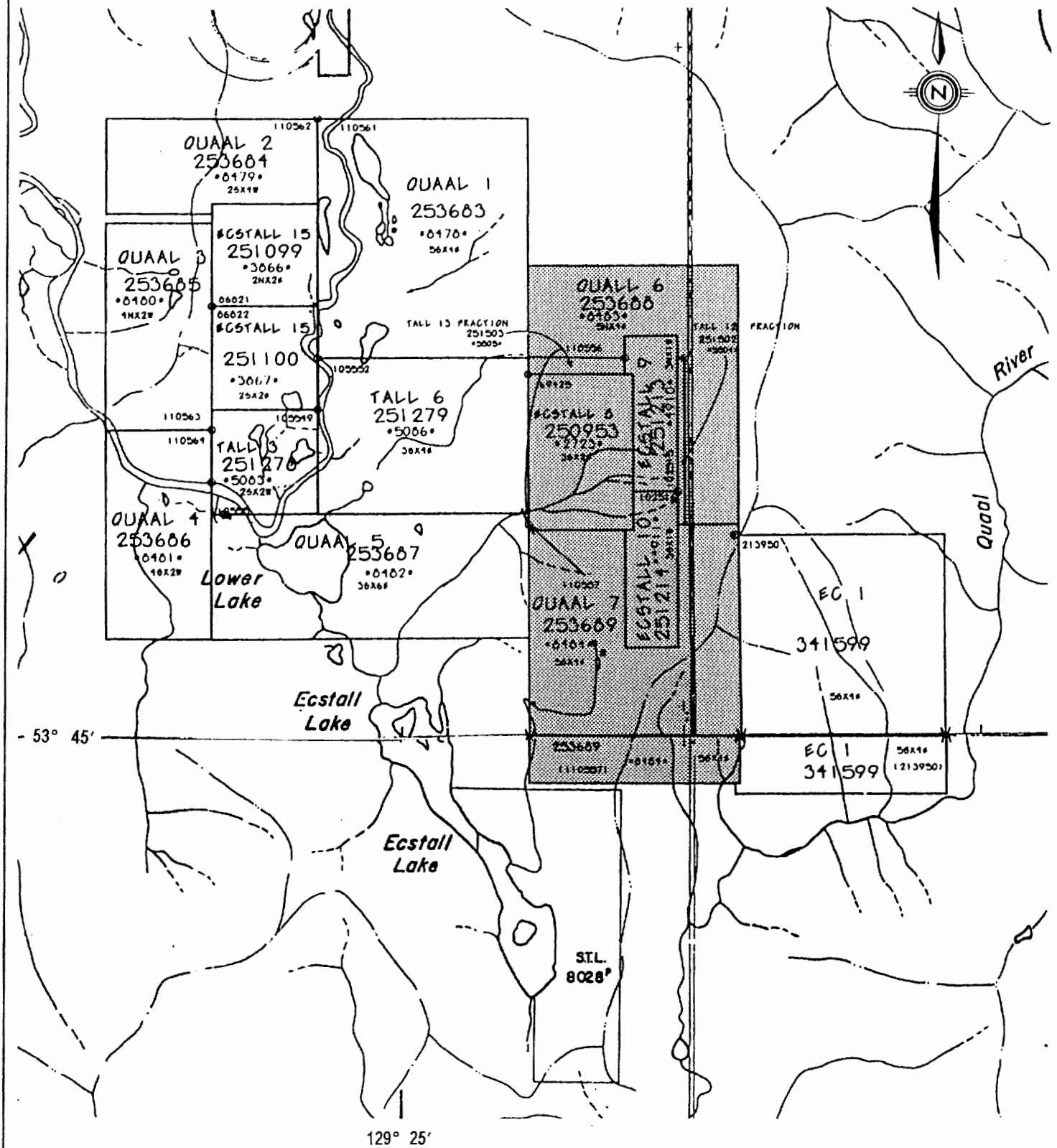
The Horsefly property consists of 5 mineral claims and 2 fractional mineral claims, totalling 54 units. Overlap of several of the claims has limited the area of the property to approximately 1,000 hectares. The property is located on NTS map sheet 103H/14 in the Skeena Mining Division and approximately 52 km southwest of the village of Kitimat. The geographic coordinates of the approximate centre of the property are 53° 46' N. latitude and 129° 23' W. longitude. The details of the claims are as follows:

Horsefly Property:

Claim Name	**Units**	**Records No.**	**Record Date**	**Expiry Date**
Quaal 6	20	8483	Mar.23/90	Mar.23/2000
Quaal 7	20	8484	Mar.23/90	Mar.23/2000
Ecstall 8	6	2723	Dec.17/80	Dec.17/2000
Ecstall 9	3	4910	Aug.29/85	Aug.29/2000
Ecstall 10	3	4911	Aug.29/85	Aug.29/2000
Tall 12 Fr.	1	5504	Aug.15/86	Aug.15/2000
Tall 13 Fr.	1	5505	Aug.15/86	Aug.15/2000
Total units	54			

PROFESSIONAL ENGINEER
U. SCHMIDT
Jan 27 96
GEOSCIENTIST

ATNA RESOURCES LTD.			
ECSTALL PROJECT HORSEFLY PROPERTY LOCATION			
NORTHWEST GEOLOGICAL CONSULTING LTD.			
SCALE	NTS	DATE	FIG.
1:7,000,000		Feb. 96	1



U. SCHMIDT
Feb. 27.96

ATNA RESOURCES LTD.			
ECSTALL PROJECT HORSEFLY PROPERTY CLAIMS			
NORTHWEST GEOLOGICAL CONSULTING LTD.			
SCALE	NTS	DATE	FIG.
1:50,000	103H/14,11	Feb. 96	2

The field crew mobilized to the property and were supplied by helicopter from Prince Rupert, located 85 km to the northwest by air. Three fly camps were established over the duration of the program to allow access on foot to all areas of interest. During the later diamond drilling phase, drill supervision and logistical support were provided by a two man crew based in a fly camp on the property, but drill crews were based in Prince Rupert and were flown to the property by helicopter.

Diamond drilling equipment and supplies were transported by barge from Kitimat to Kitkiata Inlet, then by slung for 15 kilometres to the property by helicopter. A Prince Rupert based Vancouver Island Helicopters Bell 206L "Long Ranger" was used for mobilization, drill moves and crew changes.

4. PHYSIOGRAPHY

The property covers an area of rugged terrain typical of the Coast Range Mountains of British Columbia. Elevations range from 200 to approximately 1,200 metres with vegetation varying from over-mature coniferous rain forest to moss and grass covered alpine meadows. Exploration in 1995 was restricted to known areas of mineralization which occur above 500 metres in elevation.

The Horsefly property is divided into the "Horsefly" and "Steelhead" areas. The Horsefly grid is situated in the northern half of the property and is centred over a massive sulphide mineral occurrence by that name, which crops out in a stream. The grid area is predominantly covered by a dense growth of young conifers and brush. A number of small swampy meadows within the area, permitted helicopter access and were used as camp sites. Outcrop is primarily restricted to creeks valleys and cliff faces on the east end of the grid.

The Steelhead grid area lies in the southern half of the property and is also centred on a previously known mineral occurrence. Most of the Steelhead grid is covered in alpine and sub-alpine vegetation. Stunted conifers and underbrush occur in patches within typical grass and lichen alpine vegetation. Outcrops in Steelhead area are abundant and occur in parallel, resitant-weathering ridges, in a north-south direction.

Deep snow accumulations are typical for this area. This limits the exploration season from July to Late October.

5. HISTORY

The Horsefly showing was discovered in 1968 by prospectors employed by Texas Gulf Sulphur. Texas Gulf explored the area by grid geophysical surveys and mapping. The claims were allowed to lapse and were restaked in 1980 by C. Graf. Ecstall River Joint Venture,

consisting of Welcome North Mines Ltd., Esperanza Explorations Limited, E & B Explorations Incorporated and Active Minerals Explorations Limited, explored the property in 1981. In 1985, Noranda Exploration Company, Limited option the property from C.Graf and explored the area by airborne E.M. and Magnetometer surveys in 1986. Airborne surveys were followed up by ground E.M. and magnetometer surveys and geological mapping in the same year. Atna first examined the Horsefly and Steelhead areas in September 1994. Following this examination, Atna entered into an option agreement with Ecstall Mining Corporation which acquired the claims from C. Graf. Atna commenced exploration on August 12, 1995 with a program of line-cutting, geological mapping, and a Max-Min E.M. survey. The best geophysical conductors were tested by 1,076 metres of diamond drilling in eight holes during the period from September 26 to October 6.

5.1 SUMMARY OF WORK CARRIED OUT IN 1995

The 1995 program began on August 12 with line-cutting on the Horsefly grid which primarily involved brushing out and re-establishing the existing Noranda grid. Geologic mapping was carried out with the aid of "hip-chain" and compass surveys along all creeks.

Upon completion of the Horsefly grid the crew moved camp 1,200 metres south to the Steelhead grid on August 25. A new grid was established in the Steelhead area which utilized the same coordinate system and line bearings as the Horsefly grid. Extension of the Horsefly baseline south to the Steelhead area was not possible due to steep terrain. Grid coordinates in both areas were unified by a slope corrected "hip-chain" and compass survey between the two grids.

A Max-Min I-9 E.M. survey was conducted over Horsefly and Steelhead grids from September 7 to 14. Anomalies detected by this survey were tested by diamond drilling during the period from September 26 to October 6. A total of 8 holes were drilled totalling 1,076 metres. Core logging, splitting and sampling continued until camp demobilization on October 19.

A total of 100 core intervals were split and sampled. Of these, 31 samples were assayed for copper and 30 element ICP geochemical analyses. The remaining core samples typically are pyritic core sections with low visible copper grades and rare occurrences of sphalerite and galena. Samples not assayed to date were taken to allow the future assessment, of the base and possible precious metals distribution in pyritic sections of the core, while the core is inaccessible on the property. An additional 49 representative core samples were taken for possible lithogeochemical analyses. These samples are presently in storage. Twenty whole rock samples were collected by T. Barrett, in connection with his research on massive sulphide deposits, through the Mineral Deposits Research Unit at The University of B.C.

6. REGIONAL GEOLOGY

The most recent geological mapping of the area is by S. A. Gareau of the G.S.C., published as Open File 2337 in 1990. The property is situated near the southern limit of the central region of the Scotia-Quaal metamorphic belt, a 60 km long and 10 to 15 km wide, north-northwest trending pendant within the Coast Plutonic Complex. The pendant comprises 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 to 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 (Fig. 3, 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 is the largest deposit found to date, with 6.9 million tonnes grading 0.6% copper, 2.5% zinc, 42.3% iron and 48.4% sulphur.

Metasedimentary rocks are medium to fine-grained, epidote-rich, hornblende-biotite gneisses. 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 of possible Eocene age crosscut the metamorphic rocks throughout the area.

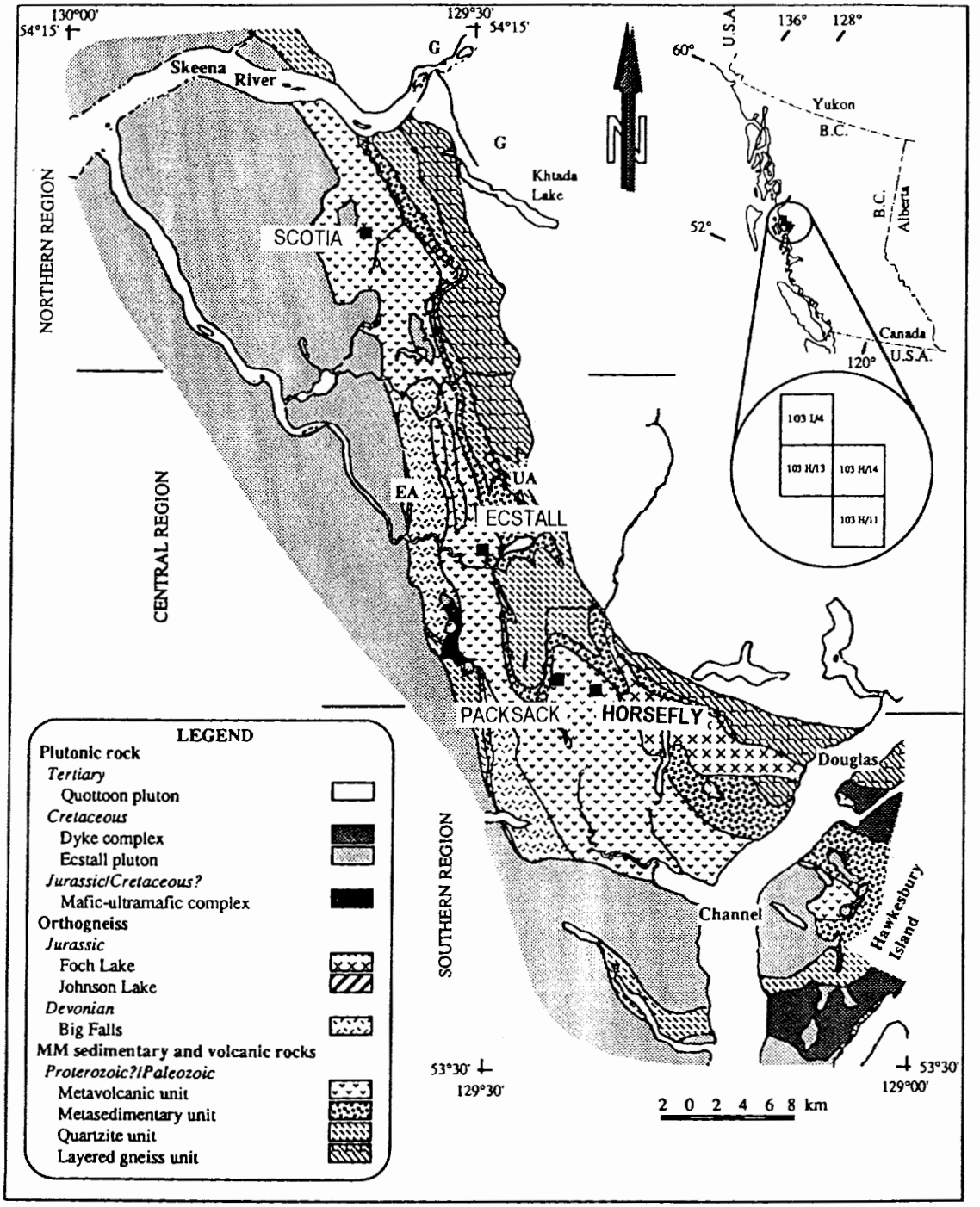


FIG. 1. Simplified geological map of the Scotia–Quaal metamorphic belt. MM, metamorphic. Bold letters designate facies of metamorphism: EA, epidote–amphibolite; UA, upper amphibolite; G, granulite.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
U. SCHMIDT
Feb 27 96
GEOSCIENTIST

ATNA RESOURCES LTD.			
ECSTALL PROJECT SIMPLIFIED REGIONAL GEOLOGY AND MINERAL DEPOSITS Modified after S.A. Gareau (1991) *NORTHWEST GEOLOGICAL CONSULTING LTD.*			
SCALE	NTS	DATE	FIG.
1:500,000	103 H & I	Feb. 96	3

7. PROPERTY GEOLOGY

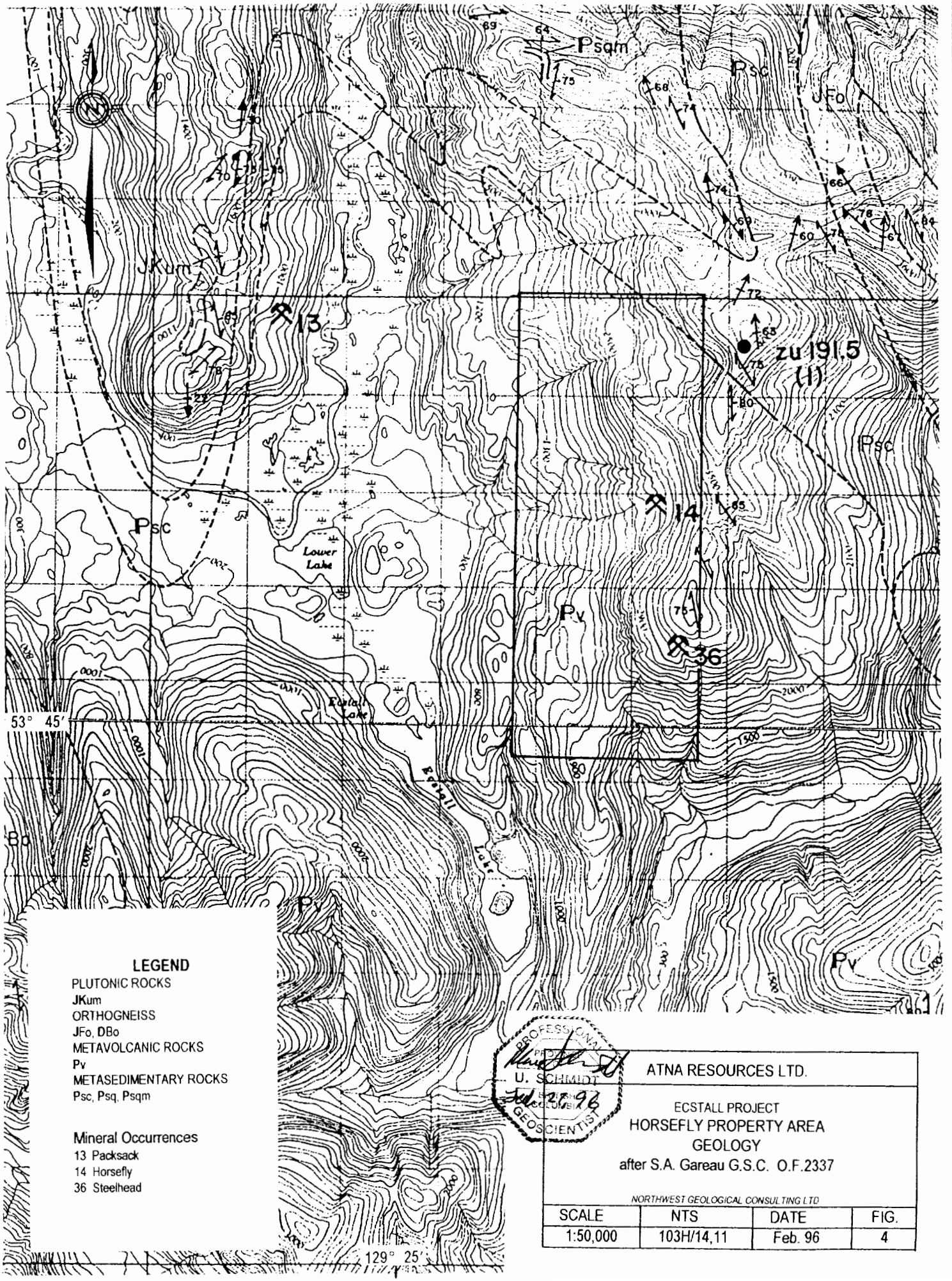
Mapping was carried out in the Horsefly and Steelhead grid areas, which cover areas of known mineralization previously explored by Noranda (Fig. 12). Both areas are located at higher elevations near the more accessible eastern limits of the property. The steep, mature forest-covered, western half of the property was not examined. The geology of the Horsefly grid is poorly exposed except within creeks which cross the grid. Geologic mapping was carried out with the aid of slope corrected "Hip-Chain" and compass surveys along all creeks. There is abundant exposure in the Steelhead area, where mapping was carried out along slope corrected grid lines.

The property and the two grid areas mapped in 1995 are underlain by Gareau's metavolcanic unit (Fig. 4). The metavolcanic unit comprises a metamorphosed interbedded sequence of calcareous, intermediate to felsic volcaniclastic, sedimentary and minor volcanic rocks. Foliations strike in a northerly direction with an average of 170° and a steep westerly dip ranging from 60° to 85°. This strike is maintained from the southern end of the Steelhead grid to the northern end of the Horsefly grid. There is an abrupt change in strike to a northwesterly direction with a steep northeasterly dip in rocks exposed just north of Horsefly grid, but the lithologies exposed in this west flowing creek are similar to those exposed to the south.

The volcaniclastic sedimentary and volcanic rocks are complexly interbedded and generally lack primary textures. Exceptions are some of the sedimentary and pyroclastic rocks on the east side of Steelhead grid. Narrow beds of argillite occur within the volcaniclastic succession at approximately 50 to 150 metre intervals. The argillite horizons form recessive-weathering, distinctive marker horizons and help trace the boundaries of featureless lithologies. A compositional trend from intermediate to felsic is also apparent traversing from east to west in Steelhead grid area.

Gareau's metavolcanic unit was sub-divided into: intermediate volcanic and associated metamorphic rocks; metasedimentary and associated metavolcanic rocks; felsic volcanic and associated metamorphic rocks. Volcanic and volcaniclastic rocks of intermediate composition were divided into 6 mappable units. Of these lapilli and crystal tuffs (1a,1b) are the most common. Next in abundance are calcareous quartz-chlorite schist (1d) and sericitic varieties of chlorite schist (1e) which generally lack megascopic primary textures and are gradational with siltstones of the metasedimentary sub-division. Massive varieties of this unit (1f) may include andesitic flows. Andesitic flows are assigned to unit 1a where pillows or coarse crystalline textures were observed.

Metasedimentary rocks were divided into 3 mappable units: argillite (2a), siltstone (2b) and calcareous chlorite schist (2c). The argillite unit is siliceous, carbonaceous, pyritic, and recessive-weathering. It occurs in discontinuous beds of less than 10 metre thickness, often bordered by thin discontinuous beds of calcareous chlorite schist and pyritic quartz-sericite schist. Thin beds of argillite may also occur within the siltstone unit.


Psqm
Psc
JFo
JKum
13
14
36
zu 191.5
(1)
Psc
Psc
Lower Lake
Pv
Pv
Pv
Ecstall Lake
Ecstall Lake
Bo
53° 45'
129° 25'
LEGEND
PLUTONIC ROCKS
JKum
ORTHOGNEISS
JFo, DBo
METAVOLCANIC ROCKS
Pv
METASEDIMENTARY ROCKS
Psc, Psq, Psqm
Mineral Occurrences
13 Packsack
14 Horsefly
36 Steelhead
PROFESSIONAL
U. SCHMIDT
GEOSCIENTIST
ATNA RESOURCES LTD.
ECSTALL PROJECT
HORSEFLY PROPERTY AREA
GEOLOGY
after S.A. Gareau G.S.C. O.F.2337
NORTHWEST GEOLOGICAL CONSULTING LTD
SCALE 1:50,000
NTS 103H/14,11
DATE Feb. 96
FIG. 4

Felsic volcanics were divided into 4 map units. The most common of these is unit 3a, comprising pyritic rhyolite flows, breccias, tuffs and quartz-sericite schist. This unit is prominently exposed in cliff-forming outcrops on the west side of Steelhead grid. Iron staining from weathered pyrite obscures textures and internal structures. Disseminated pyrite occurs throughout this unit and is present locally as semi-massive bands. Chalcopyrite, sphalerite and rare galena are associated with pyrite. Higher concentrations of these minerals occur only locally, but are difficult to detect in low concentrations.

Unmineralized rhyolite and quartz-sericite schist were mapped as unit 3b. This unit consists of pale grey to white sericite quartz-augen schists. It is closely associated with the pyritic rhyolite unit and pale grey, massive, fine-grained felsic tuffs of unit 3d. Quartz-sericite schist of unit 3c occurs in thin discontinuous beds often associated with siliceous pyritic argillite horizons of unit 2a and calcareous chlorite schist of unit 2c. The quartz sericite schist commonly contains 5 to 10% disseminated pyrite, fine grained pyrrhotite and traces of chalcopyrite.

A late, unmetamorphosed intrusive phase occurs in both map areas. Dark green to brown porphyritic hornblende lamprophyre dykes (unit 4) intrude late vertical fault zones. Dykes are usually less than 2 metres in width and up to 30 metres in length. The age of this unit is unknown but may be related to Eocene aged quartz diorite dykes mapped by Gareau.

7.1 MINERALIZATION

The Horsefly showing is a pyritic massive sulphide horizon which is exposed in three creeks along the base line of Horsefly grid over a strike length of 100 metres. Previous sampling by Noranda geologists returned assays up to 1.16% Cu, 4.6% Zn, 0.13% Pb and 39g/T Ag. An examination and additional sampling of this showing by Atna geologists in 1994 confirmed the Noranda results. No further sampling was carried out in 1995 but the showing was reexamined.

Sulphide mineralization at the south end of the showing consists of a 30 cm thick bed of banded pyrite with sphalerite, chalcopyrite and pyrrhotite, dipping to the west at 55°. Twenty-five metres north, in a second creek exposure, the zone has narrowed to two sulphide bands measuring 5 and 10 cm in thickness. The banded massive pyrite horizons lie within a broad zone of disseminated pyrite. The north end of the showing is exposed in a third creek approximately 100 metres north of the southern outcrop. At this site, the sulphide horizon is exposed in two limbs of a tightly folded west dipping synform. Pyrite concentrations of 30% with chalcopyrite are exposed over a width of 2 metres. Sulphides are hosted by calcareous chlorite schist dipping to the west at 80°. Additional pyritic horizons occur east and west of the showing. These horizons are commonly hosted by quartz-sericite schist and may contain chalcopyrite and pyrrhotite in low concentration.
Siliceous argillite horizons are also commonly mineralized with disseminated pyrite, pyrrhotite and rare chalcopyrite. Sampling in 1994 indicates that the argillite horizons are also

geochemically anomalous in zinc and lead.

Mineralization on the Steelhead grid is associated with pyritic rhyolite, quartz sericite-schist and breccias. Sampling by Noranda geologists obtained isolated copper and zinc assays up to 1.65% Cu and 3.8% Zn. Concentrations of chalcopyrite or sphalerite occur with higher concentrations of pyrite and pyrrhotite, but mineralization lacks continuity. Some of the mineralization appears to occur in coarse breccia fragments.

Black siliceous argillite horizons in the Steelhead area are also mineralized with disseminated pyrite, pyrrhotite and rare chalcopyrite.

7.2 STRUCTURE

Strong planar fabrics, produced by regional metamorphism, are evident in all lithologies. A primary foliation direction defined by biotite chlorite, muscovite and fragment elongation, parallels original stratigraphy. A second, weaker foliation is recognized primarily in drill core and is defined by disseminated biotite porphyroblasts oriented at approximately 30° to the main foliation plane.

Gareau's regional mapping identified three periods of folding between middle Devonian and early Late Cretaceous time. On a property scale, only small, metre-scale isoclinal folds are evident. Larger scale isoclinal folds are suggested by variations in foliation attitudes recognized on surface and in drill core, but their fold axes are likely sub-parallel to regional strike and therefore are difficult to trace.

Fragmental volcanic rocks on the east side of Steelhead grid contain well-preserved primary textures. Abundant lapilli and crystal fragments and rare bombs are evident. Numerous examples of graded bedding were observed in this area but none were clear enough to determine bedding tops. One bomb impact structure at 22+50N - 33+85E indicates a west-facing stratigraphic top.

Numerous examples of drawn out volcanic fragments occur in the tuff units. These fragments are likely lapilli to bomb size fragments of pumice which have been compressed because of their low densities. A small number of quartz porphyry fragments observed within these units were unaffected by the same compaction forces.

Late, sub-vertical faults were observed in a number of areas. Faults cross-cut and parallel stratigraphy. Argillite horizons are often faulted at their contacts. Young lamprophyre dykes intrude these structures.

8. GEOPHYSICS

A horizontal loop E.M. survey was conducted over the Horsefly and Steelhead grids from September 7 to 14. The survey was contracted to Delta Geoscience Ltd. of Delta, B.C. using a Max-Min I-9 system at a coil spacing of 100 metres. Survey results are described in a separate accompanying report by G.A. Hendrickson. Seven of the eight diamond drill targets tested conductors outlined by this survey and are described in more detail in the following diamond drilling section.

9. DIAMOND DRILLING

During the period from September 26 to October 6, 1995, Britton Brothers Diamond Drilling Ltd. of Smithers, B.C. drilled 8 holes totalling 1,076 metres, under contract with Atna Resources. Seven of the eight holes tested the best geophysical conductors and one hole tested mineralized horizons and stratigraphy on the west side of Horsefly grid.

Two intersections of copper mineralization, near the bottom of holes 6 and 8, returned significant copper assays over similar widths. Chalcopyrite mineralization is associated with pyrrhotite in a distinctive altered volcanic unit which extends over a width of approximately 21 metres. A summary of drill results is presented on Fig. 5.

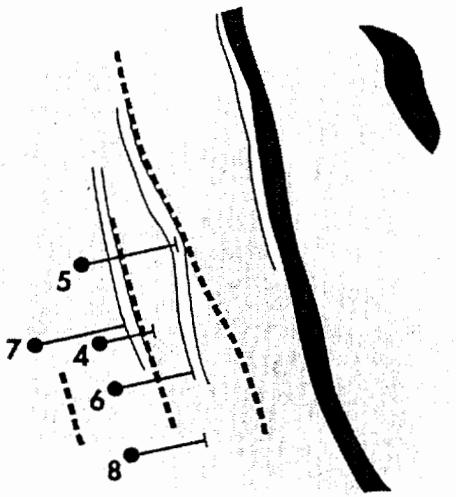
Diamond drill hole locations are plotted on Fig. 12 and the following table summarizes the 1995 drilling:

DDH	COORDINATES	ANGLE	AZIMUTH	LENGTH	
95HF-1	20+58N-30+11E	-45°	080°	560'	170.7 m
95HF-2	19+45N-31+86E	-45°	080°	580'	176.8 m
95HF-3	19+54N-29+65E	-45°	080°	250'	76.2 m
95HF-4	29+00N-29+73E	-45°	080°	310'	94.5 m
95HF-5	29+97N-29+84E	-45°	080°	500'	152.4 m
95HF-6	28+40N-29+79E	-45°	080°	420'	128.0 m
95HF-7	29+08N-29+00E	-45°	080°	500'	152.4 m
95HF-8	27+52N-29+79E	-45°	080°	410'	125.0 m
			TOTAL	3,530'	1,075.9 m

The three sub-divisions of the metavolcanic unit used in surface mapping were further sub-divided for drill core logging (see legend Appendix B).

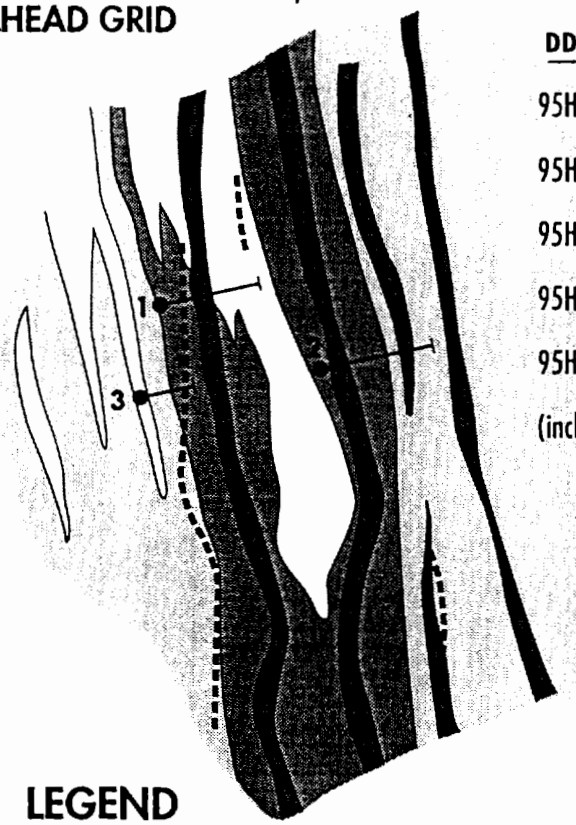
Intermediate volcanic rocks were divided into twelve units. These rocks predominantly comprise calcareous quartz-chlorite schists with some variations in colour, texture and accessory minerals. Biotite is the most common accessory mineral. It occurs as uniformly distributed isolated porphyroblasts and as concentrations in centimetre-scale bands. Lapilli tuffs, crystal tuffs and fine-grained tuffs are uncommon in drill core with the exception of hole

HORSEFLY GRID



80

STEELHEAD GRID



DDH	From (ft.)	To (ft.)	Length (ft.)	Cu %	Zn %	Pb (ppm)	Ag (ppm)	Au (ppb)
95HF4	237.5	238.5	1.0	5.637	0.688	109	30.3	553
95HF4	244.0	246.0	2.0	3.532	0.768	208	20.4	860
95HF5	75.5	77.0	1.5	0.509	1.647	900	16.6	241
95HF6	306.0	316.0	10.0	1.543	0.058	—	5.2	81
95HF8	340.0	349.0	9.0	1.685	—	—	—	—
(including)			3.0	2.717	—	—	4.9	462

LEGEND

- INTERMEDIATE METAVOLCANICS
- FELSIC METAVOLCANICS
- MIXED METASEDIMENTS/ FELSIC VOLCANICLASTICS
- ARGILLITE
- MAX-MIN CONDUCTORS
- DDH

ATNA RESOURCES LTD.

HORSEFLY PROPERTY
DIAMOND DRILLING
SUMMARY

NORTHWEST GEOLOGICAL CONSULTING LTD.

SCALE	NTS	DATE	FIG.
1:10000	103H/14,11	Feb. 96	5

2, because most of the drill targets are on the west side of the grids where these rock types are less common. Dark green chloritic quartz-augen schists were assigned to the intermediate volcanic subdivision but may be strongly chloritized felsic rocks. The increase in chlorite in the vicinity of copper mineralization is gradational and the presence of large quartz augen suggest a felsic volcanic affinity.

Metasedimentary units in drill core are the same as surface map units. Gradational contacts between the siltstone, calcareous chlorite schist and other pale coloured chloritic volcaniclastics are difficult to recognize in drill core.

Felsic metavolcanic rocks were subdivided into 7 units. All units are varieties of quartz-sericite-schists with variations in accessory minerals which include biotite, chlorite and mariposite.

9.1 Mineralization

Mineralization encountered in drill core can be classified into four categories. The most common is disseminated pyrite, pyrrhotite with traces of chalcopyrite. This type of mineralization occurs in a variety of rock types but is especially common in quartz-sericite schist. Pyrite occurs as euhedral, medium grained disseminated crystals. Pyrrhotite occurs in fine grained disseminated blebs and thin laminations. Chalcopyrite content is variable but commonly associated with pyrrhotite.

Banded massive sulphide mineralization was encountered in 4 drill holes over narrow widths. This style of mineralization consists of 60 to 80% pyrite with chalcopyrite and sphalerite. It is similar to surface exposures of the Horsefly showing but is much thinner and was encountered at deeper levels than expected from surface projections.

Coarse aggregates of pyrrhotite, pyrite and chalcopyrite were encountered in siliceous argillite horizons on the west side of Steelhead grid. This style of mineralization is highly anomalous in lead and returned lower than expected copper concentrations.

A fourth style of mineralization was encountered near the bottom of holes 95HF6 and 8. This type of mineralization consists of chalcopyrite associated with large irregular aggregates of pyrrhotite in a strongly chloritized quartz augen schist. The two holes outlined a 20 metre wide zone of chloritic alteration and disseminated sulphides over a 90 metre strike length. This mineralization type, unlike the previously described mineralization, is low in lead, zinc and precious metals. The mineralogy and alteration suggests that it is related to stockwork mineralization found in the footwalls of massive sulphide systems.

The following descriptions of drill targets are presented with reference to 6 east-west cross-

sections, proceeding from south to north. All holes were drilled at 45° and grid east at 080° azimuth.

STEELHEAD GRID

Section 19+50N, (Fig. 6)

Two holes were drilled on section 19+50N. Hole 95HF2 tested two conductors in centre of Steelhead grid. The upper half of the hole tested a broad conductor which has a length of 750 metres and a width of up to 140 metres. Numerous black siliceous argillite horizons were encountered from 35 to 134 metres. Black argillite horizons commonly contain pyrrhotite concentrations from 5 to 10% and traces of chalcopyrite. Argillite horizons intercalated in lapilli and fine-grained tuffs, diminish in thickness and frequency with depth.

The bottom of hole 95HF2 tested a strong and narrow conductor which coincides with an argillite horizon on surface. A 1.2 metre thick argillite horizon encountered at 122 metres is the likely extension of the surface exposure and source of conductivity.

Hole 95HF3 drilled on the west end of section 19+50N, tested a strong narrow conductor in an area of poor exposure. A 6 metre thick argillite horizon bordered and interbedded with quartz-sericite schist was intersected at 58 metres. The argillite is mineralized with coarse pyrite, pyrrhotite and traces of chalcopyrite. Eight sections of this core were sampled but not analyzed.

Section 20+50N (Fig.7)

Hole 95HF1 was drilled to test a strong narrow conductor and to test mineralized felsic volcanic rocks at depth. A 4.6 metre thick argillite horizon was encountered at 38 metres. This interval was mineralized with 20 to 30% coarse pyrrhotite and minor chalcopyrite and returned 4.9 metres of 0.027 % Cu, 1,276 ppm Pb, 362 ppm Zn, 13.8 ppm Ag and 24 ppb Au.

The bottom 30 metres encountered disseminated pyrrhotite in the range of 5-10% with traces of chalcopyrite in a variety of fine grained volcaniclastics, quartz-sericite schist and minor argillite.

HORSEFLY GRID

Section 27+52N (Fig.8)

The last hole in the program, 95HF8, was drilled on this section to test the strike extension of copper mineralization encountered in hole 95HF6. Two closely-spaced bands of massive sulphide, with a combined thickness of 20 cm, were intersected at 31 metres. This interval assayed 0.456% Cu, 1790 ppm Pb, 2.49% Zn, 27.9 ppm Ag and 345 ppb Au. A second mineralized interval was encountered from 75.6 to 93.6 metres. The highest grade in this interval returned 0.9 metres of 0.991% Cu. A third mineralized interval occurs from 103 to

ELEV. (m)

29+50E. | 29+75E. | 30+00E. (BL.) | 30+25E. | 30+50E. | 30+75E. | 31+00E. | 31+25E. | 31+50E. | 31+75E. | 32+00E. | 32+25E. | 32+50E. | 32+75E. | 33+00E.

(m) ELEV.

1100 / 1050 / 1000 / 950 / 900

DDH95 HF2
-45° Dip, 080° Az.

le, 3a, le, 3e, le, 3e, 1L/2b, 1b/2b, 2a, 1b, 2b, 2a, ka, li, lj, 2a, la, lc, ld

EOH. 176.8m

DDH95 HF3
-45° Dip, 080° Az.

le, 3e, le, le, 3e, 3e, 3f, 2a, 3b, 2a, 3f, lk

EOH. 76.2m

SYMBOLS

- LITHOLOGICAL BOUNDARY
- FAULT
- FOLIATION
- CONDUCTOR
- SULPHIDE MINERALIZATION sample interval indicated

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN
4 ☐ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER
3 FELSIC METAVOLCANICLASTIC AND METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS
a ☐ Quartz Augen-Sericite Schist, Rhyolite ?
b ☐ Quartz-Sericite Schist
c ☐ Quartz-Sericite-Biotite Schist
d ☐ Quartz-Sericite-Biotite-Chlorite Schist
e ☐ Quartz-Chlorite-Sericite Schist
f ☐ Quartz-Chlorite-Sericite-Manposite Schist
g ☐ Calcareous Chloritic Quartz-Biotite-Sericite Schist

2 METASEDIMENTARY ROCKS
a ☐ Siliceous Argillite
b ☐ Siltstone
c ☐ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS
a ☐ Lapilli Tuff
b ☐ Fine Grained Tuff
c ☐ Lapilli Tuff > Crystal Tuff
d ☐ Lapilli Tuff < Crystal Tuff
e ☐ Calcareous, Quartz-Chlorite Schist
f ☐ Calcareous, Quartz-Chlorite-Biotite Schist
g ☐ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
h ☐ Grey and Green Laminated Chlorite Schist
i ☐ Pale Olive Green, Fine Grained, Schist
j ☐ Medium Olive Green, Fine Grained, Schist
k ☐ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
l ☐ Dark Green Chlorite Schist

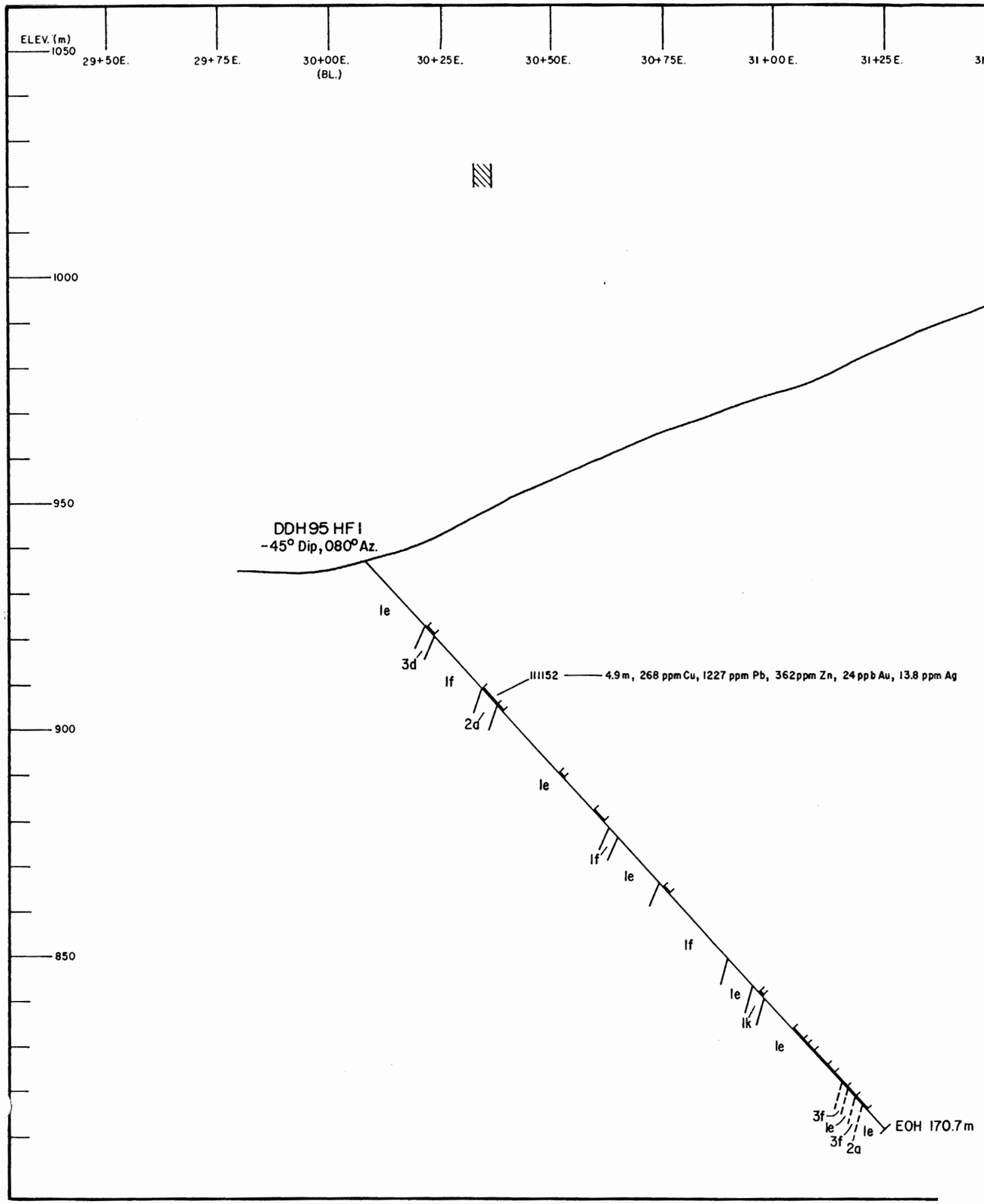
PROFESSIONAL GEOSCIENTIST — PROVINCE OF BRITISH COLUMBIA — U. SCHMIDT — 96

ATNA RESOURCES LTD.

HORSEFLY PROPERTY
CROSS SECTION 19+50N
DDH 95HF-2 & 3

NORTHWEST GEOLOGICAL CONSULTING LTD

SCALE	NTS	DATE	FIG.
1:1000	103H/14,11	Feb. 96	6



SYMPOLS

- LITHOLOGICAL BOUNDARY
- FAULT
- FOLIATION
- EM CONDUCTOR
- SULPHIDE MINERALIZATION
  sample interval indicated

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN

4 ☐ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER

3 FELSIC METAVOLCANICLASTIC AND METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS

- a ☐ Quartz Augen-Sericite Schist, Rhyolite ?
- b ☐ Quartz-Sericite Schist
- c ☐ Quartz-Sericite-Biotite Schist
- d ☐ Quartz-Sericite-Biotite-Chlorite Schist
- e ☐ Quartz-Chlorite-Sericite Schist
- f ☐ Quartz-Chlorite-Sericite-Mariposite Schist
- g ☐ Calcareous Chloritic Quartz-Biotite-Sericite Schist

2 METASEDIMENTARY ROCKS

- a ☐ Siliceous Argillite
- b ☐ Siltstone
- c ☐ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS

- a ☐ Lapilli Tuff
- b ☐ Fine Grained Tuff
- c ☐ Lapilli Tuff > Crystal Tuff
- d ☐ Lapilli Tuff < Crystal Tuff
- e ☐ Calcareous, Quartz-Chlorite Schist
- f ☐ Calcareous, Quartz-Chlorite-Biotite Schist
- g ☐ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
- h ☐ Grey and Green Laminated Chlorite Schist
- i ☐ Pale Olive Green, Fine Grained, Schist
- j ☐ Medium Olive Green, Fine Grained, Schist
- k ☐ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
- l ☐ Dark Green Chlorite Schist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
U. SCHMIDT
Feb 27 96
GEOSCIENTIST

ATNA RESOURCES LTD.

HORSEFLY PROPERTY
CROSS SECTION 20+50N
DDH 95HF-1

NORTHWEST GEOLOGICAL CONSULTING LTD.

SCALE	NTS	DATE	FIG.
1:1000	103H/14,11	Feb. 96	7

ELEV. (m)

28+50E. | 28+75E. | 29+00E. | 29+25E. | 29+50E. | 29+75E. | 30+00E. (BL.) | 30+25E. | 30+50E. | 30+75E. | 31+00E. | 31+25E. | 31+50E. | 31+75E. | 32+00E.

(m) ELEV.

750 / 700 / 650 / 600 / 550

TOPOGRAPHY PROJECTED FROM LINE 28+00N.

DDH 95 HF8
-45° Dip, 080° Az.

	m	% Cu	ppm Pb	ppm Zn	ppb Au	ppm Ag
111169	1.4	0.070	6	159	7	1.5
111171	0.2	0.456	1790	24940	345	27.9
111173	0.3	0.013	7	131	16	0.5
111178	5.0	0.192	20	1588	69	1.7
111179	1.8	0.468	3	167	16	1.9
111180	0.9	0.991	5	214	19	2.8
111181	4.8	0.230	9	278	10	0.8
111184	0.6	0.935	4	207	20	2.0
111184A	0.9	2.717	8	286	462	4.9
111185	1.2	1.286	8	163	19	2.5
111186	3.1	0.269	<3	114	3	0.7
111187	2.7	0.359	5	88	6	0.8

If, If, 3d, II, If, II, Im, If, 3e, If, If, 3c

EOH 125 m

SYMPOLS

- LITHOLOGICAL BOUNDARY
- FAULT
- FOLIATION
- EM CONDUCTOR
- SULPHIDE MINERALIZATION sample interval indicated

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN

4 ❑ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER

3 FELSIC METAVOLCANICLASTIC AND METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS

a ❑ Quartz Augen-Sericite Schist, Rhyolite ?
b ❑ Quartz-Sericite Schist
c ❑ Quartz-Sericite-Biotite Schist
d ❑ Quartz-Sericite-Biotite-Chlorite Schist
e ❑ Quartz-Chlorite-Sericite Schist
f ❑ Quartz-Chlorite-Sericite-Mariposite Schist
g ❑ Calcareous Chloritic Quartz-Biotite-Sericite Schist

2 METASEDIMENTARY ROCKS

a ❑ Siliceous Argillite
b ❑ Siltstone
c ❑ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS

a ❑ Lapilli Tuff
b ❑ Fine Grained Tuff
c ❑ Lapilli Tuff > Crystal Tuff
d ❑ Lapilli Tuff < Crystal Tuff
e ❑ Calcareous, Quartz-Chlorite Schist
f ❑ Calcareous, Quartz-Chlorite-Biotite Schist
g ❑ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
h ❑ Grey and Green Laminated Chlorite Schist
i ❑ Pale Olive Green, Fine Grained, Schist
j ❑ Medium Olive Green, Fine Grained, Schist
k ❑ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
l ❑ Dark Green Chlorite Schist

RECEIVED
Feb. 27, 96

ATNA RESOURCES LTD.

HORSEFLY PROPERTY
CROSS SECTION 27+52N
DDH 95HF-8

NORTHWEST GEOLOGICAL CONSULTING LTD

SCALE	NTS	DATE	FIG.
1:1000	103H/14,11	Feb. 96	8

112 metres. The highest grade averaged 1.685% Cu over 2.7 metres, including 0.9 metres of 2.717% Cu. Mineralization is hosted by dark green chloritized quartz augen schists and consists of coarse aggregates of fine grained pyrrhotite, chalcopyrite and pyrite.

SECTION 28+40N (Fig.9)

Hole 95HF6 was drilled to test a narrow conductor which lies 10 metres east of the Horsefly showing and increases in strength southward along strike. Disseminated pyrite and pyrrhotite are associated with quartz-sericite schist in a number of horizons in the hole. One of these horizons at 49 metres, assayed 0.542% Cu, 62 ppm Pb and 2203 Zn over 1.8 metres. Two narrow massive sulphide bands at 55 metres returned 0.6 metres of 1.005% Cu, 101 ppm Pb, 5510 ppm Zn, 6.2 ppm Ag and 169 ppb Au.

Coarse disseminated blebs of chalcopyrite associated with coarse pyrrhotite and pyrite were encountered in a strongly chloritized quartz augen schist from 92 to 107 metres. The highest grade interval assayed 1.543% Cu over 3.1 metres within a 19.5 metre interval of disseminated mineralization which ranged from 0.105% to 0.486% Cu.

SECTION 29+00N (Fig. 10)

Two holes were drilled on section 29 + 00 N. Hole 95HF4 tested a narrow conductor which lies 10 metres east of the Horsefly showing and extends southward and strengthens in the vicinity of line 29+ 00 N. Hole 95HF7 was collared west of hole 95HF4 to test the southern strike extension of a number of pyritic, felsic tuffaceous horizons which were mapped west of the Horsefly showing.

Hole 95HF4 encountered disseminated pyrrhotite, pyrite and traces of chalcopyrite in concentrations ranging from 3 to 5% over much of its length. Two narrow, pyritic massive sulphide horizons were intersected at 72 and 75 metres. The former returned 5.637% Cu, 109 ppm Pb, 6,876 ppm Zn, 30.3 ppm Ag and 553 ppb Au over 0.3 metres. The latter returned 3.532% Cu, 208 ppm Pb, 7,678 ppm Zn, 20.4 ppm Ag, 860 ppb Au over 0.6 metres.

Hole 95HF7 also encountered disseminated mineralization similar to Hole 94HF4. One of these horizons, at 133 metres, was analyzed and returned 0.132% Cu, 47 ppm Pb, 3884 ppm Zn over 0.5 metres.

SECTION 30+00N (Fig. 11)

Hole 95HF5 was collared to test the nearby Horsefly showing, a weak conductor located 10 metres east of the showing and a strong, narrow conductor, lying 100 metres east of the collar. A 15 centimetre massive pyrite, pyrrhotite horizon was intersected at 23 metres, within a 14 metre zone of disseminated pyrite & pyrrhotite mineralization. The massive sulphide mineralization assayed 0.509% Cu, 900 ppm Pb, 16,469 ppm Zn, 16.6 ppm Ag and 241 ppb Au. A second assay of disseminated mineralization at the bottom of the zone returned 0.351% Cu, 23 ppm Pb, 4225 ppm Zn, 4.0 ppm Ag and 18 ppb Au. Two additional disseminated sulphide zones were encountered at 102 and 131 metres but these were not assayed.

ELEV. (m)

28+50E. | 28+75E. | 29+00E. | 29+25E. | 29+50E. | 29+75E. | 30+00E. (BL.) | 30+25E. | 30+50E. | 30+75E. | 31+00E. | 31+25E. | 31+50E. | 31+75E. | 32+00E.

(m) ELEV.

750 / 700 / 650 / 600 / 550

TOPOGRAPHY PROJECTED FROM LINE 28+00N.

DDH 95 HF 6
-45°Dip, 080°Az.

3d, 3b, 3d, 3e, 3a, 3b, 1f, 3d, 1f, 3b, 1f, 3d, 1f, 3d, 1f, 1l, 1k, 1f, 3e

EOH. 128m

	m	% Cu	ppm Pb	ppm Zn	ppb Au	ppm Ag
111197	1.8	0.542	62	2203	61	4.7
111198	0.6	1.005	101	5510	169	6.2
111202	4.4	0.105	14	368	8	0.8
111203	1.5	0.411	<3	272	12	2.4
111204	3.1	1.543	<3	584	81	5.2
111205	4.3	0.301	<3	127	11	1.0
111206	3.1	0.480	<3	132	77	2.5
111207	3.1	0.320	<3	212	212	1.9

SYMPOLS

- LITHOLOGICAL BOUNDARY
- FAULT
- FOLIATION
- EM CONDUCTOR
- SULPHIDE MINERALIZATION sample interval indicated

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN

4 ☐ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER

3 FELSIC METAVOLCANICLASTIC AND METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS

- a ☐ Quartz Augen-Sericite Schist, Rhyolite ?
- b ☐ Quartz-Sericite Schist
- c ☐ Quartz-Sericite-Biotite Schist
- d ☐ Quartz-Sericite-Biotite-Chlorite Schist
- e ☐ Quartz-Chlorite-Sericite Schist
- f ☐ Quartz-Chlorite-Sericite-Maniposite Schist
- g ☐ Calcareous Chlorite Quartz-Biotite-Sericite Schist

2 METASEDIMENTARY ROCKS

- a ☐ Siliceous Argillite
- b ☐ Siltstone
- c ☐ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS

- a ☐ Lapilli Tuff
- b ☐ Fine Grained Tuff
- c ☐ Lapilli Tuff > Crystal Tuff
- d ☐ Lapilli Tuff < Crystal Tuff
- e ☐ Calcareous, Quartz-Chlorite Schist
- f ☐ Calcareous, Quartz-Chlorite-Biotite Schist
- g ☐ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
- h ☐ Grey and Green Laminated Chlorite Schist
- i ☐ Pale Olive Green, Fine Grained, Schist
- j ☐ Medium Olive Green, Fine Grained, Schist
- k ☐ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
- l ☐ Dark Green Chlorite Schist

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA — Feb 27 96 — GEOSCIENTIST

ATNA RESOURCES LTD.

HORSEFLY PROPERTY

CROSS SECTION 28+40N
DDH 95HF-6

NORTHWEST GEOLOGICAL CONSULTING LTD

SCALE	NTS	DATE	FIG.
1:1000	103H/14,11	Feb. 96	9

ELEV. (m)

28+50E. 28+75E. 29+00E. 29+25E. 29+50E. 29+75E. 30+00E. (BL.) 30+25E. 30+50E. 30+75E. 31+00E. 31+25E. 31+50E. 31+75E. 32+00E.

(m) ELEV.

750 700 650 600 550

DDH 95HF4
-45° Dip, 080° Az

DDH 95HF7
-45° Dip, 080° Az

EOH 94.5 m

EOH 152.4 m

	m	% Cu	ppm Pb	ppm Zn	ppb Au	ppm Ag
111155	0.9	0.036	37	92	4	1.2
111156	1.8	0.017	218	898	9	1.2
111163	3.7	0.134	66	3558	7	1.2
111164	1.2	0.216	54	534	7	1.8
111165	0.3	0.048	7	300	<1	0.4
111166	0.3	5.637	109	6876	553	30.3
111167	0.6	3.532	208	7678	860	20.4
111233	0.5	0.132	47	3884	8	1.9

SYMPOLS

- LITHOLOGICAL BOUNDARY
- FAULT
- FOLIATION
- EM CONDUCTOR
- SULPHIDE MINERALIZATION sample interval indicated

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN
4 ☐ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER
3 FELSIC METAVOLCANICLASTIC AND METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS
a ☐ Quartz Augen-Sericite Schist, Rhyolite ?
b ☐ Quartz-Sericite Schist
c ☐ Quartz-Sericite-Biotite Schist
d ☐ Quartz-Sericite-Biotite-Chlorite Schist
e ☐ Quartz-Chlorite-Sericite Schist
f ☐ Quartz-Chlorite-Sericite-Manposite Schist
g ☐ Calcareous Chloritic Quartz-Biotite-Sericite Schist

2 METASEDIMENTARY ROCKS
a ☐ Siliceous Argillite
b ☐ Siltstone
c ☐ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS
a ☐ Lapilli Tuff
b ☐ Fine Grained Tuff
c ☐ Lapilli Tuff > Crystal Tuff
d ☐ Lapilli Tuff < Crystal Tuff
e ☐ Calcareous, Quartz-Chlorite Schist
f ☐ Calcareous, Quartz-Chlorite-Biotite Schist
g ☐ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
h ☐ Grey and Green Laminated Chlorite Schist
i ☐ Pale Olive Green, Fine Grained, Schist
j ☐ Medium Olive Green, Fine Grained, Schist
k ☐ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
l ☐ Dark Green Chlorite Schist

PROFESSIONAL ENGINEER PHILIP U. SCHMIDT GEOSCIENTIST

ATNA RESOURCES LTD.

HORSEFLY PROPERTY
CROSS SECTION 29+00N
DDH 95HF-4 & 7

NORTHWEST GEOLOGICAL CONSULTING LTD

SCALE	NTS	DATE	FIG.
1:1000	103H/14,11	Feb. 96	10

ELEV. (m)

28+50E. | 28+75E. | 29+00E. | 29+25E. | 29+50E. | 29+75E. | 30+00E. (BL.) | 30+25E. | 30+50E. | 30+75E | 31+00E. | 31+25E. | 31+50E. | 31+75E. | 32+00E.

(m) ELEV.

750 / 700 / 650 / 600 / 550

DDH 95 HF5
-45° Dip, 080° Az.

	m	% Cu	ppm Pb	ppm Zn	ppb Au	ppm Ag
111285	0.5	0.509	900	16469	241	16.6
111238	2.1	0.351	23	4225	18	4.0

3g, 3c, If, Ig, If, Id, If, 3c, If, Ih, 3a, 3a, Ih, Ij, Ih

EOH 152.4m

SYMPOLS

- LITHOLOGICAL BOUNDARY
- FAULT
- FOLIATION
- EM CONDUCTOR
- SULPHIDE MINERALIZATION sample interval indicated

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN

4 ☐ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER

3 FELSIC METAVOLCANICLASTIC AND METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS

a ☐ Quartz Augen-Sericite Schist, Rhyolite ?
b ☐ Quartz-Sericite Schist
c ☐ Quartz-Sericite-Biotite Schist
d ☐ Quartz-Sericite-Biotite-Chlorite Schist
e ☐ Quartz-Chlorite-Sericite Schist
f ☐ Quartz-Chlorite-Sericite-Manposite Schist
g ☐ Calcareous Chloritic Quartz-Biotite-Sericite Schist

2 METASEDIMENTARY ROCKS

a ☐ Siliceous Argillite
b ☐ Siltstone
c ☐ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS

a ☐ Lapilli Tuff
b ☐ Fine Grained Tuff
c ☐ Lapilli Tuff > Crystal Tuff
d ☐ Lapilli Tuff < Crystal Tuff
e ☐ Calcareous, Quartz-Chlorite Schist
f ☐ Calcareous, Quartz-Chlorite-Biotite Schist
g ☐ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
h ☐ Grey and Green Laminated Chlorite Schist
i ☐ Pale Olive Green, Fine Grained, Schist
j ☐ Medium Olive Green, Fine Grained, Schist
k ☐ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
l ☐ Dark Green Chlorite Schist

Feb 27/96

ATNA RESOURCES LTD.

HORSEFLY PROPERTY
CROSS SECTION 30+00N
DDH 95HF-5

NORTHWEST GEOLOGICAL CONSULTING LTD

SCALE	NTS	DATE	FIG.
1:1000	103H/ 4,11	Feb. 96	11

10. CONCLUSIONS

The metavolcanic unit underlying the property is a complex, interbedded sequence of intermediate to felsic volcaniclastic, pyroclastic, metasedimentary and volcanic rocks. The 1995 exploration program on the Horsefly property confirmed earlier work which indicated the potential for the occurrence of volcanic-hosted massive sulphide mineralization. An E.M. survey of the property outlined a number of conductors which are caused primarily by sulphide bearing argillite horizons. A conductor outlined in the vicinity of the Horsefly showing appears to be related to broad zones of disseminated sulphides. Thin massive sulphide horizons occur within these disseminated zones but it is not known whether these horizons are sufficiently conductive to account for this anomaly.

A 20 metre wide zone of strong chloritic alteration and disseminated and semi-massive copper-bearing sulphide mineralization was outlined by two drill holes on the south end of the Horsefly grid. This zone is located approximately 70 metres east and 70 metres south of the Horsefly showing. Drilling has traced the mineralization for 90 metres and it is open in all directions. The geophysical expression of this zone may have been detected on line 29+00N at 30+75E but this conductor does not extend south to line 28+00N. The style of mineralization is interpreted as stockwork mineralization associated with a feeder zone in a volcanic-hosted massive sulphide system.

11. RECOMMENDATIONS

Geochemical analysis of all the remaining core samples is recommended. This will help define the limits of copper mineralization in core and may provide additional information to help correlate mineralized horizons between holes. Lithogeochemical analysis of selected cores is recommended to identify the host rocks and alteration of the Horsefly copper zone.

Diamond drilling of three targets is recommended on the Horsefly grid. The first priority is the copper zone intersected in holes 95HF6 and 8. This zone is open along strike and depth. The northern extension of the zone may be tested by re-entering and deepening hole 95HF4. This has an added advantage of testing a short conductor centred on line 29+00N at 30+70E. Drilling along strike to the south will depend on terrain. This area is steep and will require some ground work to locate suitable drill sites.

The second priority target is the drill testing of a short conductor centred on line 28+00N at 29+00E N. This conductor is located in an overburden covered area and is open to the south.

The third priority target is the drill testing of a moderate strength conductor centred on 30+00N -30+00E.

12. REFERENCES

Gareau, S.A.(1990): Geology of the Scotia-Quaal metamorphic belt, Coast Plutonic Complex, British Columbia, G.S.C. Open File 2337

Gareau, S.A.(1991):The Scotia-Quaal metamorphic belt: a distinct assemblage with pre-early Late Cretaceous deformational and metamorphic history, Coast Plutonic Complex, British Columbia, Can.Jour. Earth Sci. 28, 870-880 (1991)

Maxwell, G., Bradish, L.(1986): Geological, Geophysical and Geochemical Report on the Horsefly Group, Assessment Report 15,306

13. STATEMENT OF EXPENDITURE

I. Field Expenses

1) Labour

P. DeLancey P.Eng. Oct. 4-6
3 days @ $300/day $900.00
U.Schmidt (Project Geologist) Aug. 7-31, Sept. 1-6,24-30,Oct. 1-21
59 days @$350/day $20,650.00
R.Beauchamp (Field Assistant) Aug.7-31, Sept.1-30. Oct.1-20
75 days @ $140.91/day $10,568.32
R. Moran (Field Assistant) Aug.7-18
12 days @ $106.25/day $1,275.00
K. Carruthers (Field Assistant) Aug.5-21
17 days @ $150/day $2,550.00

$35,643.32

2) Room and Board $4,018.34

3) Consumables and Supplies $1,249.93

4) Communications

Telephone, Radio Rental, Satellite Telephone Charges $3,864.70

5) Camp and Equipment Rental

Aug.7-Oct. 21, 1995 ..... $6,225.50

6) Transportation

Airfare $3,569.61
Helicopter Charter $63,349.77
Truck Rental $2,075.00
Courier and Freight $366.39
Expediting $344.63
Fuel $630.61

$70,336.01

7) Geophysics

Max-Min I-9 E.M. survey $7,000.00

8) Diamond Drilling

1,076 metres of BD-BGM core $71,222.81

9) Assay

31 assays and 30 element ICP $667.85

II. OFFICE

Data compilation, Interpretation, Report Writing

U. Schmidt Oct. 23,24,Nov.1-3,6,7(1/2),9(1/2),15,16,23(1/2),24(1/2),Dec.15(1/2),1995, Feb.12,13,16-22, 23(1/2),24,25(1/2),26,27,1996

23 1/2 days @$350/day.....$8,225.00

W. Kahlert (Field Assistant) Oct. 23,27(1/2)

1 1/2 days @ $156/day.....$234.00

K. Carruthers

1 day @ $150/day.....$150.00

$8,609.00

10) Drafting, Reproduction and Office Services.....$1,100.01

TOTAL **$209,937.47**

Appendix A

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

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

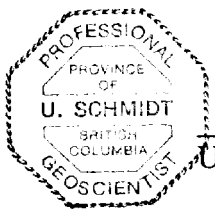
(1) I am a consulting geologist and controlling shareholder of Northwest Geological Consulting Ltd.

(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 or by workers under my supervision.



February 27, 1996
Vancouver, B.C

Uwe Schmidt, B.Sc., P. Geo.

Appendix B

DIAMOND DRILL CORE LOGS

DIAMOND DRILL CORE LEGEND

AGE UNKNOWN

4 ❑ Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER

3 FELSIC METAVOLCANICLASTIC, METAVOLCANIC AND ASSOCIATED METAMORPHIC ROCKS

a ❑ Quartz Augen-Sericite Schist, Rhyolite ?
b ❑ Quartz-Sericite Schist
c ❑ Quartz-Sericite-Biotite Schist
d ❑ Quartz-Sericite-Biotite-Chlorite Schist
e ❑ Quartz-Chlorite-Sericite Schist
f ❑ Quartz-Chlorite-Sericite-Mariposite Schist
g ❑ Calcareous Chloritic Quartz-Biotite-Sericite Schist

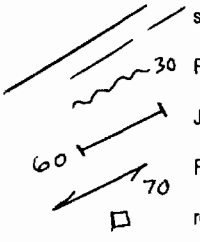
2 METASEDIMENTARY ROCKS

a ❑ Siliceous Argillite
b ❑ Siltstone
c ❑ Siltstone / Argillite interbanded

1 CALCAREOUS INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS

a ❑ Lapilli Tuff
b ❑ Fine Grained Tuff
c ❑ Lapilli Tuff > Crystal Tuff
d ❑ Lapilli Tuff < Crystal Tuff
e ❑ Calcareous, Quartz-Chlorite Schist
f ❑ Calcareous, Quartz-Chlorite-Biotite Schist
g ❑ Calcareous, Banded, Quartz-Chlorite-Biotite Schist
h ❑ Grey and Green Laminated Chlorite Schist
i ❑ Pale Olive Green, Fine Grained, Schist
j ❑ Medium Olive Green, Fine Grained, Schist
k ❑ Medium Grey-Green Calcareous Chlorite-Quartz Augen Schist
l ❑ Medium to Dark Green Chlorite-Biotite-Quartz Augen Schist
m ❑ Dark Green Chlorite Schist

Symbols



Geological Boundary: sharp, gradational contact

Fault, angle to core axis

Joint, angle to core axis

Foliation, angle to core axis

rock sample

mineralization:
py pyrite
po pyrrhotite
cpy chalcopyrite
bo bornite
gn galena
sph sphalerite
TR trace
quartz vein

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG HOLE 95HF-1

Project ECSTALL Property HORSEFLY Claim _____ Location 20+58N - 30+11E
Started SEP. 28, 95 Finished SEP. 29, 95 Total Length 560 FT. Core Size BQ-TW
Angle -45° Azimuth 080° Collar Elevation 3079' Logged By U. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
		BEDROCK			
10	1e	MED. GREY GREEN CALCAREOUS QTZ.-CHLORITE SCHIST V.F.G. PALE GREY-GREEN THINLY LAMINATED, TUFF? RUSTY WEATHERING ALONG FRACTURES TO 23'			
20		PO, TR. CPY // Z	60		
		MED. GREEN CHLORITE SCHIST, MINOR BIOTITE // FOLIATION	60		
30	3c	QUARTZ-SERICITE-BIOTITE SCHIST		3-5% PO & TR CPY	
	1e	MED. GREY GREEN CALCAREOUS QTZ.-CHLORITE SCHIST CONTINUED V. FINE GRAINED PO & TR CPY // TO FOLIATION			
40		3-5% THINLY LAMINATED PO TR CPY		3-5% PO, TR CPY	
	1h	LIGHT GREY & GREEN LAMINATED CHLORITE SCHIST SMALL QTZ. FRAGMENTS? TUFF?	35		
50	1e	CALCAREOUS CHLORITE SCHIST AS ABOVE CROSS-CUTTING VEINS OF QUARTZ AND CARBONATE WITH BIOTITE SELVAGES			
60					
	3d	LIGHT GREY TO WHITE, QUARTZ-SERICITE SCHIST, WITH CHLORITE & BIOTITE PALE GREY-GREEN, VERY FINELY LAMINATED SILICEOUS SCHIST SILICA INCREASING DOWN HOLE 3-5% INTERLAMINATED V.F.G. PO, TR. CPY	40	3-5% PO TR CPY	63 111211 71
70	1f	PALE GREY-GREEN QUARTZ-CHLORITE-BIOTITE SCHIST CROSS-CUTTING CARBONATE AND QUARTZ VEINLETS/BLEBS/SEGREGATIONS	40		
80					

DIAMOND DRILL CORE LOG

HOLE 95HF-1 PAGE 2 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1f	CALCAREOUS QTZ-CHLORITE-BIOTITE SCHIST CONTINUED			
100	3b	3' QTZ.-SERICITE SCHIST, TR. PO, CPY // FOLIATION			
110	1f				
120		LIGHT GREY GREEN CALCAREOUS CHL.-BIOT. SCHIST + MARIPOSITE NEAR CONTACT			
130	2a	BLACK SILICEOUS ARGILLITE WITH PO & CPY COARSE BLEBBY PYRRHOTITE WITH CPY, LOCALLY UP TO 50% SULPHIDES, IN QTZ. AND LAMINATED BLACK ARGILLITE	30°	20-30% PO>>PY MINOR CPY	111152
140		4.9m, 268 ppm Cu, 1276 ppm Pb, 362 ppm Zn, 24 ppb Au, 13.8 ppm Ag			
	1e	PALE OLIVE GREEN, CALCAREOUS QUARTZ-CHLORITE SCHIST 3-5% FINELY DISSEMINATED SULPHIDES PARALLEL TO FOLIATION PO >> PY TR. CPY DEFORMED TO 146' IRREGULAR QUARTZ FRAGMENTS OR SEGREGATIONS THINLY LAMINATED FROM 146' ON			111153
150			60		
		MINOR BANDS OF BLACK ARGILLITE, MINOR MARIPOSITE - QUARTZ BLEBS (FRAGMENTS?)			
160		TUFFACEOUS, WITH MINOR SEDIMENTS + QUARTZ AND CARBONATE SEGREGATIONS PARALLEL TO FOLIATION			
170			20		
180					
	2a	ARGILLITE ARGILLITE LAYERS INCREASING IN FREQUENCY WITH DEPTH			

DIAMOND DRILL CORE LOG

HOLE 95HF-1 PAGE 3 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
		PALE GREY-GREEN CALCAREOUS QUARTZ-CHLORITE SCHIST CONTINUED			
200					
	1e		60		
210		F.G. DISSEMINATED PO, TR CPY		111154	111154
220		PALE GREY-GREEN WISPY LAMINATED, CALCAREOUS QUARTZ CHLORITE SCHIST, 3-5% V.F.G. PO TR. CPY CROSS-CUTTING LAMINATIONS	60		
230					
240				1-3% PO TR. CPY	
		2 FOLIATION PLANES			111212
250		MORE UNIFORM MED. GREEN COLOUR			
260		VERY F.G. BROWN MICA (PHLOGOPITE) INCREASING, ESPECIALLY AS SELVAGES ADJACENT TO CARBONATE VEINS			
	1f	MEDIUM OLIVE GREEN, CALCAREOUS, QUARTZ-CHLORITE-BIOTITE SCHIST WITH IRREGULAR QUARTZ AND CARBONATE VEINS AND SEGREGATIONS	40		
270		ELONGATED QUARTZ EYES			
	1e	FOLIATION DEFORMED			
280		QUARTZ SEGREGATIONS/VEINS/FRAGMENTS? UP TO 10% DOWN TO 292'			

DIAMOND DRILL CORE LOG

HOLE 95HF-1 PAGE 4 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
300	1e	MEDIUM OLIVE GREEN CALCAREOUS QTZ. - CHLORITE SCHIST CONTINUED 1-2 mm WHITE FRAGMENTS INCREASE TO 3-5%			
310					
320	1f	PALE GREENISH-GREY QUARTZ-CHLORITE-BIOTITE SCHIST LOCALLY SERICITIC WHITE QUARTZ OR CALCITE OCCUR IN <1cm BANDS OR AS SEGREGATIONS OR VEINS UP TO 5% VOLUME VARIABLE BIOTITE CONTENT, OCCURS IN 1-2cm WIDE BROWN COLOURED BANDS	70	Po, Py, Cpy 5%	111213
330			QTZ X QTZ X QTZ X	1-2% Po	
340			70		
350					
360					
370					
380			QTZ X		
			60		
			QTZ X		

DIAMOND DRILL CORE LOG

HOLE 95HF-1 PAGE 5 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
400	1e	MEDIUM GREEN CALCAREOUS QTZ - CHLORITE SCHIST BIOTITE LESS COMMON, OCCURS AS PORPHYROBLASTS PARALLEL TO FOLIATION QTZ. AND CALCITE SEGREGATIONS ≈ 5%			
410					
420	1K	MEDIUM GREY-GREEN CALCAREOUS QTZ. - CHLORITE SCHIST BLUE-GREY QUARTZ AUGEN IN THINLY LAMINATED MATRIX		10% PO TR CPY	111 214
430	1e	MEDIUM GREEN CALCAREOUS QUARTZ-CHLORITE SCHIST		5% PO	
440		QTZ X QTZ X			
450					
460	2b	GREY BANDED SILTSTONE		5% PO	111 215
470	1e	MEDIUM GREEN CALCAREOUS QTZ. - CHLORITE SCHIST ← QTZ FRAGMENTS VARIABLE PO CONCENTRATIONS FROM 2 - 20% DISSEMINATED PARALLEL TO FOLIATION TO BLEBBY CONCENTRATIONS VERY FINE GRAINED, ISOLATED QTZ. FRAGMENTS WEAKLY FOLIATED		2-3% PO TR CPY	111 216
480				3-5% PO TR CPY	111 217
				10% PO TR CPY	111 218

DIAMOND DRILL CORE LOG

HOLE 95HF-1 PAGE 6 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
500	1e	MEDIUM GREEN CALCAREOUS QUARTZ - CHLORITE SCHIST		10% Po Tr cPy	111 218
					111 219
510			60		111 220
	3f	PALE GREEN TO PALE TURQUOISE QUARTZ - CHLORITE - SERICITE - MARIPOSITE SCHIST		5% Po	
520	1e	QUARTZ - CHLORITE SCHIST CONTINUED			111 221
530	3f	PALE GREEN TO PALE TURQUOISE QTZ - CHLORITE - MARIPOSITE SCHIST		5-10% Po	111 222
	2a	BLACK AND WHITE BANDED SILICEOUS ARGILLITE			
540	1e	PALE OLIVE GREEN CALCAREOUS QTZ-CHLORITE SCHIST Arg. /// INTER BANDED WITH MINOR SILICEOUS ARGILLITE		5% Po	
		QUARTZ AND CALCITE SEGREGATIONS 5-10%		2-3% Po	
550		ARGILLITE ///			
560		170.69m END OF HOLE			
570					
580					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95 HF - 2

Project ECSTALL Property HORSEFLY Claim _____ Location 19+45N - 31+86E

Started SEP. 30, 95 Finished OCT. 1, 9 Total Length 580' Core Size BQ - TW CASING REMOVED

Angle - 45° Azimuth 080° Collar Elevation 1039 m Logged By H. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
		BEDROCK			
10	1e	PALE GREY-GREEN FINE GRAINED, THINLY LAMINATED CALCAREOUS, SILICEOUS, WEAKLY CHLORITIC SCHIST TUFFACEOUS, FRAGMENTS VISIBLE IN SOME AREAS WEATHERED ALONG FRACTURES TO 55' - SELECTIVE WEATHERING OF CARBONATE	50		
20					
30					
40					
50			45		
60	3a	PALE GREY TO WHITE THINLY LAMINATED QUARTZ-CHLORITE-SERICITE SCHIST THIN QTZ LAYERS AND SMALL QTZ AUGEN			
70	1e	PALE GREY-GREEN, THINLY LAMINATED, WEAKLY CHLORITIC SCHIST SAME AS 5-60'			
80	3e	PALE GREY TO WHITE THINLY LAMINATED CHLORITIC QTZ-SERICITE SCHIST			
	1e	PALE GREY-GREEN SCHIST SAME AS 70-80'			

DIAMOND DRILL CORE LOG

HOLE 95HF-2 PAGE 2 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	3e	PALE GREY-GREEN CHLORITE-QTZ.-SERICITE SCHIST "SILICEOUS TUFF" 5% po ∥ TO FOLIATION, TR. cpy TR. RED BROWN sph.	60	5% po TR cpy TR sph	111242
100	1i/2b	PALE GREY TO GREY OLIVE GREEN, THINLY LAMINATED QTZ-CHLORITE SCHIST, PHYLLITE AND ARGILLITE INTERBANDED			
110	1b/2b	TUFF, SILTSTONE & ARGILLITE INTERBANDED -LAMINATED po ASSOCIATED WITH SILICEOUS ARGILLITE HORIZONS			
	2a	BLACK, THINLY LAMINATED SILICEOUS ARGILLITE	60	10% po TR cpy	111243
120	2a	1b/2b FINE GRAINED TUFF/SILTSTONE WITH INTERBANDED ARGILLITE			
	2a				
	2a				
130	2a				
	2a				
140	2a				
	2a				
150	1b/2b		60		
160					
			FAULT GOUGE		
		FAULT CONTACT			
170	2a	BLACK SILICEOUS ARGILLITE BROKEN CORE DUE TO FAULT FOR 8'	GOUGE		
180	1a	MED. GREY-OLIVE GREEN CHLORITE SCHIST LAPILLI TUFF THIN WHITE LAMINATIONS "PUMICE" ALSO RARE QUARTZ AMGEN, FRAGMENTS?	60		
190					

DIAMOND DRILL CORE LOG

HOLE 95HF-2 PAGE 3 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1a	MEDIUM OLIVE GREEN CHLORITIC SCHIST CONTINUED "LAPILLI & PUMICE TUFF" WHITH PUMICE FRAGMENTS DECREASING WITH DEPTH			
200		THINLY LAMINATED TUFF			
	THIN	ARGILLITE			
210	1i/2a	PALE OLIVE GREEN V.FG. WEAKLY LAMINATED CHLORITE SCHIST WITH THIN INTERBANDED ARGILLITE ≈ 1→4cm UP TO 5%			
	2a				
	1i				
220					
	ARG.	ARGILLITE HORIZONS HAVE THINLY LAMINATED PO & TRCPY			
230					
	ARG.				
	ARG.				
240					
	ARG.				
250					
	ARG.				
260	ARG.				
270					
	ARG.				
280	ARG.				
	ARG				
290	ARG.				

DIAMOND DRILL CORE LOG

HOLE 95HF-2 PAGE 4 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1i	PALE OLIVE GREEN, THINLY LAMINATED CHLORITE SCHIST WITH MINOR ARGILLITE INTERBANDS			
		F.G. "TUFF"			
	2a				
300					
310					
		MEDIUM OLIVE GREEN WEAKLY LAMINATED CHLORITIC SCHIST			
320	1j	F.G. "TUFF"			
		WITH MINOR SILICEOUS ARGILLITE INTERBANDS			
		– ARGILLITE CONTAINS V.F.G. PO LAMINATIONS WITH TR cpy			
330	2a				
	2a				
340	2a				
350					
	2a		QTZ.		
360	2a	5% FINELY LAMINATED po TR cpy, LAPILLI IN ARGILLITE			
370					
380					
390	2a				

DIAMOND DRILL CORE LOG

HOLE 95HF-2 PAGE 5 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
		PALE OLIVE GREEN WEAKLY LAMINATED TUFF CONTINUED			
	2a	BLACK SILICEOUS ARGILLITE, THINLY LAMINATED PO. TR CPY WITH TUFF INTER BANDS		5-10% PO TR CPY	
400	1a	PALE OLIVE GREY STRONGLY BANDED LAPILLI TUFF, INTER BANDED WITH SILTSTONE - SEDIMENTARY COMPONENT DECREASING DOWN HOLE			
		QTZ X			
410			70		
	1c				
420					
		QTZ X			
		QTZ X			
430					
440	2a	BLACK CRYSTALS, BIOTITE PORPHYROBLASTS			
		CRYSTAL AND LAPILLI TUFF			
450		MED. TO DARK GREEN CRYSTALS			
	1d	MINOR PALE BEIGE COLOURED HORIZONS OR SEGREGATIONS - MATRIX IS ALTERED BY BLEACHING QTZ VEINS/SEGREGATIONS OCCUR INTERMITTENTLY			
460			70		
470					
480					

DIAMOND DRILL CORE LOG

HOLE 95HF-2 PAGE 6 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		CRYSTAL AND LAPILLI TUFF CONTINUED	15 / 20 / 50		
500	1d		QTZ x		
510			QTZ x x		
			QTZ x		
520			QTZ x		
		FINER GRAINED VARIETY OF UNIT	QTZ x		
530					
540			QTZ x		
			QTZ x x	55	
550			QTZ x x		
560					
570			70		
			QTZ x		
		176.78m END OF HOLE			
580					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95HF-3 Page 1 of 3

Project ECSTALL Property HORSEFLY Claim _____ Location 19+54N-29+65E

Started OCT. 2, 95 Finished OCT. 2, 95 Total Length 250' Core Size BQ-TW

Angle -45° Azimuth 080° Collar Elevation 3054' Logged By U. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
		BEDROCK			
10	le	MEDIUM GREY-GREEN QUARTZ-CHLORITE SCHIST CLASTIC TEXTURE, THINLY LAMINATED ISOLATED IRREGULAR CALCITE HORIZONS TR. PO ASSOCIATED WITH QUARTZ HORIZONS OR FRAGMENTS	70		
20					
30					
40					
50		MEDIUM GREEN THINLY LAMINATED CHLORITE SCHIST VARIABLE BIOTITE CONTENT IN THIN LAMINATIONS VARIABLE QUARTZ CONTENT	60 25		
		QUARTZ RICH SECTION	20		
60			50 50		
		RETURN TO THINLY LAMINATED QTZ-CHLORITE SCHIST	QTZ X		
70					
			60		
80					
90		MORE MASSIVE VARIETY WITH GRANULAR TEXTURE			

DIAMOND DRILL CORE LOG

HOLE 95HF-3 PAGE 2 OF 3

FOOTAGE		DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1e	MORE MASSIVE GRANULAR VARIETY			
	3e	PALE GREY GREEN, QUARTZ CHLORITE - SERICITE SCHIST ISOLATED IRREGULAR QUARTZ LAMINATIONS, FRAGMENTS?	60	1-2% po	
100		LIGHT GREY THINLY LAMINATED QUARTZ-CHLORITE SCHIST			
	1e	- SILICEOUS FRAGMENTAL ?.			
110		PALE GREY CHLORITIC QUARTZ SERICITE SCHIST	50		
	3e	IRREGULAR CALCITE / QTZ SEGREGATIONS - LARGER QUARTZ AUGEN			
		PALE GREEN WEAKLY LAMINATED QUARTZ-CHLORITE SCHIST			
	1e	GRANULAR TEXTURE			
120					
		PALE GREY CALCAREOUS QUART-CHLORITE SCHIST IRREGULAR LAMINATIONS MINOR BIOTITE PORPHYROBLASTS ∥ FOLIATION			
	1e	MM SCALE QUARTZ AUGEN			
130			20		
	3b	VERY SILICEOUS SECTION, QUARTZ SERICITE SCHIST			
		PALE GREEN QUARTZ-CHLORITE-SERICITE SCHIST			
140		← 4cm DIAMETER QUARTZ FRAGMENT WITH TRACE po, cpy			
			QTZ X		
	3e				
150					
			20		
			QTZ S	70	
160					
		MEDIUM GREY GREEN THINLY LAMINATED QUARTZ-CHLORITE-SERICITE SCHIST "TUFFACEOUS SILTSTONE ?"	QTZ X	60	
	3d	BIOTITE LAMINATIONS INCREASING			
170		PALE GREY TO GREY-GREEN QUARTZ-CHLORITE-MUSCOVITE SCHIST	15		
	3e	SILICEOUS TUFF OR METASEDIMENT		1-3% po tr cpy	
		BECOMING LIGHTER GREEN AN MORE SILICEOUS	50		
180			70		
	3f	LIGHT GREY GREEN TO WHITE, WEAKLY CHLORITIC QUARTZ-SERICITE SCHIST - LOCALLY MARIPOSITE PRESENT		3-5% po	111249
	2a	BLACK SILICEOUS ARGILLITE 10-15% po		10-15% po	111295
			30		
190	3b	QTZ - SERICITE SCHIST		10-15% po	111296

DIAMOND DRILL CORE LOG

HOLE 95HF-3 PAGE 3 OF 3

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	3b	QUARTZ-SERICITE SCHIST		10-15% PO, Py Tr Cpy	111246
	2a	BLACK SILICEOUS ARGILLITE	20		
	3b	QTZ-SERICITE SCHIST			
	2a	BLACK, THINLY LAMINATED SILICEOUS ARGILLITE THIN PO LAMINATIONS & EUHEDRAL PY TR CPy	50	10-15% PO, Py Tr CPy	111247
200					
	3f	PALE GREEN QUARTZ-SERICITE-MARIPOSITE SCHIST		10% Py PO	111248
	2a	BLACK THINLY LAMINATED SILICEOUS ARGILLITE			
3f					
		BLACK THINLY LAMINATED SILICEOUS ARGILLITE		5% Py, PO	
210		THIN WHITE LAMINATIONS IN BLACK MATRIX	55		111249
	2a	PY, FINELY DISS. PO ∥ TO FOLIATION			
		SULPHIDE CONTENT INCREASES TO 10-15% LAMINATIONS BECOME DEFORMED	60	10-15% PO, Py Tr Cpy	
220		LIGHT GREEN QUARTZ-SERICITE-MARIPOSITE SCHIST			
	3f	PYRITIC	20		111250
		PALE OLIVE-GREEN QUARTZ-CHLORITE SCHIST			
		THIN ARGILLITE INTERBANDS INCREASE IN FREQUENCY WITH DEPTH			
230		- QUARTZ AUGEN, FRAGMENTS? QTZ XX	50		
	1k				
240					
		76.2m END OF HOLE			
250					
260					
270					
280					
290					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95HF-4 Page 1 of 4

Project ECSTALL Property HORSEFLY Claim _____ Location 29+00N - 29+73E

Started Oct. 2, 95 Finished Oct. 3, 95 Total Length 310' Core Size BQ - TW

Angle -45° Azimuth 080° Collar Elevation 2232' Logged By U. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
10		BEDROCK			
20	1e	MEDIUM GREEN CHLORITE SCHIST FINE GRAINED, THINLY LAMINATED, "MARBLE" TEXTURE, CUT BY IRREGULAR CARBONATE/QUARTZ VEINS AND LAMINATIONS, OCCASIONAL BLEBS OF Py DARK BROWN LAMINATIONS OF BIOTITE OR PHLOGOPITE			
30		FELSIC BANDS APPEAR	65	2% Py tr cPy	
	3d	PALE GREY, THINLY LAMINATED, QUARTZ SERICITE SCHIST WITH BLUE-GREY QUARTZ EYES, BIOTITE & CHLORITE F.G. Po.cPy Py 3CM OF Po Py cPy AT 32.3m		Po, cPy Py	111155
40					
	1e			3% Po, Py, cPy	
50			60		
				Po, Py, cPy	
60				Po cPy, Py	111156 gn Sph?
70	3b				111157
80	3a	QUARTZ SERICITE SCHIST (RHYOLITE FLOW?) PALE GREY TO BEIGE, FINE TO MEDIUM GRAINED DISSEMINATED Py ∥ TO FOLIATION ± 5% INTERBANDED WITH BIOTITE-RICH LAYERS, BLUE-GREY QUARTZ AUGEN VISIBLE IN LIGHTER SECTIONS	80	DISS. SULPHIDES 5%	111158
90		GOUGE ∥ FOLIATION			

DIAMOND DRILL CORE LOG

HOLE 95HF-4 PAGE 2 OF 4

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
	3a	QUARTZ - SERICITE SCHIST			111158
100	1f	QUARTZ - BIOTITE - CHLORITE SCHIST LIGHT GREY-GREEN TO BROWN GRADATIONAL WITH QUARTZ - SERICITE SCHIST, MINOR QUARTZ - SERICITE SCHIST INTERBANDS INTERMITTENT QTZ. & CARBONATE SEGREGATIONS 5-10% DISSEMINATED py ∥ FOLIATION BLUE-GREY QUARTZ - AUGEN	CARBONATE X QTZ X	5-10% py	111159
110					
120	3a	QUARTZ - SERICITE - BIOTITE SCHIST (RHYOLITE FLOW?) PALE GREY QUARTZ - SERICITE SCHIST WITH DISSEMINATED PYRITE, 5-10% BLUE-GREY QUARTZ AUGEN AND LARGER, PYRITIC QUARTZ AUGEN, UP TO 40% py OVER 2-4cm. TR. RED-BROWN Sph, TR. Gn		Tr cpy Sph, Gn	111160
130	3g	GRADES TO MEDIUM GREY-GREEN SCHIST (NO QTZ EYES) BIOTITE LAMINATIONS INCREASE, py DECREASES, COARSER PYRITE AGGREGATES ASSOCIATED WITH BIOTITE LAYERS		3-5% py	111161
140	1L	DARK TO MEDIUM GREY-GREEN, QTZ-CHLORITE-BIOTITE SCHIST, WITH AUGEN OF GRANULAR QUARTZ 2x6mm BIOTITE LAMINATIONS HAVE INCREASED			
150	3a	LIGHT GREY QUARTZ - AUGEN SCHIST QUARTZO - FELDSPATHIC, BIOTITE - SERICITE ? CHLORITE SCHIST	60	py, Po	111162
160	1g	QUARTZ - CHLORITE - BIOTITE SCHIST MEDIUM GREY-GREEN, THINLY LAMINATED, QUARTZ-CHLORITE-BIOTITE SCHIST	S_1 60 S_2 30	<2% Po, Py	
170	1g	PALE OLIVE-GREEN INTERBANDED CHLORITE - BIOTITE SCHIST BROWN BIOTITE LAYERS MAKE UP TO 30° OF UNIT 5-10% WHITE QUARTZ AND CALCITE BANDS ∥ AND CROSS-CUTTING FOLIATION DISS. Py < 2%			
	3d	CHLORITIC QUARTZ - SERICITE SCHIST WITH INTERBANDED BIOTITE			
180	1g	QUARTZ & CALCITE SEGREGATIONS, 2-3cm WIDTH HIGHLY VARIABLE FOLIATION	50 ⊥ FOL.		
190	3a	QUARTZ - SERICITE SCHIST		10% py > Po TR cpy	111163

DIAMOND DRILL CORE LOG

HOLE 95HF-4 PAGE 3 OF 4

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	3a	QUARTZ-SERICITE SCHIST PALE GREY LAMINATED QUARTZ-SERICITE SCHIST Po, Py, Tr. Cpy // AND CROSS-CUTTING FOLIATION Py ALSO DISSEMINATED IN QUARTZ AUGEN		10-25% Py > Po > Cpy	111163
200	1e	MEDIUM GREEN, QUARTZ-CHLORITE SCHIST		Po, Cpy	111164
	3b	QUARTZ-SERICITE SCHIST 20% SULPHIDES Po, Cpy VERY F.G. THINLY LAMINATED, WITH BROWN BIOTITE ≤10% -CROSS-CUTTING QUARTZ AND CARBONATE VEINS/SEGREGATIONS -DISSEMINATED F.G. Po & Cpy	55 i to Fa.	20% Po Cpy Po, Cpy 20%	
210	1g	SILICA CONTENT INCREASING.	50	Po Cpy	111165
220					
230		QUARTZ VEINING INCREASING, FOLIATION VARIABLE CHLORITIC SCHIST GETTING LIGHTER IN COLOUR	60 30		
240		PALE GREY-GREEN & MEDIUM GREEN INTERBANDED QUARTZ-CHLORITE-BIOTITE SCHIST, THINLY LAMINATED, BEIGE COLOURED LAMINATIONS MINOR PY, Po & Tr. Cpy BETWEEN THIN BANDS OF MASSIVE Po, Py, Cpy	30% Py Cpy 50-60°	Po, Cpy, Py	111166 111168 111167
250	1h	MEDIUM GREEN, QUARTZ-CHLORITE SCHIST (SAME AS 198-237) FINE GRAINED, THINLY LAMINATED, INTERMITTENT CALCITE > QUARTZ BANDS, // FOLIATION, ALSO CROSS-CUTTING, WIDELY SPACED AGGREGATES OF PYRITE	50		
260					
270		2-4mm Py AGGREGATES ≈ 2% CORE FOLIATION DEFINED BY BIOTITE BANDS	40		
280		FOLIATION IS // TO CORE AXIS AT 278½'	25		
290					

DIAMOND DRILL CORE LOG

HOLE 95HF-4 PAGE 4 OF 4

FOOTAGE		DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
		INCREASE IN GRANULAR QUARTZ BANDS 1-2 cm WIDTH BEIGE COLOURED SELVAGES WITH BIOTITE AT BOUNDARIES			
300	1h	V.F.G. QTZ. PORPHYROBLASTS, START TO APPEAR SUB mm SCALE <5%	40°		
310		94.49m END OF HOLE		□	
320					
330					
340					
350					
360					
370					
380					
390					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95HF-5 Page 1 of 6

Project ECSTALL Property HORSEFLY Claim _____ Location 29+97N - 29+84E

Started OCT. 3,95 Finished OCT. 4,95 Total Length 500' Core Size BQ - TW CASING LEFT IN HOLE

Angle -45° Azimuth 080° Collar Elevation 2208' Logged By H. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
10		BEDROCK			
20	3g	MEDIUM GREY-BROWN, CALCAREOUS, CHLORITIC, QUARTZ-BIOTITE-SERICITE SCHIST SERICITIC SECTIONS QUARTZ & CARBONATE BANDS UP TO 1cm WIDTH ≈ 5-10% EUHEDRAL Py DISSEMINATED THROUGHOUT ≈ 2-3%	50	2-3% DISS. Py	
30					
40			QTZ X QTZ X QTZ X		
50			60 QTZ. X		
60	3c	WHITE TO LIGHT GREY, PYRITIC QUARTZ-SERICITE-BIOTITE SCHIST, TR. MARIPOSITE, BROWN BIOTITE-RICH BANDS 5% - DISSEMINATED PYRITE ASSOCIATED WITH QUARTZ BANDS		10% DISS. Py	111234
70	1f	MEDIUM GREY-BROWN CALCAREOUS, CHLORITE - QUARTZ - BIOTITE SCHIST			
80	1g	PALE GREY-GREEN QUARTZ - CHLORITE - BIOTITE SCHIST WEAKLY LAMINATED, BIOTITE PORPHYROBLASTS	6" MASSIVE SULPHIDES 80% Py MINOR Po, Cpy 35 30-40°		111235 111236
90	1f	MEDIUM GREEN QUARTZ CHLORITE - BIOTITE SCHIST			

DIAMOND DRILL CORE LOG

HOLE 95HF-5 PAGE 2 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		MEDIUM GREEN, CALCAREOUS, QUARTZ-CHLORITE-BIOTITE SCHIST	30	10% Py, Cpy, PO	111237
100				10-15% Py > PO > Cpy	
	lf	10-15% SULPHIDES, COARSE, IRREGULARLY SHAPED AGGREGATES OF PO/Cpy, EUHEDRAL DISSEMINATED PYRITE	70		111238
110		QUARTZ SEGREGATIONS // AND CROSS-CUTTING, COMMON FROM 106-126 AND 135 TO 180'			
120					
130					
		6" LIMESTONE BAND			
140					
150					
		SPOTTED VARIETY OF SCHIST - SUB mm SCALE QTZ ? CRYSTALS - GREEN GRANULAR SCHIST, TUFF ?			
160					
		MEDIUM TO DARK GREEN QUARTZ-CHLORITE-BIOTITE SCHIST SAME AS ABOVE TO 152'			
170		QTZ			
	lf				
180			30		
190					

DIAMOND DRILL CORE LOG

HOLE 95HF-5 PAGE 3 OF 6

FOOTAGE		DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
200	lf	BIOTITE SELVAGES ASSOCIATED WITH QUARTZ BANDS FOLD	40		
210			30		
220		MEDIUM GREEN SPOTTED SCHIST			
	ld	DARK GREEN PORPHYROBLASTS, CRYSTAL TUFF?			
230					
		MEDIUM GREEN QUARTZ-CHLORITE SCHIST VARIABLE TEXTURE, FEWER BIOTITE BANDS THAN PREVIOUS	2" SILL OF UNIT 4 Hbl PORPHYRY Qtz		
240	lf	VARIES FROM VERY F.G., THINLY LAMINATED TO PORPHYROBLASTIC CRYSTAL TUFF? FREQUENT IRREGULARLY SHAPED QUARTZ SEGREGATIONS OR VEINS			
250					
260			40		
270					
280					
		DARK GREEN PORPHYROBLASTS, CRYSTAL TUFF?			
290					

DIAMOND DRILL CORE LOG

HOLE 95HF-5 PAGE 4 OF 6

FOOTAGE		DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
		MEDIUM GREEN QUARTZ-CHLORITE SCHIST CONTINUED			
300					
	1f				
310			50		
320					
		QTZ X			
330		PALE GREY-BROWN VARIETY OF ABOVE SCHIST COULD BE ALTERATION OR INCREASE IN FELSIC COMPONENTS			
		PALE BEIGE TO BROWN QUARTZ-SERICITE-BIOTITE SCHIST VARIABLE TEXTURE, QUARTZ AUGEN 5-10 mm		10% SULPHIDES Po > Py MINOR CPy	111239
340	3c				
		MEDIUM-BROWN CALCAREOUS CHLORITIC-QUARTZ-BIOTITE SCHIST			
350		FREQUENT QUARTZ SEGREGATIONS SIMILAR TO CHLORITIC UNIT BUT WITH GREATER BIOTITE AND SOME SERICITIC SECTIONS			
	1f				
360					
	3e	PALE BEIGE QUARTZ-SERICITE SCHIST		5% Po	
	1h	MEDIUM GREY-GREEN, THINLY LAMINATED, GREY-GREEN TO OLIVE GREEN SCHIST, (TUFF WITH SILTSTONE COMPONENT?)	60		
370					
	1i	LIGHT APPLE GREEN, THINLY LAMINATED, QUARTZ-CHLORITE SCHIST FREQUENT QUARTZ SEGREGATIONS			
380					
	1h	TURNING TO GREY-GREEN SCHIST AS THIN SILTSTONE LAMINATIONS INCREASE WITH DEPTH			
390		GRADATIONAL CONTACT			

DIAMOND DRILL CORE LOG

HOLE 95HF-5 PAGE 5 OF 6

FOOTAGE		DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
400	1h				
410					
420					
	3a	? BLACK ARGILLITE WITH PO		10-15% PO	111240
430	1h				
	3a	? THINLY LAMINATED ARGILLITE		10-15% PO	
	3b	— PALE GREEN SILTSTONE			
		BLACK THINLY LAMINATED SILICEOUS ARGILLITE ± PO LAMINATIONS		10-15% PO TR. GAL PY	
440	3a	BRECCIATED, CARBONACEOUS, SILICEOUS AND CALCAREOUS	FAULT GOUGE; 60		111241
450	1h	MEDIUM OLIVE-GREEN, THINLY LAMINATED CHLORITE-SERICITE SCHIST "SILTY TUFF" RARE QTZ. AUGEN	50		
460		SILTY COMPONENT DECREASING WITH DEPTH			
470	1j	MEDIUM GREEN SPOTTED CHLORITIC SCHIST	QTZ-CARB. FILLED FRACTURE		
480	1h	THINLY LAMINATED CHLORITE SCHIST ← LAPILLI	40		
490					

DIAMOND DRILL CORE LOG

HOLE 95HF-5 PAGE 6 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1h				
		152.4m			
500		END OF HOLE			
510					
520					
530					
540					
550					
560					
570					
580					
590					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95HF-6 Page 1 of 5

Project ECSTALL Property HORSEFLY Claim _____ Location 28+40N - 29+79E

Started OCT. 2, 95 Finished OCT. 3, 95 Total Length 420' Core Size BQ - TW

Angle -45° Azimuth 080° Collar Elevation 2196' Logged By U. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBERS
10		BEDROCK			
	3d	LIGHT GREY TO BEIGE, QUARTZ - SERICITE - CHLORITE - BIOTITE SCHIST MARBLE TEXTURE	30 60	2-3% Py Tr. Po Cpy	
20					
	3b	QUARTZ - SERICITE SCHIST	QTZ x QTZ x x		
30			Foln 40	5-10% Py	111191
			QTZ x x QTZ x x		
40		PALE GREY-GREEN QUARTZ-CHLORITE-BIOTITE SCHIST VERY SILICEOUS, GRADATIONAL WITH QTZ-SER-SCHIST	QTZ VEIN	LOW SULPHIDES	
	3d	FOLIATION DEFINED BY BIOTITE QTZ AND CARBONATE VEINS/SEGREGATIONS CROSS-CUTTING BIOTITE SELVAGES AT QUARTZ/HOST BOUNDARY, LOW SULPHIDES			
50		BIOTITE BANDS DECREASING IN FREQUENCY			
	3e	PALE GREY-GREEN SILICEOUS CHLORITIC SCHIST V.F.G. GRADES TO QUARTZ-SERICITE SCHIST (RHYOLITE)		2-3% Py 10% Py	
60		QUARTZ SERICITE SCHIST (RHYOLITE) LIGHT GREY, DEFORMED PYRITIC QUARTZ HORIZONS IN SERICITIC MATRIX	40 20	5% Py Po, Tr. Cpy	111192
		GRADING TO FINER GRAINED PALE GREY THINLY LAMINATED VARIETY		Tr. Py	
70	3a	QUARTZ - SERICITE SCHIST (RHYOLITE)		5-10% Sulphides Py	111193
		TEXTURE VARIES FROM THINLY LAMINATED TO "BIRD'S EYE MAPLE" TEXTURE			
		MEDIUM GREY QUARTZ LAMINATIONS AND QUARTZ AUGEN, DISSEMINATED PYRITE ASSOCIATED WITH QUARTZ	QTZ		
80			QTZ	5-10% Py	111194
		GRADES TO THINLY LAMINATED VARIETY			

DIAMOND DRILL CORE LOG

HOLE 95HF-6 PAGE 2 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	3a	QUARTZ – SERICITE SCHIST CONTINUED	↙50	5–10% Py	111 194
	1f	GRADES TO PALE GREY–GREEN QUARTZ–CHLORITE–BIOTITE SCHIST			
	3b	QTZ.–SERICITE SCHIST		10–15% Py	111 195
100	1f	QUARTZ–CHLORITE BIOTITE SCHIST			
	3d	PALE GREY TO BEIGE QUARTZ–SERICITE–CHLORITE–BIOTITE SCHIST		10% SULPHIDES Po, Py TR Cpy	
110		QUARTZ & CALCITE SEGREGATIONS INCREASING WITH DEPTH			111 196
		MEDIUM GREEN QUARTZ–CHLORITE–BIOTITE SCHIST		2% Py	
120			↙70		
	1f	BIOTITE AND CALCITE BANDS INCREASING TO ABOUT 10% MEDIUM GRAINED EUHEDRAL PYRITE < 2% THROUGHOUT			
130					
140					
150					
160	3b	LIGHT GREY, THINLY LAMINATED, QUARTZ–SERICITE SCHIST (RHYOLITE) – POSSIBLY RHYOLITE TUFF, VARIABLE CHLORITE & BIOTITE CONTENT LARGE FRAGMENT? AT 165		10–15% SULPHIDES Po, Py Cpy	111 197
	1f	MEDIUM GREEN QUARTZ–CHLORITE–BIOTITE SCHIST SIMILAR TO 115–160 ABOVE, BUT SLIGHTLY PALER – CALCITE BANDS ≈ 10%, BIOTITE BANDS ≈ 5–10%	↙70		
170					
180	3d	PALE GREY TO BEIGE QUARTZ–SERICITE–CHLORITE–BIOTITE SCHIST POSSIBLE TUFF, SIMILAR TO 160–165' 5–10% DISSEMINATED Po, Py, Cpy	↙70 1", 80% Py, Cpy 5", 70% Po Py Cpy	5–10% Po Py Cpy	111 198 111 199
	1f	MEDIUM GREEN QUARTZ–CHLORITE–BIOTITE SCHIST SIMILAR TO 115–160' ABOVE CARBONATE & BIOTITE BANDS INCREASE			
190					

DIAMOND DRILL CORE LOG

HOLE 95HF-6 PAGE 3 OF 5

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	ASSAYS AND ANALYSES: SULPHIDES	SAMPLE NUMBER
		MEDIUM GREEN QUARTZ - CHLORITE - BIOTITE SCHIST CONTINUED MINOR PYRITE			
200	1f	- SILICEOUS BAND	70		
		SILICEOUS BANDS INCREASING IN FREQUENCY			
210		VERY F.G. THIN LAMINATIONS QTZ X			
220		BIOTITE LAMINATIONS DECREASING TO DISSEMINATED PORPHYROBLASTS	60		
230					
240					
250					
	3d	QUARTZ - SERICITE - CHLORITE - BIOTITE SCHIST 10-15% py // TO FOLIATION		10-15% py	111200
		MEDIUM GREEN QUARTZ - CHLORITE - BIOTITE SCHIST CONTINUES AS ABOVE, WITH FEWER BIOTITE AND CALCITE BANDS THINLY LAMINATED, V.F.G.		2-5% po, py	
260	1f				
270		MEDIUM GREY-GREEN GETTING MORE SILICEOUS WITH DEPTH			
280		QUARTZ - SERICITE SCHIST		10-15% SULPHIDES py, sph, gn	111201
	3b	QUARTZ SEGREGATIONS / FRAGMENTS? INCREASING			
		DARK GREEN QUARTZ - CHLORITE - BIOTITE SCHIST	60	10% po cpy	111202
290	1l				

DIAMOND DRILL CORE LOG

HOLE 95HF-6 PAGE 4 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
300	1L	DARK GREEN QUARTZ-CHLORITE-BIOTITE SCHIST CONTINUED QUARTZ SEGREGATIONS/FRAGMENTS? UP TO 30% PO, CPY UP TO 10% -LARGE WHITE QUARTZ SEGREGATIONS/FRAGMENT?/VEINS? UP TO 20% ALSO SMALLER QUARTZ FRAGMENTS AND AUGEN, AND GRAINED mm SCALE QUARTZ AUGEN		10% PO, CPY 1-2% CPY	111202
				10% PO, CPY	111203
310		COARSE IRREGULARLY SHAPED AGGREGATES OF PO & CPY CUT ACROSS CORE UP TO Cm. SCALE, SUB-PARALLEL TO FOLIATION, ALSO ASSOCIATED WITH QUARTZ QUARTZ SEGREGATIONS/FRAGMENTS DECREASING		10-15% PO, CPY 2-4% CPY	111204
320		PO, CPY ASSOCIATED WITH QUARTZ BANDS AND DISSEMINATED PARALLEL TO FOLIATION	QTZ QTZ	5-10% PO, PY	111205
330					111206
340					111207
350	1K	QUARTZ SEGREGATIONS INCREASING TO ABOUT 20% PALER VARIETY OF QUARTZ-CHLORITE-BIOTITE SCHIST FINER GRAINED BIOTITE RESTRICTED TO ISOLATED PORPHYROBLASTS QUARTZ SEGREGATIONS DECREASING WITH DEPTH		1-3% PO, CPY	111208
360		PALE GREY-GREEN QUARTZ-CHLORITE-BIOTITE SCHIST QUARTZ SEGREGATIONS/FRAGMENTS? 10-20% PO, CPY, PY PARALLEL TO FOLIATION	QTZ 60		111209
370					
380	3b	PALE GREY-GREEN QUARTZ-SERICITE SCHIST FINELY DISSEMINATED PO // TO FOLIATION		3-5% PO	
	1f	MEDIUM GREY-GREEN, THINLY LAMINATED QUARTZ-CHLORITE SCHIST FINE GRAINED BIOTITE, // FOLIATION, QUARTZ SEGREGATIONS WIDELY SPACED	QTZ		
390					

DIAMOND DRILL CORE LOG

HOLE 95HF-6 PAGE 5 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1f	MEDIUM GREY-GREEN, THINLY LAMINATED, QUARTZ-CHLORITE SCHIST CONTINUED			
400	3e	PALE GREY, THINLY BANDED, CHLORITIC QUARTZ-SERICITE SCHIST	55	10-15% PO	111210
410		MEDIUM GREY-GREEN, QUARTZ-CHLORITE SERICITE SCHIST V.F.G., THINLY LAMINATED, QUARTZ & CALCITE BANDS, 2-4mm THICK ∥ FOLIATION ≈ 5% V.F.G. PO ∥ FOLIATION	40	1-2% PO TR. CPy	
420		123.0m END OF HOLE	50		
430					
440					
450					
460					
470					
480					
490					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95HF-7 Page 1 of 6

Project ECSTALL Property HORSEFLY Claim _____ Location 29+08 -29+00E

Started Oct. 5, 95 Finished Oct. 6, 95 Total Length 500' Core Size BQ-TW

Angle -45° Azimuth 080° Collar Elevation 2124' Logged By U. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
10		CORE			
20		BEDROCK			
		PALE TO MEDIUM GREEN CALCAREOUS QUARTZ-CHLORITE-BIOTITE SCHIST		PO 2-3%	
		CALCAREOUS BANDS 30-40%, ALMOST MARBLE	50°		
		2-3% FINELY DISSEMINATED PO			
30		CALCAREOUS BANDS DECREASING WITH DEPTH			
		FOLIATION DEFINED BY CALCAREOUS AND BIOTITE BANDS	40°		
		QTZ X	QTZ X		
		QTZ X			
40		QTZ X			
	If	CALCAREOUS BANDS 20-30%			
		DARK BROWN TO BLACK HORNBLENDE PORPHYRY SILL (4) 6" →			
			60		
50					
60		HIGHER FREQUENCY OF BIOTITE BANDS, 10-15%			
		CALCITE & QUARTZ BANDS ± 10-15%			
70					
80					
90		FOLIATION DEFORMED		5% PO, CPY	

DIAMOND DRILL CORE LOG

HOLE 95HF-7 PAGE 2 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		CALCAREOUS QUARTZ-CHLORITE-BIOTITE SCHIST CONTINUED		Po, Cp	
	1f	FOLIATION DEFORMED, POSSIBLE FRAGMENTAL UNIT			
100		LIGHTER COLOUR, MORE SILICEOUS VARIETY		5% Po Tr Cp	
	3a	QUARTZ-SERICITE-CHLORITE-SCHIST WITH BLUE GREY QUARTZ AUGEN			
110					□
			Qtz		
		} SILICEOUS HORIZON			
		HIGHLY VARIABLE FOLIATION			
		-PALE GREY-GREEN AND BROWN LAMINATED QUARTZ-CHLORITE-BIOTITE SCHIST			
120	1f	} SILICEOUS HORIZON			
130					□
		GREY-GREEN, WHITE AND BROWN COLOUR BANDED	70		□
		MEDIUM OLIVE-GREEN CALCAREOUS QUARTZ-CHLORITE-BIOTITE SCHIST		1-2% py	
140		-FEWER BIOTITE-RICH HORIZONS			
150					
160		DARK BROWN → BLACK HORNBLENDE DYKE SUB-PARALLEL TO CORE	//		
	4	HORNBLENDE PORPHYRY LAMPROPHYRE DYKE			
	1f	ALTERED SCHIST FRAGMENT, DARK BROWN	20° CONTACT		
170		HORNBLENDE PORPHYRY, LAMPROPHYRE DYKE			
	4	DARK GREY TO DARK GREEN, AMYGDALOIDAL			
180		PALE BROWN AND BEIGE QUARTZ-CHLORITE-BIOTITE SCHIST		py 2-5%	111223
	1f	-PROBABLY THERMALLY ALTERED EQUIVALENT OF QUARTZ-CHLORITE-BIOTITE SCHIST			
		EUHEDRAL, DISSEMINATED PYRITE, 2-5% // TO FOLIATION			
190		BRECCIA	∆∆ §		

DIAMOND DRILL CORE LOG

HOLE 95HF-7 PAGE 3 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		PALE BROWN AND BEIGE, BANDED QUARTZ – CHLORITE – BIOTITE SCHIST CONTINUED	20° ~ 20°	2-5% py	111223
200					111224
		GRADING TO UNALTERED LIGHT GREY-GREEN VARIETY			
210		FRACTURED CORE ↓			
220			70		
	1f	OCCASIONAL BANDS OF 20% py OVER 2cm WITH PO TR. cpy		5-10% py	111225
230		PALE GREY-GREEN QUARTZ - CHLORITE - BIOTITE SCHIST V.F.G., THINLY LAMINATED BIOTITE PORPHYROBLASTS ∥ FOLIATION			
240		LOWER THAN USUAL CONCENTRATION OF BIOTITE, CARBONATE AND QUARTZ			
250					
		PALE GREEN, BROWN AND BEIGE, BANDED VARIETY OF QUARTZ - CHLORITE - BIOTITE SCHIST – POSSIBLE ALTERATION FROM NEARBY DYKE	MARIPOSITE →		
260	3c	PALE GREY TO LIGHT BROWN QUARTZ - SERICITE - BIOTITE SCHIST FINE GRAINED, THINLY LAMINATED		5-10% py TR cpy	111226
270					
		QUARTZ - SERICITE SCHIST		py 2-5%	
280	3d	MEDIUM GREY-BROWN TO BEIGE CHLORITIC QUARTZ-SERICITE-BIOTITE SCHIST			
290					

DIAMOND DRILL CORE LOG

HOLE 95HF-7 PAGE 4 OF 6

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	ASSAYS AND ANALYSES SULPHIDES	SAMPLE NUMBER
	3c	PALE GREY & BROWN BANDED, QUARTZ-SERICITE-BIOTITE SCHIST CONTINUED	20	3-5% Py, Po Tr. Cpy	111227
300					
	1f	PALE GREY-GREEN TO BROWN QUARTZ-CHLORITE-BIOTITE SCHIST INTERBANDED WITH WHITE, PYRITIC, QUARTZ-SERICITE SCHIST	QTZ X QTZ. X		
310	3b	QUARTZ-SERICITE SCHIST		5-10% Py LOCALLY Po & Cpy	111228
	1f				
320	3a	WHITE QUARTZ-SERICITE SCHIST, DRAWN OUT QUARTZ LAYERS 5-10% Py, Po		5-10% Po, Py	
		MEDIUM GREY-GREEN AND BROWN BANDED QUARTZ-CHLORITE-BIOTITE SCHIST			
330		PALE GREY-GREEN QTZ-CHLORITE-BIOTITE SCHIST QUARTZ SEGREGATIONS UP TO 25% OF CORE TO 336'	QTZ X QTZ X		
340		MEDIUM GREEN AND BROWN BANDED, QUARTZ-CHLORITE-BIOTITE SCHIST SUB mm SCALE WHITE PORPHYROBLASTS 10-15% ASH?			
	1f				
350			70	1-2% Po, Py Cpy	
		HIGHLY DEFORMED, VARIABLE FOLIATION ATTITUDES TO 395' BIOTITE CONTENT ≈ 10-15%			
360		QUARTZ AND CALCITE SEGREGATIONS COMMON, ≈ 10-15%			
		QUARTZ/CALCITE		3-5% Po, Py Cpy	111229
370		QUARTZ CALCITE WITH 5% DISSEMINATED Po			
380					
390					

DIAMOND DRILL CORE LOG

HOLE 95HF-7 PAGE 5 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES STRUCTURE	SULPHIDES	SAMPLE NUMBER
		FOLIATION HIGHLY VARIABLE		5% PO, Py Cpy	111230
400	If	PALE GREEN QUARTZ-CHLORITE-BIOTITE SCHIST V.F.G., THINLY LAMINATED TO MASSIVE BIOTITE OCCURS AS PORPHYROBLASTS // FOLIATION < 5% CONCENTRATED IN BANDS WITH QUARTZ AND CARBONATE UP TO 2 cm		1-2% Py, PO	
410			50		
420		PALE GREY-GREEN, THINLY LAMINATED QUARTZ-CHLORITE-BIOTITE SCHIST GRADES TO QUARTZ-SERICITE SCHIST	55	5% Py	111231
430	3b	LIGHT GREY, THINLY LAMINATED QUARTZ-SERICITE SCHIST 10-15% DISSEMINATED EUHEDRAL Py, LOCALLY WITH PO AND TR. Cpy	60	10-15% Py // FOL. TR. Cpy	111232
440		DARK BROWN, THERMALLY ALTERED, QTZ-CHLORITE-BIOTITE SCHIST 10-15% PO // TO FOLIATION, Cpy BLEBS LOCALLY ASSOCIATED WITH PO		10-15% PO Py	111233
		HORNBLENDE PORPHYRY DYKE		TR. Py, PO	
450	If	MEDIUM GREEN QUARTZ-CHLORITE-BIOTITE SCHIST CARBONATE & QUARTZ SEGREGATIONS ≈ 10% // TO FOLIATION AND CROSS-CUTTING Hbl. PORPHYRY SILLS			
460					
470		BIOTITE CONTENT DECREASING			
480					
490					

DIAMOND DRILL CORE LOG

HOLE 95HF-7 PAGE 6 OF 6

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		QUARTZ - CHLORITE - BIOTITE SCHIST CONTINUED			
	1f				
		PALE GREY-GREEN THINLY LAMINATED, QUARTZ-CHLORITE-SCHIST BIOT PORPHYROBLASTS // FOLIATION			
500		152.4m END OF HOLE			
510					
520					
530					
540					
550					
560					
570					
580					
590					

NORTHWEST GEOLOGICAL CONSULTING LTD.

DIAMOND DRILL CORE LOG

HOLE 95HF-8 Page 1 of 5

Project ECSTALL Property HORSEFLY Claim _____ Location 27+52N - 29+79E

Started OCT. 6, 95 Finished OCT. 7, 95 Total Length 410' Core Size BQ-TW CASING LEFT IN HOLE

Angle -45° Azimuth 080° Collar Elevation 2208' Logged By H. SCHMIDT

FOOTAGE	UNIT	DESCRIPTION	STRUCTURE	SULPHIDES	SAMPLE NUMBER
10					
20		OVERBURDEN			
30		QUARTZ-CHLORITE-BIOTITE SCHIST MEDIUM GREEN F.G., THINLY LAMINATED QUARTZ-CHLORITE SCHIST WITH THIN INTERBANDS OF BIOTITE, WHITE TO LIGHT GREY CALCITE AND QUARTZ BANDS 10-15%, PARALLEL AND CROSS-CUTTING CORE AXIS		Po, Cpy	
40	lf	-FELSIC BAND	45		
50		Po, Py TR. Cpy OCCUR IN 1-4mm BLEBS // FOLIATION } V.F.G. SUB mm WHITE GRAINS, QUARTZ?	60	Po > Py 1-2%	
60			20		
70		QUARTZ LAMINATIONS INCREASE TO PRODUCE A PALE GREY TO BEIGE, MOTTLED TEXTURED ROCK Po, Py, Cpy 15-20%		15-20% Po, Py Cpy	111169
80		QUARTZ-CHLORITE-BIOTITE SCHIST, SAME AS ABOVE SLIGHT INCREASE IN SULPHIDE CONTENT INCREASED CALCITE Po, Py, Cpy	55	Po, Py Cpy 2-3%	111170
90				5% Po Py, Cpy	

DIAMOND DRILL CORE LOG

HOLE 95HF-8 PAGE 2 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		CALCITE BANDS INCREASE	55		
100			20	80% SULPHIDE	
		6" MASSIVE SULPHIDE, Py, Po, cPy, Sph? →			111171
		2" MASSIVE SULPHIDE →			
		V.F.G. DISSEMINATED BLEBS OF Po, cPy, Py, 1-2% TOTAL SULPHIDE	60	60% SULPHIDE; 1-2% Po, Py, cPy	
110					
	If				
		QUARTZ LAMINATIONS WITH GRANULAR TEXTURE, INCREASE SULPHIDES HAVE INCREASED		5% Py, Po, cPy	111172
120		THINLY LAMINATED			
		HIGHER VOLUME OF QUARTZ, CARBONATE BANDS			
		MEDIUM TO PALE GREY-GREEN, QUARTZ-CHLORITE-BIOTITE SCHIST	20		
130					
		20-30% Po, Py, cPy →			
			70		111173
			20		
140					
		PALE GREY & GREEN INTERBANDED QUARTZ-CHLORITE-BIOTITE SCHIST	40	5-20% Po, Py cPy	111174
		HIGHER FREQUENCY OF QUARTZ & CARBONATE LAMINATIONS	20		
		F.G. Po ∥ FOLIATION, COARSER Py AGGREGATES V.F.G. cPy & Po			
		MEDIUM GREY-GREEN QTZ-CHLORITE-BIOTITE SCHIST			
150		FOLIATION DEFINED BY BIOTITE LAMINATIONS			
		MINOR CARBONATE/QUARTZ LAMINATIONS	20		
			20		
		QTZ X			
160	If				
		PALE GREY & GREEN INTERBANDED QUARTZ-CHLORITE-BIOTITE SCHIST, BIOTITE AND QUARTZ/CARBONATE LAMINATIONS	20	2-5% Po, Py cPy	111175
		PALE GREY TO GREY-GREEN QUARTZ-CHLORITE-BIOTITE SCHIST		2-5% Po, Py cPy	
		-FELSIC UNIT CAUSED BY INCREASE IN SILICEOUS BANDS			
		EUHEDRAL Py ASSOCIATED WITH SOME SILICEOUS BANDS	80		111176
170		HIGHER SULPHIDE CONCENTRATION ASSOCIATED WITH FELSIC HORIZONS	1cm QTz Py BAND →		
		MED GREEN QUARTZ-CHLORITE-BIOTITE SCHIST SAME AS ABOVE		TR. TO 1% SULPHIDES Py Po	
		FOLIATION DEFINED BY BIOTITE, CALCITE & QUARTZ BANDS	20		
180		MINOR Py, Po, CALCITE REMOBILIZED ALONG FRACTURES			
		WHICH ARE SUB-PARALLEL OR AT LOW ANGLES TO CORE AXIS			
190					

DIAMOND DRILL CORE LOG

HOLE 95HF-8 PAGE 3 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
		QUARTZ-CHLORITE-BIOTITE SCHIST CONTINUES			
			55		
200	1f				
			50		
		6" OF GOUGE ∥ TO FOL.	50		
210					
			11 FOL.		
220					
			50		
230		QTZ X QTZ VEIN			
		OCCASIONAL COARSE PYRITE AGGREGATE			
240		INCREASE IN COLOUR BANDING, BIOTITE, CALCITE LIGHT BROWN & GREEN INTER-BANDED	40-50		
		SUB mm SCALE FRAGMENTS OF QUARTZ? APPEAR FROM 240-243			
		EUHEDRAL PY INCREASES TO ≈ 5% , V.FG. DISSEMINATED PO			
250	3b	PALER, MORE SILICEOUS VARIETY OF QUARTZ-SERICITE SCHIST		5% SULPH. Py Po, Cpy	111 177
		MEDIUM GREY-BROWN BANDED QUARTZ-BIOTITE-SERICITE-CHLORITE SCHIST		5-10% SULPHIDE	
		DISCORDANT QUARTZ VEIN			
				10-15% SULPHIDE Py, Po, Cpy TR.	
260	3d	QUARTZ 30%, BIOTITE 30%, CHLORITE?, SERICITE?			111 178
		EUHEDRAL DISSEMINATED PYRITE ≈ 10-15%, ∥ TO FOLIATION		Cpy INCREASING	
		FEWER BIOTITE BANDS, CHLORITIC QUARTZ-SERICITE SCHIST			
270					
		MEDIUM TO DARK GREEN, CHLORITE-BIOTITE QUARTZ AUGEN SCHIST		10-15% SULPHIDE	
		20-30% QUARTZ AUGEN		Py, Po	111 179
	1l	10-15% BIOTITE IN LAMINATIONS		Cpy	
		FINE GRAINED DARK GREEN CHLORITE IN MATRIX 15%		15% SULPHIDE	111 180
280		MEDIUM TO FINE GRAINED Py; Po & Cpy IN WHISPY SEGREGATIONS		5-10% SULPHIDE	
		BLUE-GREY, SILICEOUS VARIETY, LESS CHLORITE AND BIOTITE, MORE QUARTZ			111 181
		RETURN TO MEDIUM DARK, GREY-GREEN CHLORITE-BIOTITE-QUARTZ AUGEN SCHIST	50		
		CALCITE →			
290		THINLY LAMINATED SILICEOUS VARIETY WITH LOWER SULPHIDES			

DIAMOND DRILL CORE LOG

HOLE 95HF-8 PAGE 4 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1L	MEDIUM DARK GREEN CHLORITE - BIOTITE - QUARTZ AUGEN SCHIST CONTINUED			111181
		PALE GREY-GREEN, THINLY LAMINATED QUARTZ-CHLORITE-BIOTITE SCHIST		5% SULPHIDES PO, CPY, PY	
300	1f	PO, CPY PARALLEL TO FOLIATION, IRREGULAR QUARTZ VEINS/SEGREGATIONS	50		111182
		MEDIUM TO DARK GREEN, CHLORITE - BIOTITE - QUARTZ AUGEN SCHIST, SAME AS 271-280' LOWER SULPHIDE CONCENTRATIONS THAN PREVIOUS INTERVAL		TR SULPHIDES	
310					
320					
		PO, CPY & QTZ OVER 3" →			
330			55		
		SULPHIDES INCREASING ↓		5% SULPHIDE	111183
			50		
340	1L	FEWER BUT COARSER QUARTZ SEGREGATIONS/FRAGMENTS? DARK GREEN CHLORITE-QUARTZ AUGEN SCHIST SIGNIFICANT PO, CPY ∥ TO FOLIATION, QUARTZ SEGREGATIONS/FRAGMENTS?, 1-2cm WIDTH, FROM 340-344 DECREASING FROM 344 PO, CPY SEGREGATIONS SUB-PARALLEL AND PARALLEL TO FOLIATION WITH AGGREGATES OF EUHEDRAL PYRITE		1% PO CPY	111184
				15-20% SULPHIDE PO, CPY, PY	111184A
					111185
350		DARK GREEN CHLORITE - BIOTITE SCHIST, BIOTITE CONCENTRATED ALONG THIN HORIZONS		10% SULPHIDE PY, PO, CPY	111186
		GRADES TO DARK GREEN CHLORITE SCHIST WHISPY PO, CPY ∥ TO FOLIATION, ISOLATED EUHEDRAL PY		15% SULPHIDE PO, CPY PY	111187
360		QTZ →			
		GRADES TO DARK GREEN CHLORITE SCHIST - FEWER CALCITE/QUARTZ SEGREGATIONS, NO QUARTZ AUGEN		2-3% SULPHIDE PO, CPY PY	111188
370					
380	1f	GREY-GREEN BANDED QUARTZ-CHLORITE-BIOTITE SCHIST INCREASED BIOTITE AND QUARTZ LAYERS	50	5% SULPHIDE PY	111189
	3e	QUARTZ-SERICITE SCHIST PALE BEIGE THINLY LAMINATED, LOCALLY HIGHLY DEFORMED FOLIATION, 5% + DISSEMINATED PY, PALE GREEN CHLORITIC BANDS BLUE-GREY QUARTZ 30%			
390					

DIAMOND DRILL CORE LOG

HOLE 95HF-8 PAGE 5 OF 5

FOOTAGE	UNIT	DESCRIPTION	ASSAYS AND ANALYSES: STRUCTURE	SULPHIDES	SAMPLE NUMBER
	1f	MEDIUM GREEN CHLORITE - BIOTITE SCHIST CALCITE VEINS & SEGREGATIONS CROSS-CUTTING AND // TO FOLIATION			
400	3c	LIGHT GREY TO GREY-GREEN, QUARTZ-SERICITE SCHIST MEDIUM TO F.G. DISSEMINATED PY // TO FOLIATION, BIOT ON FOLIATION PLANES		3-5% Py	↑ 111190 ↓
410	1f	PALE GREEN QUARTZ - CHLORITE - BIOTITE SCHIST BIOTITE CONCENTRATED ON FOLIATION PLANES CALCITE // AND CROSS-CUTTING FOLIATION END OF HOLE			
		125.0m			
420					
430					
440					
450					
460					
470					
480					
490					

Appendix C

CERTIFICATES OF ANALYSIS

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. File # 95-4360

900 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Uwe Schmidt

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	Cu %
111152	11	268	1276	362	13.8	153	9	455	14.58	42	<5	<2	<2	72	5.1	10	<2	165	4.66	.440	18	76	.71	40	<.01	3	.57	.01	.10	<2	24	.027
111155	2	382	37	92	1.2	76	67	460	5.51	4	<5	<2	<2	24	.4	<2	<2	64	2.80	.028	<1	57	1.76	45	.16	4	1.71	.04	1.23	<2	4	.036
111156	2	179	218	898	1.2	33	27	643	6.73	27	<5	<2	<2	15	5.5	<2	<2	83	1.11	.068	<1	46	3.00	30	.14	3	2.46	.02	1.22	<2	9	.017
111163	<1	1361	66	3558	1.2	17	41	416	12.10	34	<5	<2	<2	5	11.3	<2	<2	51	.53	.064	<1	4	1.53	19	.16	4	1.50	.02	.35	<2	7	.134
111164	3	2345	54	534	1.8	22	28	816	13.22	3	<5	<2	<2	2	<.2	<2	<2	98	.25	.041	<1	12	4.10	61	.15	4	3.83	.01	.34	<2	7	.216
111165	1	505	7	300	.4	30	19	642	8.64	2	<5	<2	<2	11	<.2	<2	<2	118	1.92	.092	<1	76	2.53	58	.15	3	2.30	.02	.35	<2	<1	.048
111166	2	54048	109	6876	30.3	10	143	905	18.14	42	<5	<2	<2	36	19.4	<2	59	79	4.31	.053	<1	3	1.21	29	.11	7	1.13	.01	.21	<2	553	5.637
111167	2	33650	208	7678	20.4	17	338	935	27.39	110	<5	2	<2	40	23.4	5	95	62	3.78	.069	<1	12	.74	18	.08	3	.79	.01	.53	<2	860	3.532
111169	<1	763	6	159	1.5	72	28	749	9.17	7	<5	<2	<2	69	5.7	2	<2	123	7.07	.384	<1	83	1.87	61	.11	3	1.70	.02	.36	<2	7	.070
111171	2	4485	1790	24940	27.9	24	182	418	25.72	135	<5	<2	<2	37	72.9	5	121	14	1.97	.005	<1	9	.22	9	.01	<3	.22	.01	.03	<2	345	.456
RE 111171	<1	4420	1746	24384	26.9	25	197	420	26.99	153	<5	<2	<2	34	71.0	3	119	13	1.78	.004	1	9	.22	8	.01	<3	.21	.01	.03	<2	391	.457
RRE 111171	2	4637	1801	25355	28.6	26	204	429	28.84	163	<5	<2	<2	35	72.3	3	127	13	1.82	.005	<1	11	.22	9	.01	<3	.23	.01	.03	<2	503	.449
111173	3	126	7	131	.5	20	43	536	8.81	4	<5	<2	<2	8	<.2	<2	<2	144	1.14	.086	<1	27	3.08	21	.27	<3	2.79	.03	.61	<2	16	.013
111178	4	2152	20	1588	1.7	22	33	1292	10.89	46	<5	<2	<2	8	4.7	4	<2	53	.42	.025	1	21	2.93	31	.04	4	2.67	.01	.30	<2	69	.192
111179	4	4826	3	167	1.9	20	56	1166	12.54	24	<5	<2	<2	6	<.2	<2	<2	110	.30	.022	<1	36	4.01	38	.08	4	3.94	.01	.48	<2	16	.468
111180	4	10133	5	214	2.8	24	69	1128	15.56	4	<5	<2	<2	10	<.2	<2	<2	112	.40	.009	<1	43	3.06	45	.13	4	3.29	.01	1.19	<2	19	.991
111181	2	2503	9	278	.8	20	27	1027	8.66	4	<5	<2	<2	16	.3	2	<2	80	.95	.022	<1	35	3.91	46	.05	3	3.84	.01	.25	<2	10	.230
111197	2	5391	62	2203	4.7	32	92	559	13.61	50	<5	3	<2	7	5.1	5	3	83	.88	.029	<1	86	2.58	15	.16	7	2.38	.02	.72	<2	61	.542
111198	4	9894	101	5510	6.2	10	193	624	17.21	65	<5	<2	<2	18	16.7	<2	15	114	2.58	.151	<1	12	1.14	13	.15	5	1.09	.02	.48	<2	169	1.005
111202	1	1103	14	368	.8	26	50	946	11.74	7	<5	<2	<2	5	<.2	<2	<2	117	.28	.029	<1	36	4.24	86	.07	4	4.38	.01	.31	<2	8	.105
111203	2	4418	<3	272	2.4	24	59	837	12.83	2	<5	<2	<2	5	1.6	<2	<2	138	.28	.025	<1	39	4.44	53	.05	4	5.16	<.01	.18	<2	12	.411
111204	2	15044	<3	584	5.2	26	135	968	17.23	4	<5	<2	<2	11	2.5	<2	5	163	.46	.029	<1	52	5.00	42	.05	6	6.16	<.01	.22	<2	81	1.543
RE 111204	4	15221	4	608	5.1	26	135	975	17.39	2	<5	<2	<2	11	2.8	3	13	164	.46	.028	<1	53	5.02	43	.05	5	6.22	<.01	.22	<2	50	1.539
RRE 111204	3	15222	3	602	5.2	25	133	959	17.13	4	<5	<2	<2	11	2.6	<2	6	161	.46	.029	<1	54	4.94	42	.05	4	6.08	<.01	.22	<2	43	1.545
111205	7	2920	<3	127	1.0	32	92	837	13.24	<2	<5	<2	<2	12	<.2	<2	<2	143	.47	.020	<1	70	5.10	45	.07	5	5.84	<.01	.33	<2	11	.301
111206	7	4755	<3	132	2.5	20	71	763	13.75	<2	<5	<2	<2	19	.5	<2	<2	162	.80	.043	<1	17	4.93	13	.04	4	6.00	<.01	.08	<2	77	.480
111207	8	3365	<3	212	1.9	24	56	877	12.83	3	<5	<2	<2	13	1.0	2	<2	174	.60	.056	<1	41	5.22	15	.04	5	6.17	<.01	.06	<2	27	.320
111233	4	1293	47	3884	1.9	33	19	897	12.04	<2	<5	<2	<2	100	8.2	<2	<2	135	1.05	.051	1	83	3.33	30	.14	4	2.94	.30	1.22	<2	8	.132
111235	1	4860	900	16469	16.6	19	158	1124	20.99	68	<5	<2	<2	14	41.6	4	34	26	1.79	.017	<1	11	.79	10	.07	8	.77	.02	.26	<2	241	.509
111238	2	3772	23	4225	4.0	36	50	621	17.11	22	<5	<2	<2	5	10.7	3	<2	110	.53	.040	<1	69	3.00	24	.16	5	2.85	.02	.83	<2	18	.351
STANDARD C/AU-R	20	62	35	130	6.5	65	33	1053	4.17	42	17	6	37	52	18.5	15	17	58	.52	.097	40	57	.97	193	.08	25	1.94	.06	.15	11	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.
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: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 25 1995 **DATE REPORT MAILED:** Nov 6/95 **SIGNED BY.....** D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT HORSE FLY File # 95-4361

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	Cu %
111184	3	8548	4	207	2.0	14	100	875	13.80	<2	<5	<2	<2	40	.4	<2	<2	159	1.46	.011	<1	19	3.94	80	.10	5	4.57	.01	.66	<2	20	.935
111184A	13	23736	8	286	4.9	19	231	765	17.58	4	<5	<2	<2	26	1.1	<2	<2	114	.85	<.001	<1	16	3.10	49	.12	6	3.57	.01	1.21	<2	462	2.717
111185	6	11340	8	163	2.5	25	401	819	20.49	11	<5	<2	<2	20	.2	5	<2	121	.64	.003	<1	21	3.08	34	.13	5	3.59	.01	1.21	<2	19	1.286
111186	3	2502	<3	114	.7	21	221	852	17.26	6	<5	<2	<2	17	<.2	<2	<2	167	.59	.011	<1	24	4.38	47	.13	5	5.27	.02	1.26	<2	3	.269
111187	15	3333	5	88	.8	15	200	811	16.27	4	<5	<2	<2	22	<.2	<2	<2	104	.79	.068	<1	4	4.01	78	.13	3	4.55	.01	1.29	<2	6	.359
RE 111187	14	3231	3	88	.9	16	192	803	16.06	4	<5	<2	<2	22	<.2	<2	<2	105	.79	.069	<1	9	4.01	81	.13	6	4.56	.01	1.27	<2	4	.365
RRE 111187	13	3255	<3	91	.9	16	202	815	16.57	6	<5	<2	<2	22	<.2	2	<2	106	.81	.073	<1	6	4.04	81	.13	5	4.62	.01	1.32	<2	12	.358

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: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 27 1995 **DATE REPORT MAILED:** Nov 4/95 **SIGNED BY** ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ECSTALL 9

ECSTALL 10

TALL 12

FRACTION

QUAAL 6

QUAAL 7

Horsefly Grid

Steelhead Grid

APPROXIMATE BOUNDARY

HORSEFLY SHOWING

95HF1

95HF2

95HF3

95HF4

95HF5

95HF6

95HF7

95HF8

Core storage

BL 30+00E

BL 29+75E

32+25N

31+25N

30+00N

29+00N

28+00N

22+50N

21+50N

20+50N

19+50N

18+50N

17+50N

16+50N

15+25N

28+00E

30+00E

32+00E

34+00E

36+00E

129°22'

53°46'

0 100 200 metres

LEGEND

AGE UNKNOWN

4 Hornblende, porphyritic Lamprophyre dykes

MIDDLE DEVONIAN AND/OR OLDER

PV METAVOLCANIC UNIT:
mafic and intermediate metavolcanic rocks with interbedded metasedimentary and felsic metavolcanic rocks

3 FELSIC VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS
- a Rhyolite flows, breccias and tuffs, pyritic
- b Rhyolite flows, no pyrite
- c Quartz-Sericite Schist, pyritic
- d Felsic Tuff

(M) Massive Sulphides- py,+/- cpy,gn,sph,po

2 METASEDIMENTARY AND ASSOCIATED METAVOLCANIC ROCKS
- a Siliceous Argillite, pyritic
- b Siltstone:
  pale grey-green siltstone with minor interbedded argillite
- c Calcareous Chlorite Schist, tuffaceous?

1 INTERMEDIATE VOLCANICS AND ASSOCIATED METAMORPHIC ROCKS
- a Andesite Flows.
- b Intermediate Tuff, lapilli tuff > crystal tuff
- c Intermediate Tuff, lapilli tuff < crystal tuff
- d Quartz-Chlorite Schist
- e Pyritic Quartz-Chlorite Schist / Chlorite-Sericite Schist
- f Chlorite Schist, undivided:
  pale olive-green, massive, chlorite schist

Symbols

- Geological Boundary: defined, inferred, assumed
- Fault: defined, inferred
- Joint: vertical, inclined
- Foliation: vertical, inclined
- synform
- antiform
- outcrop, sub-outcrop
- small outcrop
- intermittent stream
- rock sample location: bedrock, float
- diamond drill hole
- mineralized occurrence:
  py pyrite
  po pyrrhotite
  cpy chalcopyrite
  bo bornite
  gn galena
  sph sphalerite
- Q quartz vein

Report #24,368 - part 1 of 2

U. SCHMIDT GEOSCIENTIST

ATNA RESOURCES LTD.

ECSTALL PROJECT
HORSEFLY PROPERTY
GEOLOGY

NORTHWEST GEOLOGICAL CONSULTING LTD.

SCALE	NTS	DATE	FIG.
1:2000	103H/14,11	Feb. 96	12