ARIS SUMMARY SHEET

District Geologist, Smithers   Off Confidential: 89.05.24

ASSESSMENT REPORT 17680   MINING DIVISION: Omineca

PROPERTY: Dev
LOCATION: LAT 54 09 00   LONG 126 12 00
UTM 09 6003617 682861
NTS 093L01E

CAMP: 041 New Nadina - Equity Area

CLAIM(S): GO 2,Dev 1-4
OPERATOR(S): Westview Res.
AUTHOR(S): Garagan, T.
REPORT YEAR: 1988, 131 Pages
COMMODITIES
SEARCHED FOR: Gold,Silver,Copper,Zinc
GEOLOGICAL
SUMMARY: The main part of the property is underlain by Cretaceous Goosly Lake tuffs and flows of felsic to intermediate composition, similar to those hosting the Equity Silver silver-copper-gold deposit. The rocks have been altered and mineralized with pyrite, pyrrhotite, arsenopyrite, and minor amounts of silver, copper, gold and zinc.

WORK
DONE: Drilling
DIAD 652.6 m 4 hole(s);NQ
PETR 33 sample(s)
SAMP 350 sample(s) ;AU,AG,AS,CU,ZN,SB
SOIL 260 sample(s) ;ME
Map(s) - 3; Scale(s) - 1:5000

RELATED
REPORTS: 02291,02906

REPORT ON THE 1987 EXPLORATION ACTIVITIES on the DEV PROJECT, GOOSLY LAKE AREA, B.C.

Omineca Mining District

Location:
1. Goosly Lake-Burns Lake Area, B.C.
2. NTS 93 L/1E
3. Latitude: 54° 10'N
   Longitude: 126° 12'W

For:
NORMINE RESOURCES LTD. and WESTVIEW RESOURCES LTD.
1000-609 West Hastings Street
Vancouver, B.C., V6B 4W4

By:
TOM GARAGAN; B.Sc, FGAC
AURUM GEOLOGICAL CONSULTANTS INC.
604-675 West Hastings Street,
Vancouver, B.C., V6B 4W3

February 9, 1988

SUMMARY

The DEV property, consisting of 10 claims totalling 196 units, is located 45 kilometers southeast of Houston, B.C. and is accessible by road. The claims are approximately 5 kilometers east of the Equity silver-copper deposit.

Exploration in 1986 and 1987 consisted of geological mapping, soil geochemical sampling, IP surveying and diamond drilling, totalling 652.6 meters. The central part of the claims are underlain by propylitized and quartz-sericite altered Cretaceous Goosly Lake tuffs and flows similar to those hosting the adjacent Equity silver-copper deposit. The property is overlain by a thin, but extensive veneer of glacial till which is derived from the northeast. Soil sampling (till) on the west-central part of the claims has partly defined an area 2.7 kilometers long by 600 meters wide of coincident silver and copper anomalies. The source of the anomaly is interpreted to be near the north-eastside of the anomaly. The zone consists of 2 parallel northwest-trending anomalies containing values up to 9.6 ppm silver and 1873 ppm copper. In addition, two consecutive soil samples collected on the south-central part of the anomaly contain anomalous gold values of 40 and 490 ppb. Two IP anomalies (chargeability highs, resistivity lows) are associated with the geochemical anomalies. Four diamond drill holes (NQ) drilled in this area intersected moderately to strongly altered (quartz-sericite-pyrite and chlorite-calcite-pyrite) volcanic rocks with up to 15 % (average 5-7 %) disseminated and fracture controlled pyrite and pyrrhotite with minor to trace sphalerite, chalcopyrite, arsenopyrite, galena, molybdenite, and tetrahedrite. Geochemical values within the holes are low with the best results occurring in DEV 87-4. Values in this hole are slightly anomalous in silver (3.4 ppm over 1.5 m), arsenic (6236 ppm over 0.5 m) and antimony (106 ppm over 0.5 m).

Despite the low geochemical results in the diamond drill holes, the alteration and sulphide distribution in the drill holes and surface exposures suggest the presence of a major hydrothermal system similar to Equity's. The geochemical and geophysical results indicate the presence of a sulphide system with anomalous copper and silver values. Much more exploration is therefore warranted on this property and a program of diamond drilling, further geochemical sampling and geophysics is recommended for the 1988 season. A minimum program of 2500 meters is recommended at an estimated total cost of $300,000.

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INTRODUCTION

This report was prepared at the request of Rick Barclay of Normine Resources Ltd. and Westview Resources Ltd. and describes the exploration carried out on the DEV property during September, 1987. The exploration consisted of geochemical sampling, geological mapping, IP surveying and diamond drilling. The results of the IP survey are only briefly summarized in this report.

LOCATION and ACCESS

The DEV property is located immediately west of Allin creek, 10 kilometers east of Goosly Lake and 40 kilometers southeast of Houston, B.C. (Figure 1). The Equity silver-copper deposit is located 5 kilometers to the west and the claims border on Equity's ground.

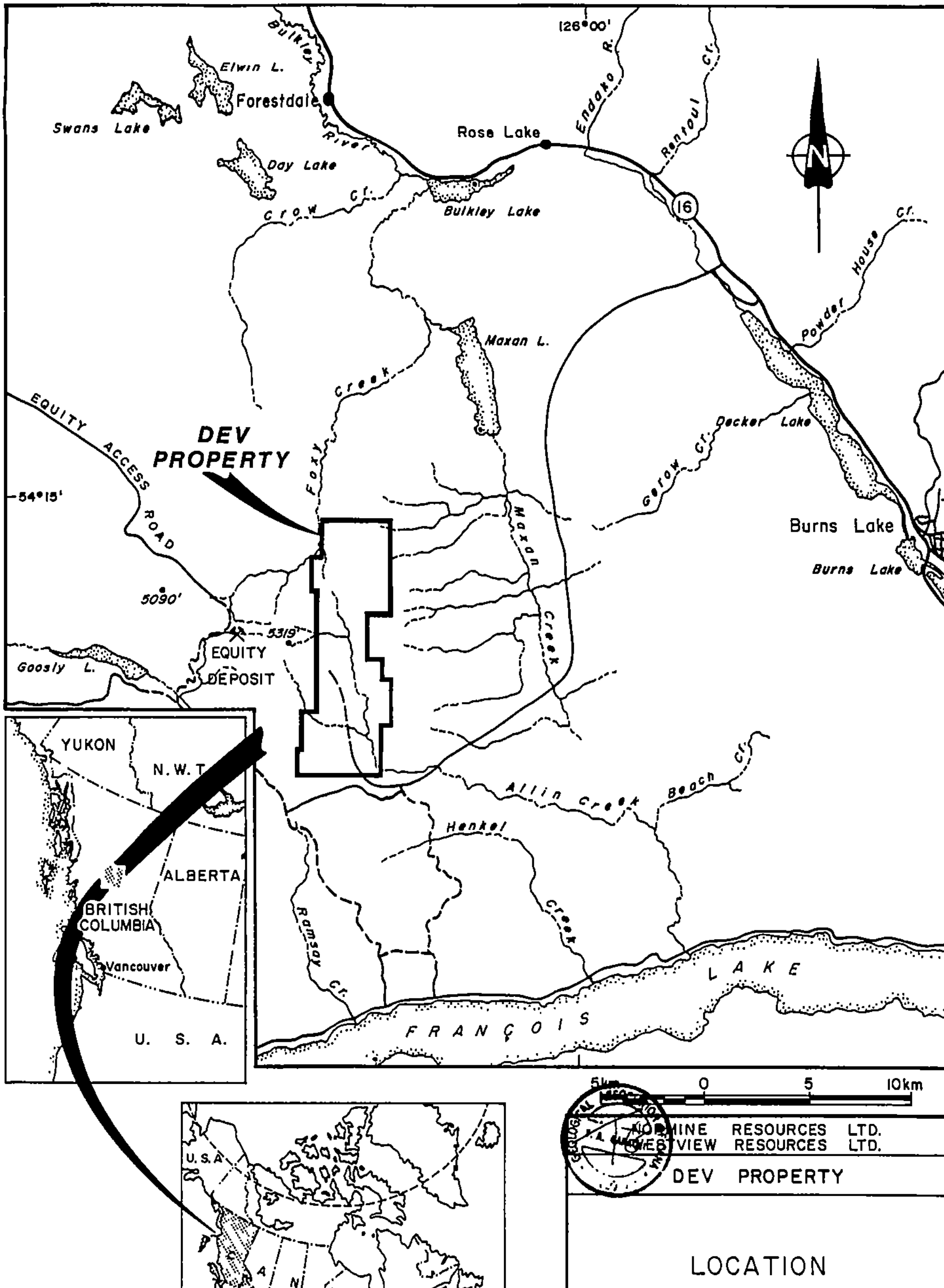
Access to the property is via a 45 kilometer long logging road from the Decker Lake Forest Products Mill, which is located 16 kilometers northwest of Burns Lake along Highway 16 (figure 1). Alternate access is via 19 kilometers of logging roads (some in poor condition) from the Equity minesite.

CLIMATE, TOPOGRAPHY and VEGETATION

The climate is typical of central British Columbia with temperatures averaging 13 C in the summer and -12 C in the winter. The area receives 51 cm of precipitation annually, most of which falls during the winter (Wetherell, 1979).

The property is located near the west side of the Nechako plateau which is characterized by low relief and small rounded hills. The claims are located immediately west of Allin creek on the east side of a 1600 meter high rounded hill. An east-west tributary of Allin creek bisects the claims and the southern end of Foxy Creek bisects the northern most claims. The creeks flow throughout much of the year. Elevations on the property vary between 1125 meters in the swampy areas of Allin and Foxy creeks to approximately 1500 meters at the western edge of the property.

The property is covered by harvestable fir, spruce and pine forests with some poplar. There is very little underbrush developed on most of the property. A 2 square kilometer area has been cut near the DEV 1 and GO 2 claim boundries.

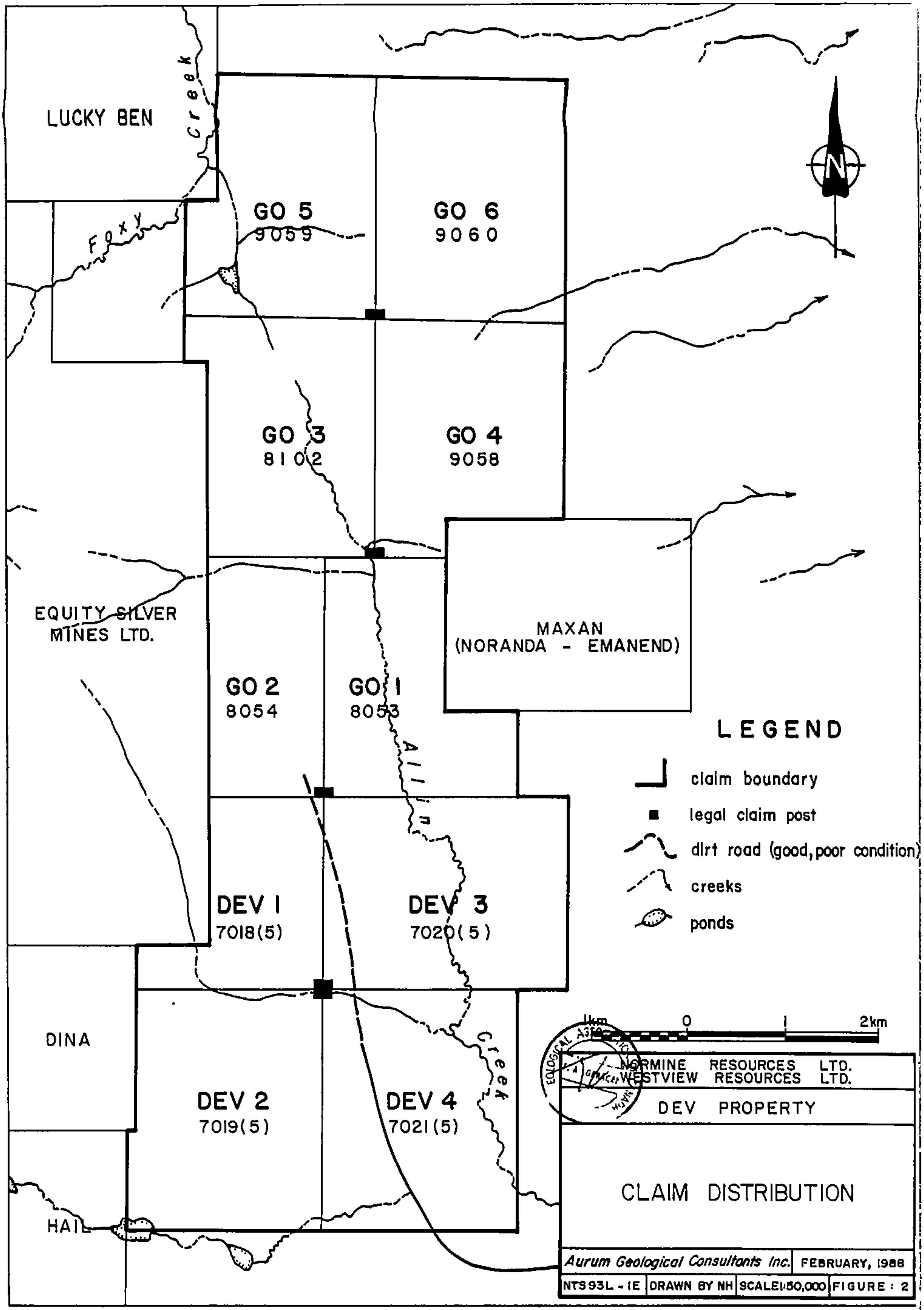


NORMINE RESOURCES LTD.
WESTVIEW RESOURCES LTD.

DEV PROPERTY

LOCATION

Aurum Geological Consultants Inc.	FEBRUARY, 1988
DRAWN BY NH / SCALE 1:250,000	FIGURE: 1



LUCKY BEN
Creek
Foxy
GO 5
9059
GO 6
9060
GO 3
8102
GO 4
9058
EQUITY SILVER
MINES LTD.
MAXAN
(NORANDA - EMANEND)
GO 2
8054
GO 1
8053
Allin
Creek
DEV 1
7018(5)
DEV 3
7020(5)
DINA
DEV 2
7019(5)
DEV 4
7021(5)
HAIL
LEGEND
claim boundary
legal claim post
dirt road (good, poor condition)
creeks
ponds
1km 0 1 2km
NORMINE RESOURCES LTD.
WESTVIEW RESOURCES LTD.
DEV PROPERTY
CLAIM DISTRIBUTION
Aurum Geological Consultants Inc.
FEBRUARY, 1988
NTS 93L - 1E
DRAWN BY NH
SCALE 1:50,000
FIGURE: 2

CLAIM STATUS

The DEV property consists of 10 contiguous unsurveyed mineral claims totalling 196 units. The claims are staked on the eastern boundary of the Equity Silver Ltd. property with some overstaking. The property is located in 93 L/1E of the Omineca Mining Division. The claim data are summarized below and the claim distribution is given in Figure 2.

Claim Name	# of Units	Record #	Expiry Date
DEV 1	16	7018(5)	May 21, 1990
DEV 2	20	7019(5)	May 21, 1990
DEV 3	20	7020(5)	May 21, 1990
DEV 4	20	7021(5)	May 21, 1990
GO 1	20	8053(11)	November 3, 1988
GO 2	20	8054(11)	November 3, 1990
GO 3	20	8102(12)	December 8, 1989
GO 4	20	9058(10)	October 21, 1988
GO 5	20	9059(10)	October 21, 1988
GO 6	20	9060(10)	October 21, 1988

The claims are held under option by Normine Resources Ltd. of Vancouver from Kengold Mines Ltd. of Smithers, B.C. Normine may earn a 100 % interest in the property by paying $ 10,000 cash (at the time of signing) and 100,000 shares in 25,000 share increments (or equivalent cash) to Kengold. The last share payment is made at the commencement of production. Kengold retains a 2.5% net smelter return on all commercial production. Westview Resources Ltd. of Vancouver has earned 49 % of Normine's interest by spending $ 150,000 on the property prior to the end of 1987. Normine remains the operator.

HISTORY

The DEV claims were first staked in 1968 by Silver Standard Mines and Dorita Silver Mines (joint venture) following the discovery of the Equity silver-copper deposit by Kennco Exploration Ltd. in 1967 (Kahlert, 1987). The Equity deposit was found using soil geochemical sampling and prospecting to follow-up regional copper, zinc, and fluorine stream sediment anomalies (Wetherell, 1979) and 0.08 % antimony (Church, 1985). Production on the Equity deposit commenced in April 1980 with combined reserves of 27.4 million tonnes grading 105.6 g/t silver, 0.95 g/t gold and 0.38 % copper.

Exploration by Silver Standard and Dorita consisted of line cutting, soil geochemical sampling and geophysical surveys. The soil samples were analysed for silver, copper, lead and zinc and several low-order copper and silver geochemical anomalies were defined. Frequency domain IP and resistivity surveys were carried out and several metal factor IP anomalies were interpreted. Several short diamond drill holes were completed, but the results were not publicized (Kahlert, 1985).

In 1964, the DEV claims were staked by Summit Oil Ltd. over the southern half of the existing property. Delbrook Mines Ltd. farmed into the property in 1970. Soil geochemical sampling and magnetic surveys were carried out by both companies. Although low order silver and copper anomalies were found, no further exploration was carried out and the ground was allowed to lapse.

The existing DEV 1 to 4 and GO 1 to 3 claims were staked by Kengold Mines Ltd. in 1986 and subsequently optioned to Normine Resources Ltd.. Westview Resources Ltd. earned a 49% interest in the property by spending $ 150,000 on exploration in 1986 and 1987. Exploration in 1986 consisted of grid establishment, limited soil geochemical sampling and IP and magnetic surveys. Coincident copper-silver soil geochemical and IP anomalies were defined and followed up during the 1987 season (this report). The GO 4-6 claims were also staked during the 1987 season.

REGIONAL GEOLOGY

The DEV property is situated in the Goosly Lake area of the Intermontane Tectonic Belt, 120 kilometers southeast of the Skeena Arch. The area is underlain by Lower Jurassic to Cretaceous volcanics and sediments which are unconformably overlain by Eocene to Miocene plateau basalts and andesite flows. Upper Jurassic to Miocene intrusions are present throughout the region. The regional geology has been described by Cyr et al (1984), Carter (1981) and Church (1984).

The Equity silver-copper deposits and the DEV property occur in a window of Cretaceous volcanic and sedimentary rocks within Tertiary plateau basalt and andesite flows. The Cretaceous rocks (termed Goosly Sequence) have been correlated to the Kasalka Group by Cyr et al (1984) and to the Skeena Group by Church (1984). The Goosly sequence is comprised of four distinct north-east-striking westward-dipping volcanic and sedimentary units. The lowermost unit consists of polymictic conglomerates, sandstones, siltstones and cherty argillites. These are overlain by the pyroclastic unit which consists of lapilli and ash tuffs (very fine grained version called dust tuff). The Pyroclastic unit is overlain by the Sedimentary-Volcanic division which is comprised of volcanic conglomerates, sandstones, tuffs and chert pebble conglomerates. The uppermost unit in the Goosly sequence consists of andesite and dacite flows. The Goosly sequence is altered to varying degrees throughout and hosts the Equity silver -copper deposit.

The Goosly sequence is intruded by an Eocene multiphase gabbro-monzonite plug which is located half way between the Equity deposit and the DEV property. The intrusion is characterized by coarse, bladed, plagioclase feldspar phenocrysts. Tertiary quartz latite, fine grained andesite and trachyandesite dykes related to the overlying volcanics cut the Goosly sequence and mineralization.

Eocene trachyandesite and andesite flows of the Goosly Lake Volcanics unconformably overlie the Goosly sequence. The gabbro-monzonite plug is thought to represent a feeder to these flows. Flat lying amygdaloidal and massive basalt and andesite flows of the Eocene to Oligocene Buck Creek Volcanics unconformably overlie the Goosly Lake Volcanics and form caps to hills throughout the area.

The Equity deposit occurs mainly within the Pyroclastic unit of the Goosly sequence. It is comprised of at least 3 mineralized zones over 3 kilometers of strike length. The three zones consist of the South Tail (900m by up to 70m), Main (700m by up to 90m) and the Waterline (200m by up to 12m) zones. At present, the open pittable part of the South Tail zone has been mined out and the Main zone is being mined by open pit methods. The Waterline zone is considered subeconomic. Combined original reserves in the South Tail and Main zones were 27.4 million tonnes grading 105.6 grams per tonne silver, 0.95 grams per tonne gold, 0.38 % copper and 0.08 % antimony (Church, 1985).

The mineralization occurs as disseminations and in shear, breccia and crackle zones which grade locally into lenses of massive sulphides and sulphosalts. The prominent sulphide and sulphosalts are chalcopyrite, tetrahedrite, pyrite, arsenopyrite, sphalerite and galena. Large areas of quartz-sericite, alumino-silicate, boro-silicate and phosphate alteration assemblages are associated with the mineralization. Most authors agree (Cyr et al, 1984; Church, 1985 and Wetherell, 1979) that the mineralization is hydrothermal in origin and is related to the gabbro-monzonite stock. A few also suggest a possible volcanogenic origin (Kahlert, 1987 and Ney et al, 1972).

PROPERTY GEOLOGY

Very little outcrop occurs on the property. The only exposures are along Allin creek and along roadcuts at the south end of the claims. Some outcrop is exposed in two trenches completed by Equity Silver (approx. 24N/12W; Figure 3) and in a small sump dug for the diamond drill program (approx. 22N/4+50W; Figure 3). The rest of the property is covered with forest and a thin, but extensive, veneer of glacial till. The maximum thickness of the till appears to be 10 meters (DEV 87-3), but averages

1-5 meters throughout the property. According to Ney et al (1972), the till is derived from the northeast. The drilling of four diamond drill holes (NQ totalling 652.6 meters) has significantly improved the geological understanding of the property. The outcrop locations are given in Figure 3 and the drill sections are shown in Figures 5 to 8. The diamond drill logs are in Appendix A and thin section descriptions from drill core and surface showings are in Appendix C. The drill logs are summarized in Table 1.

Outcrop in the east-west tributary of Allin creek and within the trenches and sump consist of altered andesite and dacite tuffs and flows of the Cretaceous Goosly sequence (Equity Mine sequence). Outcrops in the creek are cut by northwest trending, steeply eastward dipping, andesite and dacite dykes.

All four drill holes intersected Cretaceous interlayered andesite, dacite and latite flows, tuffs and lapilli tuffs similar to those found in surface exposures. The units are cut by narrow unaltered dacite and andesite dykes similar to those found in Allin creek. Feldspar megacrystic-monzonite dykes are found in DEV 87-1 & 2 and at the bottom of 87-4. These dykes are probably related to the Tertiary Gabbro-Monzonite plug found immediately east of the Equity silver-copper deposit. The dykes found in 87-1 & 2 are probably part of the same dyke indicating a northwest strike to the dykes. Shallow core axis intersections indicate a near vertical dip to the volcanics and dykes. Further drilling from the opposite direction would confirm this.

Outcrops on the southern part of the property consist of flat-lying, moderately-dipping, amygdaloidal basalts and basaltic andesite flows and breccias. There are some interlayered trachy-andesite flows. These units are probably equivalent to the Eocene Goosly Lake Volcanics.

ALTERATION AND MINERALIZATION

The Cretaceous volcanics exposed in Allin creek, the trenches, and intersected in the diamond drill holes are moderately to strongly altered throughout. The alteration occurs over an area of at least 500 meters by 850 meters with the east, north and south margins undefined. The alteration decreases near the bottom of DEV 87-1, 2 and 4; possibly marking the western margin of the zone. Mineralization within the altered zone consists of disseminated fracture-controlled and replacement sulphides occurring in up to 15 % (average 5-7 %) of the rocks. Detailed descriptions of the alteration minerals and mineralization is given in the drill logs and in the thin section descriptions and is only summarized here.

The prominent alteration types are calcite-chlorite-pyrite (propylitic) and quartz-sericite-pyrite alteration. These two alteration types often occur together. Epidote is often present in areas of strong propylitic alteration. Secondary potassium feldspar, tourmaline, sphene and an unidentified bright green clay are also common alteration minerals. The alteration occurs as patches, as clots and along microfractures. Pervasive alteration occurs locally. The patchy alteration is the most common, possibly reflecting the textural variation in the rocks. Feldspar phenocrysts and clasts are usually preferentially altered (mainly sericite and calcite) relative to the matrix. Propylitic alteration is more common in the andesites and gives the rocks a medium green colour. Zones of quartz-sericite alteration are usually tan to grey in colour. The sericitized and quartz flooded zones usually contain a higher percentage of sulphides.

Mineralization consists of disseminations, clots, fractures and veins of sulphides consisting of predominantly pyrite and pyrrhotite. Sphalerite, chalcopyrite and arsenopyrite also occur in trace to 1 - 2 % of the rocks. Arsenopyrite and sphalerite is more common in DEV 87-3 & 4. Trace tetrahedrite may be present in DEV 87-3 & 4. Traces of molybdenite and galena were found associated with sphalerite in the upper parts of DEV 87-1 & 2. The sulphide content averages 5-7 % throughout the alteration zone, but locally occurs in up to 15 % of the rock.

Several different types of veins were found throughout the volcanic package. Veins and vein breccias are up to 40 cm wide, but are usually less than 2 cm wide. The vein material consists of predominantly clear quartz and calcite with trace to 5 % amethyst, fluorite, barite, dolomite, pyrite, chlorite, clay, arsenopyrite, galena and sphalerite. No consistency was seen in veins from hole to hole.

Several rounded boulders of strongly silicified, vuggy pyritized volcanics (see DEV L-10: Thin section report) were found in the east-west tributary of Allin creek (sample # 5752-53). The boulders can be found all the way up the creek to Equity's ground and are likely related to a source near the eastern margin of Equity's property.

EXPLORATION

Introduction

Exploration during the 1987 season consisted of surveying the western claim boundary, staking additional claims, soil sampling, rock sampling, IP surveying, road building and the diamond drilling of four NQ holes totalling 652.6 meters. The IP survey consisted of some detailed followup of the 1986 program (Kahlert, 1987; Mark, 1987) and will only be summarized here. A detailed geophysical report is being prepared by Geotronics Surveys Ltd. The soil samples were taken at two locations along the grid.

The grid consists of at least a 5.7 kilometer long north-south trending baseline which is partly flagged and partly cut. Winglines are located every 200 meters between 0+00N to 28+00N, every 200 to 500 meters between 35N and 44N and every 200 meters from 100N to 106N (actually 13S to 7S) and between 700 and 1200 meters long. Most of the winglines are flagged every 50 meters, but some of the lines in the area of drilling were cut.

Claim boundaries, sample locations, silver, copper, gold and arsenic results, axes of IP anomalies and drill hole locations are shown in Figures 3a, 3b and 4. Analytical results are in Appendix B and the drill logs and cross sections are in Appendix A and Figures 5 to 8 respectively.

Surveying

An open transit survey was performed on August 27, 1987 by Eric Shade to determine the western boundary of the GO-2 and the southern GO-3 claims. To determine this, Equity's easternmost two-post claims were located and plotted relative to the GO-2 Legal Corner Post. This surveyed claim boundary is given in Figures 3 & 4 and the survey data are filed in Normine's office.

In addition to the surveying, 3 additional GO claims (GO 4-6) were staked at the north end of the claim group to cover an area believed to be underlain by additional Cretaceous volcanics (Figure 2).

Geochemistry

Soil samples were collected with the aid of a mattock at 50 meter spacings on winglines in two locations on the grid. The samples were collected at 20 to 40cm depth from the B horizon and consisted of predominantly glacial till. All soil samples were collected in gussated paper soil bags. Samples collected in these areas during the 1986 field season are also plotted to give coverage between lines 2N and 28N and between 32N and 44N. The samples collected during the 1987 season were analysed for Gold + 30 element ICP by Chemex Labs Ltd. and Min-En Labs, both of Vancouver, B.C. Samples collected during the 1986 season were analysed for Gold + 6 element ICP by Min-En Labs. Seven rock grab samples from the Equity trenches, drill sump and boulders and outcrop from Allin creek were collected.

Soil sampling in the area south of the east-west tributary of Allin creek has outlined an area containing 2 parallel coincident silver and copper anomalies. The anomalies cover an area at least 2.7 kilometers long and up to 60 meters wide. This zone trends in a northwest direction. The anomaly is open to the north, south and west and appears to be cut off to the east. The north and western extensions of the anomaly are on Equity's ground. Values within this zone are highly variable, but are up to 9.6 ppm silver (20+00N/7+00W) and 1873 ppm copper (4+00N/ 6+50W). Other soil values within this zone are up to 182 ppm zinc (2N/0+50W), 80 ppm lead (20N/7W) and 74 ppm arsenic (12N/10+50W). Two consecutive samples on line 10N (6+50W,7+00W) contain 490 ppb and 40 ppb gold. The shape and northwest trend of this anomaly is consistent with a soil anomaly coming from a northwest striking body enriched in copper and silver which has been glaciated from a northeast direction. This pattern was also found at Equity where the source direction was interpreted to be from the northeast (Ney et al, 1972). The Equity silver-copper deposit was found along the northeast edge of a silver soil geochemical anomaly.

Several small coincident copper and silver anomalies occur northeast of the main anomaly with values up to 2.8 ppm silver and 61 ppm copper. The cause of these anomalies is not known.

Two grab samples of intensely silicified, vuggy and pyritized volcanic boulders found in the east-west tributary of Allin creek contain up to 1150 ppb gold, 5.8 ppm silver, 185 ppm arsenic, 474 ppm lead and 239 ppm copper. The source of these boulders is not known, but can be found in the creek right up to Equity's claim boundary and may be related to the northwest extension of the source of the silver and copper soil anomaly. Rock samples from the altered dacite and dacite tuffs in Allin creek, the trenches and the sump are only slightly enriched in arsenic (40 ppm), copper (62 ppm), silver (0.8 ppm), molybdenum (15 ppm), lead (42 ppm) and zinc (65 ppm). These values probably reflect enrichment related to the large alteration zone.

IP Surveying

A short IP survey was carried out by Patrick Cruikshank of Geotronics Surveys Ltd. of Vancouver as a follow-up to the 1986 survey (Mark, 1987). Dipole-Dipole (30m array) surveys at n=5 were preformed on lines 14N, 18N and 20N to further define IP anomalies A + B (Mark, 1987; Kahlert, 1987). A fourth line with a 50m array and n=3 was done in the area (line 102N) of the mercury anomaly (see Kahlert, 1987). This line was too far east to properly cover the anomaly.

IP anomaly A is well defined on lines 18N and 20N and IP Anomaly B is partly defined on line 18N. Chargeability in Anomly A reaches a value of 95 ms at n=3 in line 20N. This chargeability high is related to a resistivity high and may represent a dyke. Chargeability highs in this same zone related to resistivity lows are up to 68 ms at n=2. Values in anomaly B reach a high of 26 ms at n=5 in line 18N. The chargeability in anomaly B increases with depth, whereas chargeability IN Anomaly A decreases with depth. Diamond drilling in the area of the anomalies do not indicate a well defined zone of sulphides, but rather a large area of disseminated and fracture controlled sulphides.

Diamond Drilling

A total of 4 diamond drill holes (NQ core) totalling 652.6 meters were drilled on the DEV project between September 18 and 24, 1987. Diamond drill holes DEV 87-1, 2 and 4 were drilled to test IP Anomaly A and DEV 87-3 was drilled to test IP Anomaly B. Hole 87-4 was also drilled under the outcrop of altered and pyritized dacite exposed in the sump. A summary of the holes is given in Table 1. All altered rocks within the core were split at between 0.17 and 3.0 meter intervals (average 1.5 meters) and sent to Chemex Labs or Min-En Labs, both of Vancouver for Gold + 32 element ICP analyses. The results are given in Appendix A and the drill logs and gold, silver, arsenic and copper results are given in Appendix B. The drill sections are in Figures 5 to 8.

Table 1: Drill Hole Summary

Hole #	Location	Total Depth	Summary
DEV 87-1	20+00N 9+30W	219.8 m	0 to 165.8m sericitized ash and lapilli tuffs with some interlayered flows. Contains 5 to 15 % sulphides (pyrite & pyrrhotite w/ molybdenite,galena and sphalerite). 165.8 to 218.8: andesite-dacite flows less altered than above cut by monzonite dykes from 203.8 to 219.8
DEV 87-2	17+50N 9+45W	176.8m	0 to 123.95: interlayered sericitized ash and lapilli tuffs w/ some flows with 5 to 15 % sulphides (pyrite-pyrrhotite w/ trace sphlaerite and arsenopyrite). Alteration is more chloritic lower in the hole 123.95 to 176.8m : andesite dacite flows and dykes w/ some tuffs less altered & mineralized than tuff.
DEV 87-3	18+00N 5+70W	141.7m	0 to 119m: interlayered sericitized (locally very strongly) ash & lapilli tuffs w/some flows & dykes. Contains 5-15 % sulphides (pyrite-pyrrhotite with trace to several %

			several % sphalerite, arsenopyrite & possibly tetrahedrite). Locally strongly altered. 119 to 141.7m : monzonite dyke c/a approx. 15
DEV 87-4	22+00N 9+20W	114.3	0 to 70m: sericitized & chloritized ash & lapilli tuffs w/ some flows & 5-15 % sulphides (pyrite-pyrrhotite w/ trace to several % arsenopyrite, sphalerite & possibly tetrahedrite) contains zones of strong silicification, more chloritized down the hole. 70 to 114.3m: ash, welded & some lapilli tuffs partly chloritized & sericitized to unaltered w/ 2-7 % sulphides (pyrite-sphalerite-pyrrhotite-arsenopyrite).

All four drill holes intersected altered tuffs and flows of the Cretaceous Goosly sequence (see Geology, and Alteration and Mineralization discussion). Mineralization within the holes consists of disseminations, clots and fractures of pyrite and pyrrhotite with trace to several percent sphalerite and arsenopyrite and trace chalcopyrite, molybdenite, galena and possible tetrahedrite. The alteration and sulphide content appears to decrease sharply near the bottom of DEV 87-1, 2 and 4; possibly marking the western margin of the alteration zone. The sphalerite and arsenopyrite content and percentage of quartz-sericite alteration is higher in holes 3 and 4; possibly indicating a closer proximity to mineralization.

Geochemical values within the diamond drill holes are low with the best results occurring in DEV 87-4. Values in this hole are anomalous in silver (up to 3.4 ppm over 1.5 m) and antimony (up to 106 ppm/6.5 m). Silver values are enriched between 68.2 and 110.3 meters with values ranging between 0.8 and 3.4 ppm (2.1 ppm over 37.1 meters). This zone also contains several anomalous arsenic values up to 6236 ppm over 0.5 meters and zinc values up to 156 ppm over 1.5 meters. A zone of quartz-calcite veining between 163.8 and 165.8 in DEV 87-1 contains 161 ppb gold and 647 ppm arsenic over 2.0 meters. This is the best gold value in core on the property.

CONCLUSIONS AND RECOMMENDATIONS

The DEV property is underlain by pyritized and quartz-sericite altered Cretaceous Goosly Lake tuffs and flows which are covered by a thin (0 to 15 meters; average 5 meters) veneer of glacial till. The rocks are similar to those hosting the Equity silver-copper deposit. The major difference is that the volcanics on the DEV property are more propylitized and contain more flows than the mine sequence.

Soil sampling in 1986 and 1987 has outlined an area of coincident copper-silver anomalies trending in a northwest direction. The zone consists of 2 parallel anomalies containing values up to 9.6 ppm silver and 1873 ppm copper. Two IP anomalies are located near the eastern side of the soil geochemical anomalies and have been interpreted to represent defined zones of sulphide mineralization. Diamond drilling in this area intersected moderately to strongly altered volcanics with up to 15 % disseminated and fracture controlled sulphides dispersed throughout the hole. DEV 87-3 and 87-4 appear to have a higher percentage of arsenopyrite and sphalerite mineralization and quartz-sericite alteration, possibly an indication of a closer proximity to mineralization.

The glacial till on the property has been derived from the northeast, therefore the source of the soil geochemical anomalies should be near the northeastern margin of the soil anomaly as in the case of Equity. The shape of the soil anomaly suggests that the source is a northwest trending linear body. IP anomaly B is located near and at the eastern margin of the soil anomaly and may be related to the source of the soil geochemical anomaly. In addition, the source of the sulphide enriched, strongly silicified volcanic boulders in Allin creek (with up to 5.8 ppm silver and 1150 ppb gold) may be in the area of the northwest extension of the soil geochemical anomalies and proposed source rock. Diamond drill hole DEV 87-4, the only hole drilled along the eastern margin of the anomaly intersected a very large monzonite dyke in the bottom third of the hole, negating a possible interpretation of the anomalies. The potential for locating an Equity style zone of mineralization near the eastern margin of the soil geochemical anomaly along IP anomaly B appears to be good.

The IP line run in the area of the mercury anomaly was located east of the soil geochemical anomaly and did not properly assess the anomaly. More work is required on this anomaly.

The results of the 1986 and 1987 exploration programs indicate that there is good potential for locating an Equity style deposit on the DEV property. A follow-up program of diamond drilling, grid soil geochemical sampling, geological mapping and prospecting, and IP surveying is recommended for the 1988 season.

The following program and budget is recommended.

1. Soil geochemical sampling at 50 by 25 meter spacings to fill in the grid between lines 14N and 22N from 5W to 10W to define the eastern side of the soil geochemical anomaly and to define

zones of strongest enrichment. Similar sampling should also be done in the area of the gold anomaly (10W) between 8N and 12N from 5W to 10W. Some glacial till profile samples should be taken with the aid of a plugger on the eastern margin of the soil anomaly to help locate the source of the anomaly.

2. Further reconnaissance soil sampling on the northern part of the property.

3. Prospecting the northern half of the property.

4. Further detailed mapping along Allin creek.

5. Further IP surveys in areas of soil geochemical anomalies defined by soil sampling in the northern half of the property. Further IP surveys to help define Anomaly B.

6. Diamond drilling a total of 2500 meters along the eastern side of the soil geochemical anomaly defined in the central of the property. The initial holes should be drilled from west to east to determine the dip of the units. The existing road may need upgrading and should be extended to Allin creek in order to have a constant water supply for the drill.

The budget for this program would be approximately as follows.

Geological & Supervision	$ 15,000
Geochemical Analyses and Sampling	20,000
IP Survey	15,000
Bulldozer	5,000
Diamond Drilling 2500m @ $80/m	200,000
Rentals	2,500
Camp	5,000
Supplies: field and camp	2,500
Travel and freight	5,000
Report Preparation	5,000
Subtotal	275,000
plus approx. 10 % contingency	25,000
TOTAL ESTIMATED BUDGET	$ 300,000

Respectively Submitted
Aurum Geological Consultants Inc

Tom Garagan, B.Sc., FGAC

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APPENDIX A

DRILL LOGS

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No. Dev 87-1

Property	Dev	NTS 93L-1E	Claim Go2	Elevation	Azimuth 270°	Length	Dip -55°
Coordinates	20N / 9+30W	Dip Tests —		Advance	Depth 211.8m	Date Collared Sept 18/87	Date Completed Sept 22 AM
Purposes	testing station IP response			Drilled by Tonto		Assays by Chemex Min En	Logged by T.G.

Interval (m) From	Interval (m) To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width (m)	Ag (ppm)	Au (ppb)	As (ppm)	Cu (ppm)	Zn (ppm)
0	9.5			Casing: Bedrock at 7.9m									
9.5	27.8	100		Dacite to Andesite. xtl-lithic tuff, lapilli tuff with some	7-93001	9.5	11.0	1.5m					
				interlayered flows: med. grey grn to buff. v.f.g. with f.g.									
				calcic feldspar phenocrysts (15-20%) and 5 to 15% med. to	5551	11.0	12.5	1.5	0.2	<5	50	22	44
				coarse grained mafic clots consisting of chlorite, calcite									
				and feldspar.	5552	12.5	14.0	1.5	0.2	<5	50	28	53
				This unit contains locally up to 10-25%									
				clasts of 1. sericitized dacite + fine grained	5553	14.0	17.0	3.0	0.2	<5	70	21	42
				2. dacite-andesite in host - may represent									
				fragments of an auto brecciated flow.	5554	17.0	18.5	1.5	0.2	<5	35	21	36
				This unit contains 5 to 15% sulphides and									
				is chlorite and sericite altered to varying degrees throughout.	5555	18.5	20.0	1.5	0.2	<5	35	28	49
				The sulphides consist of py + po with trace of Mo, Gn,									
				sp and possibly Cp. The sulphides occur as clots	5556	20.0	21.5	1.5	0.2	<5	50	29	45
				disseminations and along chlorite altered fractures. Pyrite									
				also occurs as disseminated cubes up to 4mm	5557	21.5	23.0	1.5	0.2	<5	55	22	47
				in diameter. The clots + fractures usually contain a chlorite-calcite									
				and quartz sericite alteration rim.	5558	23.0	24.5	1.5	0.2	<5	230	22	48
				The following is a summary of alteration + sulphide									
				content:	5559	24.5	26.0	1.5	0.2	<5	90	24	44
				9.5-10.9 - 8 to 10% py+po with tr. mo. (upper 10cm only), weakly									
				to moderately sericitized with minor carbonate alt'n of	5560	26.0	27.5	1.5	0.2	<5	165	34	34
				feldspars: apple green clay alt'n of mafic clots + feldspars									
				10.9-11.0: 5-7% diss. po ≥ py - pervasive choc. brn	5561	27.5	29.0	1.5	0.2	<5	140	19	52
				alt'n of matrix - ?? tourmaline.									
				11.0-11.5 5% pyrite+po clots with tr. gn. 15% blotchy	5562	29.0	29.8	0.8	0.2	15	95	20	73
				sericitization of matrix									
				11.5-11.9. as in 10.9-11.0									
				11.9-12.6: 10% py+po clots w. tr. gn.: 25% sericitization									
				13.15-16.8: 5 to 15% py≈po clots, clots aligned along fractures									
				at 13.8, 13.85+ 15.1. 15.05, 15.15 - 15% sulphides									
				contains 10 to 25% sericitization throughout and with chlorite									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width (m)	Ag	Au	As	Cu	Zn
9.5	29.8 cont'd			associated with the sulphide:									
				5-10% quartz flooding at 14.6									
				16.8-17.0. choc brn as in 10.9-11.0									
				17.0-29.8 : 10 to 15% sericitization, 5 to 7% sulphides									
				17.65-18.05 5% po-py-chlorite fractures. C/A 80°, 40°, 10°									
				18.05-18.15 : 2 - 0.5 to 1cm wide qtz-cc-py-mo-po veins within									
				a strongly sericitized and silicified breccia C/A 35 to 40°									
				19.7-20.35: 5% po-py-chlorite fractures + stockwork and 10-15%									
				disseminated po+py (po>py)									
				22.05: po-chlorite-calcite microfrac with 2mm wide sericite-calcite									
				alteration rim C/A=30°									
				23.7: 1cm wide quartz-calcite-py-mo shear + vein C/A=30°									
				23.9. clay-calcite frac. C/A=30°									
				26.4-27.1: 15% po+py clots + frac. C/A 40° with 10% quartz									
				flooding and 10% chlorite									
				27.6-27.7: py-Mn-clay-calcite shear and fracture zone C/A: 30°									
				29.5 : po-chlorite-calcite fracture C/A 15°									
				29.05-29.35: po-chlorite-calcite-quartz stockwork to breccia									
				zone with 15% po (tr. pyrite)									
29.8	35.45	100%		Andesite dyke, dk. green: moderately magnetic with a 1m	5563	35.45	37.0	1.55	0.2	<5	135	45	55
				and 50cm wide dacite (lighter green) upper and lower margin									
				The unit contains 1-2% fg-mg feldspar phenocrysts in a	5564	37.0	38.5	1.5	0.2	<5	85	46	47
				vfg feldspar-mafic mosaic textured matrix; 5 to 7%									
				calcite alteration with 1% calcite fractures									
				Upper 10cm contains 5 to 15% fine to medium grained									
				calcite amygdules which increase in size and abundance									
				towards the contact. lower margin is flow banded parallel									
				to the contact C/A: 30°									
				Upper contact (minor clay gouge) C/A: 40°									
				30.25-30.35: calcite vein and stockwork zone: 15% veining									
35.45	57.7	100		Dacite to andesite tuffs and flows as in 9.5-29.8									
				consists of 25 to 65% vfg dacitic matrix with locally									
				up to 15% fine grained feldspar phenocrysts. Unit appears to									
				have a vague banding in places. Fragments are as									
				before. - ash to lapilli size									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
35.45	57.7			The sulphide and alteration contents are as before: 9.5-29.8									
	cont'd			The alteration is variable in intensity and consist.	5565	38.5	40.0	1.5	0.2	<5	85	46	47
				of sericitization, quartz flooding, 2-7% calcite alteration									
				and ... apple green clay. A chocolate brown alteration of the	5566	40.0	41.5	1.5	0.2	<5	140	52	49
				matrix may represent tourmalinization.									
				The following are zones of veining and more noteworthy	5567	41.5	43.0	1.5	0.2	<5	115	57	41
				alteration:									
				36.85: pyrite-calcite-chlorite vein with tr. po. 3-5mm wide	5568	43.0	44.5	1.5	0.2	<5	75	50	36
				and parallel to a vague banding in the ash. C/A: 50°									
				36.95: 3x8cm chlorite-calcite-pyrite clot with 5% sphalerite	5569	44.5	46.0	1.5	0.2	<5	85	38	27
				36.2-38.4: 15% diss py>po>gn>sp and 15% sericitization									
				38.2: py-gn-chlorite-calcite 1mm to 1cm wide fracture C/A: 25°	5570	46.0	47.5	1.5	0.2	<5	65	37	25
				38.3: py-chlorite fracture with sericitized rim C/A: 45°.									
				39.8-40.4: 10-15% py, trace po	5571	47.5	49.0	1.5	0.2	<5	85	34	30
				40.2: 1cm wide pinkish calcite (some Mn content)-amethyst-py vein									
				41.2: vague banding in matrix C/A: 40°	5572	49.0	50.5	1.5	0.2	<5	145	38	25
				42.45: 0.5-1cm wide py-calcite-amethyst vein C/A 45°									
				44.45: py-chlorite-calcite frac with calcite-sericite alt'n rim C/A: 35°	5573	50.5	52.0	1.5	0.2	<5	315	33	19
				45.8: calcite-amethyst frac C/A: 50°									
				45.35: py-chlorite frac C/A: 30°	5574	52.0	53.5	1.5	0.2	<5	190	34	23
				45.9-48.3: 10-15% sericitization and minor choc. brn									
				alt'n. contains 10% oval (1x2cm) py-po-chlorite	5575	53.5	55.0	1.5	0.2	<5	220	39	25
				clots, and disseminated sulphides.									
				48.3-49.7: 25% choc. brn alt'n with sulphide clots as	5576	55.0	56.5	1.5	0.2	<5	240	29	19
				49.4: trace molybdenite in clot.									
				51.2: 3mm wide py-quartz-calcite vein with pyrite-chlorite	5577	56.5	57.7	1.2	0.2	<5	275	42	25
				- grading out to sericite alteration rim. C/A: 20°									
				52-57.7: 10-15% sericitization, 1-5% apple green clay and 5 to 15%									
				sulphides: py > po w. 1-2% quartz-calcite frac C/A: 10-15°									
				51.8-52.1: 5% quartz flooding									
57.7	65.4	100		Dacite ash tuff. lt. brn grn to choc. brn. with 5-10%	5578	57.7	59.2	1.5	0.2	<5	60	28	35
				vfg to fg feldspar xtls and 5 to 15% ash to lapilli size	5579	59.2	60.7	1.5	0.2	<5	95	30	45
				mafic 'clasts'. contains a vague banding at 61.5m C/A: 35°	5580	60.7	61.2	1.5	0.2	<5	125	37	56
				Unit contains 2 zones of pervasive choc-brn alt'n	5581	61.2	63.7	1.5	0.2	<5	35	41	70
				at 56.0 to 51.5 and 61.5-6[illegible].0. Unit contains 2-5% diss. py	5582	63.7	65.4	1.7	0.2	<5	40	43	54

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No 87-1

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	
65.4	66.2	100		Quartz-calcite stockwork and breccia zone										
				-consists of a strongly sericitized, pyritized and apple	5583	65.4	66.2	0.8	0.2	<5	100	11	54	+10 ppm Sb
				green clay altered dacite which is cut by a quartz vein										
				and stockwork zone which has locally brecciated the										
				volcanics. The veining is predominantly quartz w. 10-15% calcite										
				(some dolomite) and trace to 5% py and chlorite. - contains										
				a vfg black metallic - possibly ilmenite. The wall rock is										
				strongly sericitized with 15% diss pyrite and quartz										
				flooding. veining C/A average 15°.										
66.2	86.0	95		Dacite ash and crystal lithic lapilli tuffs as in 57.7-65.4	5584	66.2	67.7	1.5	0.2	<5	140	23	33	+10 ppm Sb
				Alteration and sulphide content aa and as follows:										
					5585	67.7	69.2	1.5	0.2	<5	100	18	37	
				66.2-70.0: 5-7% diss. and patches of py, tr gn 15 to 30%										
				sericite + 1% green clay alt'n with 2-5% qtz flooding	5586	69.2	70.7	1.5	0.2	<5	65	20	44	
				66.85, 66.9: 1cm wide quartz-dolomite veins C/A: 35°	5587	70.7	72.2	1.5	0.2	5	105	28	38	
				68.9 aa C/A 40°										
				69.7: 0.5cm py-tr mo-sp quartz-chlorite vein with 0.5cm	5588	72.2	73.7	1.5	0.2	<5	140	44	52	
				wide sericite-quartz-pyrite alt'n halo C/A 25°										
				71.55-72.55: 5-10% diss. and patches of py-chlorite with	5589	73.7	75.2	1.5	0.2	<5	80	39	58	
				5 to 10% quartz flooding										
				72.7: vague banding (? bedding) C/A: 35°	5590	75.2	76.7	1.5	0.2	<5	85	36	60	
				73.0-73.6: as in 71.55-72.55										
				74.2+74.3: py-quartz-chlorite veinlets C/A: 50+75°	5591	76.7	78.2	1.5	0.2	<5	110	37	57	
				74.3-75.95: choc. brn alt'n (10-20%) with 5% py + tr. po										
				75.95-76.4: 20% sericitization with 15% quartz-calcite	5592	78.2	79.7	1.5	0.2	<5	70	27	58	
				ladder veins. 10% diss. py and 1-5% % py within and										
				along vein margins. Veins are up to 1cm wide	5593	79.7	81.2	1.5	0.2	<5	195	50	65	
				- trace apple green clay vein C/A 60°										
				77.1-77.6, 76.55-76.75: 15% choc. brn alt'n										
				77.8-78.0: 20% quartz flooding with 15% diss. py and										
				a 0.5cm wide py-qtz-cc vein C/A 60°										
				78.0-80.5: 5 to 10% qtz flooding with 5% diss py										
				81.33-[illegible] band with 60% quartz flooding, 30% py and 10%										
				chlorite and calcite C/A: 65°										

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG

HOLE No 87-1

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
66.2	86.0 cont'd			82.75-83.6: 5% py with 5 to 15% quartz flooding and	5594	81.2	82.7	1.5	0.2	<5	160	49	29
				sericitization, 5-10% calcite									
				84.2-85.1: 0.3 to 3cm wide calcite-quartz vein subparallel	5595	82.7	84.2	1.5	0.2	<5	135	37	27
				to core with trace to 15% pyrite and tr. ilmenite? and									
				magnetite	5596	84.2	86.0	1.8	0.2	<5	130	30	42
				85.2: 2cm wide band of intense sericitization (20% pyrite)									
				enclosing 2 narrow quartz-py veins C/A: 30°									
				85.5-86.0: 15% quartz flooding and 15% sericitization									
				with 10% quartz-calcite veining C/A: 65° + 10°.									
86.0	87.85	90		Dacite flow: grey to lt grey-grn. aphanitic with 10-15%	5597	86.0	87.25	1.25	0.2	<5	85	32	39
				med to course grained euhedral feldspar phenocrysts and 5%									
				f.g. mafics. 2-5% diss + frac controlled py. Quartz flooded									
				from 86.0-86.6. U. contact = quartz-calcite vein and gouge zone									
				L. Contact: 3cm wide zone of quartz-calcite veining C/A: 45°									
87.85	89.75	100		Dacite to andesite buff/grn to choc brn.: vfg with 10% fg-mg	5598	87.85	89.75	1.9	0.2	<5	125	44	61
				feldspar phenocrysts and 10% mafic clots - ? tuff or flow.									
				10% vein and diss py. veinlets contain quartz-calcite ±									
				chlorite. Unit contains 20% choc brn alt'n and 5% sericite									
89.75	92.8	100		Andesite: dk grey-brn vfg with 15-20% fg-mg feldspar	5599	89.75	91.3	1.55	0.2	<5	55	28	56
				phenocrysts and 5% dacite (vfg) fragments up to 2-3mm									
				across. Matrix is pervasively choc. brn 'altered' (tourmaline?)	5600	91.3	92.8	1.5	0.2	<5	50	39	63
				contains 2-3% diss. py and 1-2% py-chlorite frac.									
				C/A 45-70° with narrow quartz-calcite-sericite alt'n rims									
				Upper + lower contacts obscured by broken core									
92.8	94.5	100		Dacite. Med brn-grn aphanitic with 10% m.g. sericitized	5601	92.8	94.5	1.7	0.2	<5	250	49	33
				feldspar phenocrysts + 10% med to coarse grained angular									
				irregularily shaped massive sericite, possibly replacing clasts.									
				10% quartz flooding throughout. Contains 5-10% diss.									
				py cubes and clots. and 2-5% chlorite-tourmaline-py									
				microfractures with narrow feldspar-calcite alt'n rims. C/A 45°									
				94.3-94.5: 5% narrow (1-2mm) calcite veins									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb (only results >10 ppm given)
94.5	95.6	100		Dacite : med buff-grn aphanitic with 10-25% f.g. to m.g.										
				feldspar phenocrysts which are sericitized. Phenocrysts	5602	94.5	95.6	1.1	0.2	<5	695	25	45	
				are more equant than above. Matrix contains 25%										
				sericite. Contains 10% m.g. py-chlorite clots and frac.										
				2-3% narrow calcite veins										
95.6	96.0	90		Quartz-calcite cemented fault breccia consisting of 60%										
				vein material with trace to 10% pyrite and trace gn. The	5603	95.6	96.0	0.4	2.0	20	475	36	48	15
				veins are comprised of 40% quartz, 35-40% calcite and dolomite										
				and 5-15% tourmaline. Rock fragments consist of angular sericitized										
				volcanics C/A: 15°										
96.0	97.0	100		Dacite as in 94.5-95.6. with 15% py-chlorite-quartz clots	5604	96.0	97.0	1.0	0.2	10	230	43	50	10
				and 5% quartz flooding. Sericitized as above										
97.0	110.1	100		Andesite-dacite : dk-med grn-brn to grn. vfg. with 10-20%	5605	97.0	98.5	1.5	0.2	<5	70	32	43	
				equant euhedral m.g. feldspar phenocrysts and 2-5% euhedral	5606	98.5	100.0	1.5	0.2	<5	20	32	38	
				hornblende phenocrysts. Unit contains 1-5% diss py + py	5607	100.0	101.5	1.5	0.2	<5	45	33	62	
				clots with associated chlorite rims. feldspars are weakly	5608	101.5	103.0	1.5	0.2	<5	45	33	57	
				sericitized and calcite altered. The matrix contains 2-5%	5609	103.0	104.5	1.5	0.2	<5	20	30	59	
				diss. brn alt'n ... possibly biotite	5610	104.5	106.0	1.5	0.2	<5	15	31	57	
				contains <1% chlorite-py-tr veinlets and the following	5611	106.0	107.5	1.5	0.2	<5	55	39	58	
				narrow py-calcite-tourmaline-quartz veins with chlorite rims	5612	107.5	109.0	1.5	0.2	<5	30	31	56	
				100.35, 109.2, 109.95. C/A: 15 to 25°	5613	109.0	110.1	1.1	0.2	<5	165	30	48	
				109.3-110.1: 25% sericitization										
110.1	111.3	95		Volcanic breccia with 75-80% clast supported fragments	5614	110.1	111.3	1.2	0.2	<5	60	14	23	
				of feldspar porphyritic dacite, dacite to andesite flows and tuffs.										
				Matrix is fine grained, black, white and med brn and consists										
				of dacite rock flour with minor calcite and quartz. The										
				rock fragments are sericitized (10-15%) and 2-5% diss py										
				The matrix contains 5 to 15% py (tr. aspy) and 5-15%										
				tourmaline, cut by several quartz-calcite, quartz-chlorite										
				and chlorite-tourmaline-py veinlets C/A: 45° 5% of the										
				fragments are hematized.										
111.3	111.65	50		[illegible]	56[illegible]	111.3	111.65	0.35	0.2	<5	70	11	22	

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
111.65	116.3	100		Andesite - dacite as in 97-110.1 fg to mc feldspars (10-	5616	111.65	113.2	1.55	0.2	<5	80	34	50
				20%), 2-5% diss + clots of py with chlorite 1-2% quartz	5617	113.2	114.7	1.5	0.2	<5	60	35	48
				chlorite-py veinlets with quartz sericite alt'n C/A: 30-50°	5618	114.7	116.3	1.6	0.2	<5	35	30	44
				114.1: 0.5cm calcite vein with chlorite-biotite-py alt'n rim.									
116.3	116.85	100		Dacite: lt brn, aphanitic with 20% mg-feldspar phenocrysts and	5619	116.3	117.45	1.15	0.2	<5	50	27	42
				10% fg-mg chlorite and chlorite-py clots: U+L contacts are									
				gradational over short distances. U: [illegible] contacts C/A: 40° + 60°									
				Unit contains 15% sericite, 5% diss py and 1 to 2% py-chlorite frac.									
				with sericite - calcite alt'n rims									
				116.4-116.6. 4cm wide vuggy dog's tooth calcite (tr quartz)									
				vein subparallel to core 10 to 30°. Contains a narrow py-tourmaline									
				rim and tr py within.									
116.85	116.95	100		as in 97-110.1									
116.95	117.45	100		Dacite as in 116.3-116.85, lower contact is sharp									
				U+L contacts C/A 60 and 40°. 5-7% diss and vein									
				controlled py with chlorite.									
				3mm and 1.2 cm wide calcite veins at 117.05, 117.25 C/A: 20°									
117.45	117.55	100		Andesite-dacite as in 97-110.1	5620	117.45	119.0	1.55	0.2	<5	50	27	52
117.55	117.70	100		Dac-porphyritic as in 116.3-116.85	5621	119.0	120.5	1.5	0.2	<5	30	31	72
117.7	119.35	100		Andesite-dacite as in 97-110.1 fg with 1-2% py-chlorite frac and	5622	120.5	122.0	1.5	0.2	<5	90	24	75
				2-5% diss. py									
					5623	122.0	123.5	1.5	0.2	<5	55	26	79
119.35	120.2	100		Dacite-porphyritic as in 116.3-116.85 with 10% mg. hornblende									
				which is chloritized (unit may actually be more andesitic)	5624	123.5	125.0	1.5	0.2	<5	45	33	66
				U+L contacts C/A 35°+55° - sharp. Unit contains 5%									
				quartz-chlorite-py and calcite frac at C/A 30° locally	5625	125.0	126.5	1.5	0.2	<5	25	37	59
				swell up to 1.5 cm wide.									
					5626	126.5	128.0	1.5	0.2	<5	70	36	60
120.2	131.9	100		Andesite-dacite as in 97-110.1 contains narrow sections									
				similar to 116.3-116.85. Crystal boundaries are hazy. contain.	5627	128.0	129.5	1.5	0.2	<5	115	38	64
				[illegible] alt'n rims	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<5	160	[illegible]	[illegible]

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width m	Ag	Au	As	Cu	Zn
131.9	132.55	100		Dacite, grn, aphanitic to vfg with 20% randomly orientated MG to CG euhedral feldspar phenocrysts. Unit contains 5-7% (1-2mm diameter) pyrite-chlorite clots and diss. py. The lower 15cm contains 15% calcite-quartz-dolomite veining with trace pyrite and tourmaline. C/A: 25-40°. Unit contains 5-10% sericite	5629	131.9	132.65	0.66	0.2	<5	85	32	97
132.55	132.75	95		clay-py vein and gouge zone, Yellow+grey C/A: 25°									
132.75	137.0	90		Dacite ash tuff (?): lt brn grn to med grey-grn. vfg to fg with 5% MG feldspar porphyritic mafic clots. Unit is	5630	132.55	134.0	1.45	0.2	<5	75	32	55
				10 to 25% sericitized from 132.75 to 135.3 with local	5631	134.0	135.5	1.5	0.2	<5	115	30	65
				10-15% quartz flooding with 10-15% py: diss + clots. The py (w. calcite) clots have epidote rims from 134.3 to 137.	5632	135.5	137.0	1.5	0.2	<5	125	28	69
				The matrix also contains 5 to 10% calcite alt'n in this section									
				133.5: 1cm wide calcite-quartz-tr. py. C/A: 20°									
				134.9-135.2: 10% quartz flooding, 15% py clots with quartz and epidote, 15% calcite and 5% calcite-py veinlets C/A: 45									
				135.75: 3mm wide chlorite-py vein w. calcite-sericite-epidote alt'n rim (5mm on both sides)									
				135.9: 0.5mm vuggy calcite vein C/A: 25°									
137.0	142.7	95		Andesite dyke: med grn. aphanitic to fg. with 10% fine grained feldspar phenocrysts and 5 to 15% f.g pyroxene which increases in abundance toward center of unit. Also contains rare MG to CG zoned feldspars. Contains up to 10% calcite filled vesicules (1-10 mm diameter, avg 3) in the following zones: 137.35-137.4, 138.7-139.7, 141.7-142. These zones are parallel to the contact. The margins are chilled and contain up to 10% pyrite which decreases into dyke. U+L contacts C/A 25°+20°									
142.7	147.85	100		Dacite med grn to grey-brn: vfg to aphanitic: massive - v. hard contact with overlying ash tuff unit (132.75-137.0) appears to be at 142.75 C/A 70°. L contact sharp C/A: 80° [illegible] with									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width m	Ag	Au	As	Cu	Zn	Sb (≥10 ppm given only)
142.7	147.05			5 to 15% py occuring in narrow fractures and as possible replacement	5633	142.7	144.2	1.5	<0.2	<5	100	45	52	
	Cont'd			of tuff layers: ex: 146.88.										
				146.85: highly brecciated py chlorite and epidote alt'n of matrix.	5634	144.2	145.7	1.5	<0.2	<5	125	39	32	
				146.97: narrow calcite-py veinlet. C/A 85°										
				146.1, 146.15: narrow vuggy calcite-quartz veins	5635	145.7	147.05	1.35	<0.2	<5	235	45	33	10
				The unit contains patchy calcite and sericite										
				alt'n throughout - possibly altering lithic clasts.										
147.05	154.5	100		Dacite ash and crystal lithic tuffs. med grn brn: These appear	5636	147.05	148.5	1.45	<0.2	<5	135	42	55	
				to be 20 to 50% lapilli size dacite tuff; dacite and andesite clasts,										
				but alt'n has obscured boundaries. The unit contains 10 to 20%	5637	148.5	150.0	1.5	0.2	<5	95	46	56	
				sericite which is most abundant between 147.05 and 151.2. The										
				Section from 151.2 - 154.5 contains 5% sericite and 5 to 10%	5638	150.0	151.5	1.5	0.2	<5	100	40	40	
				quartz flooding. There is 10% calcite throughout. 10% py										
				occurs as disseminations, in clots and along microfractures and	5639	151.5	153.0	1.5	0.2	<5	125	57	59	
				is usually associated with chlorite.										
					5640	153.0	154.5	1.5	0.2	<5	120	28	59	
154.5	154.9	100		Andesite-dacite as before. dk grn. contains 20% biotite,										
				5-10% calcite and 5-7% py alt'n. 10% epidote and quartz alt'n	5641	154.5	154.9	0.4	0.2	<5	95	33	83	
				occurs in two narrow bands parallel to the contact C/A 45°										
154.9	157.9	100		Dacite tuff as 147.05 to 154.5 with a crystal-lithic ash horizon	5642	154.9	156.4	1.5	0.2	<5	110	39	65	
				at 156.5-156.7 (possibly a clast) The unit contains blotchy sericite										
				(5-10%) alt'n and 5 to 10% diss py throughout: Other alt'n as follows:	5643	156.4	157.9	1.5	0.2	<5	130	44	96	
				154.9: 2cm wide grey quartz-py (40%) vein with a chlorite-										
				epidote-sericite (+ applegreen clay) py alt'n rim of equivalent size (C/A 40°)										
				155.05-155.3: 15% choc. brn. alt'n.										
				155.6: 0.5cm calcite vein C/A: 50°										
				156.05-156.4: 1-2cm wide grey quartz-calcite vein with										
				5% py. C/A 15 to 20°										
				156.5: 3cm wide calcite-quartz vein w. angular volc. clasts										
				and clay gouge										
				156.65, 156.75: narrow quartz-calcite veins. C/A 20 to 50°.										
				5% calcite alt'n decreasing to 0 at ~157.0.										
157.9	163.8			Dacite tuff as with increased clast size to lapilli										
				" " " " " "										

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb (>10 ppm only)
157.9	163.8			and veined zones:	5644	157.9	159.4	1.5	0.2	<5	135	24	51	
	Cont'd			157.9-159.7: 10-15% sericitization with tr. quartz flooding										
				and 5 to 15% diss. py. - also area of abundant clasts.	5645	159.4	160.9	1.5	0.2	<5	100	24	88	10
				158.1 to 158.17, 158.85 to 159.07 fine grained grey quartz-py band										
				with sheared and intensely sericitic and carbonate altered tuff C/A: 35°	5646	160.9	162.4	1.5	0.2	<5	105	50	77	
				159.65: 0.5 cm quartz-calcite-py vein C/A: 30°										
				160.6-162.7: as in 157.9-159.7	5647	162.4	163.8	1.3	0.2	<5	115	39	62	
				160.8: several py-quartz stringers C/A 15-40°										
				163.68, 163.73: 2cm and 3cm wide clay gouge zones C/A 60										
163.8	164.15	70		Broken core, fault gouge, fragments of upper & lower units, some	5648	163.8	164.15	0.35m	0.6	70	1065	51	45	15
				calcite vein material.										
164.15	165.8	95		Dacite lithic lapilli tuff: grey + grn. silicified matrix	5649	164.15	165.8	1.65	1.8	180	1770	56	71	30
				with intensely sericitized lapilli and cut by a quartz-										
				py, calcite-py + py stockwork. locally brecciated. 10%										
				veining. also contains 10% pyrite + 5% brn. clay? illite.										
				164.3-164.35 quartz-py-sericite cemented vein breccia zone C/A 40°										
				165.05: 3cm wide brecciated zone										
				165.6-165.8: broken core with 50% veining.										
165.8	168.4	100		Dacite: med grey brn. to lt grn. brn. aphanitic with 1 to 25%	5650	165.8	167.1	1.3	0.4	15	415	46	70	10
				(highly variable) fg to cg euhedral feldspar phenocrysts										
				166.3: 15% dolomite veining and brecciation with apple	5651	167.1	168.4	1.3	0.2	5	405	41	56	10
				green clay on margins C/A: 30°										
				166.4: 3cm fault gouge C/A: 35°										
				166.3-166.45: 15% sericitization with tr. epidote + calcite										
				167: py-chlorite frac. C/A: 15°										
				167.7-168.25: strongly bleached zone with 5% calcite-quartz-py-tourmaline veinlets. zoned to 10% sericite and 5% d.ss. py.										
168.4	169.55	100		Andesite-dacite as in 97-110.1: 10% chloritic brn; 2-3% epidote, 5% calcite	5652	168.4	169.55	1.15	0.2	<5	170	39	59	
				alteration.										
169.55	171.0	100		Dacite as in 165.8-168.4 u. contact sericitized	5653	169.55	171.0	1.45	0.2	<5	160	40	45	
				169.8 quartz-calcite vein (5mm) with tourmaline-py margin										
				170.?-170.17: [illegible] biotite										

Interval From	Interval To	Recy %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb ≥10 ppm only
169.55	171.0			and brecciation (narrow 2-3cm wide)										
	cont'd			170.9: 3cm wide quartz-chlorite-calcite shear adjacent to a										
				5cm wide calcite vein: C/A: 65°										
171.0	172.2	100		Andesite-Dacite as in 97-110.1 u contact brecciated	5654	171.0	172.2	1.2	0.2	5	75	32	111	
172.2	173.5	100		Dacite as in 165.8-168.4: 5% diss + microfrac py.	5655	172.2	173.5	1.3	0.2	<5	85	48	89	
173.5	177.5	100		Andesite-Dacite as in 97-110.1 with narrow interlayered dacite from	5656	173.5	175.0	1.5	0.2	<5	165	37	137	10
				174.65 to 174.82 C/A 60° Unit contains 10% choc-brn alt'n, + 5%	5657	175.0	176.5	1.5	0.2	<5	155	35	184	
				chlorite-py veinlets with calcite alt'n halos. 10% calcite and	5658	176.5	177.5	1.0	0.2	<5	115	39	170	
				1-2% calcite veinlets throughout. Lower contact C/A: 35°										
177.5	180.3	100		Dacite: med grey-tan with 15-20% fg-mg euhedral feldspar	5659	177.5	179.0	1.5	0.6	<5	350	26	122	15
				phenocrysts which are locally sericitized. Unit contains large fragments										
				of and-tuc flow from 177.8 to 180.3. clasts are up to 20cm long.	5660	179.0	180.3	1.3	0.4	<25	705	34	102	15
				Unit contains 2-5% diss py L. Contact C/A: 40°										
				178: 2cm wide banded quartz-pink calcite vein C/A 10° with										
				5% pyrite and tourmaline. vein is vuggy. No alt'n rim										
				associated with the veins. Similar 1 to 3cm veins occur at										
				178.65, 179.3, 179.65.										
180.3	190.15	100		Andesite-Dacite as in 97-110.1. 10% chocbrn, 2-3% epidote, +	5661	180.3	181.8	1.5	0.2	<5	110	31	92	
				1-2% calcite alt'n. 1-3% chlorite-py veinlets with sericite-calcite	5662	181.8	183.3	1.5	0.2	<5	40	38	92	
				alt'n halos. Narrow (<2cm) quartz-chlorite-py veins with quartz	5663	183.3	184.8	1.5	0.2	<5	20	32	70	
				calcite-epidote alt'n halos occur at: 182.1, 182.25, 183, 183.25	5664	184.8	186.3	1.5	0.2	<5	75	36	78	
				C/A: 30 to 80°	5665	186.3	187.8	1.5	0.2	<5	20	37	85	
				185.9: 2, 3mm wide calcite veins over 10cm C/A: 35°	5666	187.8	190.15	2.35	0.2	<5	25	36	79	
190.15	195.8	100		Dacite: med grey-grn, aphanitic, massive with 1-5% (loc 10%) fg-mg	5667	190.15	192.0	1.85	0.2	<5	210	43	48	10
				euhedral feldspar phenocrysts. Lower contact C/A 75°. Unit contains										
				1-5% py-po clots and 5% py-po-chlorite frac. <1% calcite-py fract	5668	192.0	193.5	1.5	0.2	<5	45	35	76	
				quartz-py veins with calcite-sericite alt'n halos. tr choc brn alt'n.										
				191.65-191.95. 10% po-chlorite clots	5669	193.5	195.0	1.5	0.2	<5	10	35	74	
				190.9: calcite-quartz-py veinlet C/A 35°										
				190.8-191.2: 5% choc.brn. alt'n	5670	195.0	195.8	0.8	0.2	<5	65	35	94	
				[illegible] C/A 55°										

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No 87-1

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb ≥10ppm only
190.15	195.8			193.2, 193.65: 2cm wide quartz-sericite-tourmaline veins C/A: 20°										
	cont'd			195.05: quartz-tourmaline-chlorite-pyrite veinlets.										
					5671	195.8	197.3	1.5	0.2	<5	5	32	74	
195.8	200.4	100		Andesite-dacite as in 97-110.1. Lower contact is quartz-calc.k-	5672	197.3	198.8	1.5	0.2	10	30	33	78	
				chlorite-py frac C/A: 25°	5673	198.8	200.4	1.6	0.2	<5	50	33	73	
200.4	203.8	100		Diorite: med grey-grn. fg with C.g hornblende (20%) and 5-10% M.G.										
				feldspar. also contains 15% megacrystic clay and sericite altered										
				feldspars from 200.85-201.15. 1-2% chlorite-py frac.										
				201: 5cm wide zone of calcite veining and clay gouge. C/A: 30°.										
203.8	205.1	100		Monzonite dyke, lt. grey brn. fg with 20% C.G. zoned euhedral feldspar,	5674	203.8	205.1	1.3	0.2	<5	15	58	44	
				20% MG-C.G. euhedral sericitized feldspar and 10% fg-Mg biotite + hornblende										
				contains 5% po + 1-2% py. U + L contacts 30 + 80°.										
205.1	205.8	100		Diorite as in 200.4-203.8 L. contact C/A: 35										
205.8	208.65	100		Andesite-dacite as in 97-110.1: lower 10cm sericitized										
208.65	211.2	100		Monzonite and diorite as above: grading into each other.										
				L. contact C/A: 15°										
211.2	211.5	100		Andesite-Dacite as in 97-110.1										
211.5	212.7	100		Dacite. grey grn to brn: fg with 5 to 25% M.G. feldspar phenocrysts	5675	211.5	212.7	1.2	0.2	<5	435	59	106	25
				weakly sericitized. 5% diss + frac py + Po throughout.										
				211.95, 212.5: 1cm wide calcite veins with chlorite alt'n rim C/A: 40										
				212.35-212.45: 20% quartz stockwork										
212.7	213.75	100		Andesite-Dacite as in 97-110.1 lower contact C/A: 30°										
213.75	219.8	100		Monzonite as in 203.8-205.1: locally fine grained. feldspar	5676	217.0	218.5	1.5	0.2	<5	135	26	37	
				are sericitized from 217-218.5. 5% diss relots of Py + Po										
				EOH.										

AURUM GEOLOGICAL CONSULTANTS INC. — **DIAMOND DRILL LOG** — HOLE No. DEV 87-2

Property DEV	NTS 93L 1E	Claim GO-2	Elevation	Azimuth 270
Length	Dip -55°	Coordinates 17+50N, 9+45W	Dip Tests at bottom: -56°	Advance
Depth 176.8	Date Collared Sept 22	Date Completed Sept 24	Purposes Test IP anomaly	Drilled by TONTO
Assays by CHEMEX + Min-En	Logged by T Garugan			

Interval (m) From	Interval (m) To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width (m)	Ag (ppm)	Au (ppb)	As (ppm)	Cu (ppm)	Zn (ppm)
0	9.8			Casing									
9.8	12.0			Broken and Ground core									
12.0	38.8	95		Dacite tuffs: crystal lithic lapilli, blocky and ash tuffs. similar to top	5677	12.0	13.5	1.5	0.2	5	70	35	126
				of DEV87-1. Contains 1-5% feldspar crystals (fg), 5-10% MG mafic	5678	13.5	15.0	1.5	0.2	<5	30	34	105
				clots, 2-3% hornblende crystals (fg) and 5 to 20% sericitized tan dacite	5679	15.0	16.5	1.5	0.2	<5	15	33	68
				clasts all in a grn dacite tuffaceous matrix. Dacite clasts are up to	5680	16.7	18.0	1.5	0.2	<5	40	28	71
				15cm long, along the core. The unit contains 5-7% diss + blebs of	5681	18.0	19.5	1.5	0.2	<5	30	30	94
				py + po. Rock is oxidized to 15.5m.	5682	19.5	21.0	1.5	0.2	<5	20	32	134
				12-12.6: broken core	5683	21.0	22.5	1.5	0.2	<5	15	27	153
				12-25.0: 15% chloritization, 7-10% calcite and trace epidote and	5684	22.5	24.0	1.5	0.2	<5	25	91	140
				quartz flooding with associated apple green clay. Rock frags have 15% sericite	5685	24.0	25.0	1.0	0.2	10	65	18	97
				22.9: narrow (<1cm) calcite-quartz-py vein C/A: 5°	5686	25.0	25.5	0.5	0.2	10	40	21	111
				22.6-22.9: 10-12% py + po	5687	25.5	27.0	1.5	0.2	<5	<5	16	136
				25.0-38.85: 20 to 40% quartz flooding with associated 1-2% apple grn	5688	27.0	28.5	1.5	0.2	<5	5	22	130
				clay, 2-3% feldspars are totally sericitized. Contains 10-15%	5689	28.5	30.0	1.5	0.2	<5	15	20	137
				diss + frac. py + po and tr. to 1% diss v.f.g black metallic min. Unit	5690	30.0	31.5	1.5	0.2	<5	<5	27	91 + 10ppm Sb
				also includes 10% sericite, 2-3% calcite, 1% epidote and 2-5%	5691	31.5	33.0	1.5	0.2	<5	35	27	97 "
				chlorite.	5692	33.0	34.5	1.5	0.2	<5	75	32	120 "
				25.75: chlorite-clay-sericite gouge with calcite alt'n rim C/A: 40°	5693	34.5	36.0	1.5	0.2	<5	25	21	114
				34.2: 1cm wide calcite quartz (gn clay) vein C/A: 15°	5694	36.0	37.5	1.5	0.2	<5	55	37	104
				35.85-38.8: chloritized as in 12-25.0.	5695	37.5	38.8	1.3	0.4	<5	50	27	109
38.8	40.5	100		Dacite: grey-tan, fg. to aphanitic with 10-15% mg euhedral	5696	38.8	40.5	1.7	0.2	15	30	28	50
				feldspar phenocrysts and 5-10% v.f.g. chlorite clots. The feldspars									
				are sericitized (90%) and the matrix is partly sericitized and									
				quartz flooded (10-15%). Contains 5-7% py-chlorite clots,									
				1-2% py-chlorite frac. and 1% calcite frac. Unit may consist of 2									
				flow or dykes as there is an internal contact at 39.7 C/A: 25°									
				U. contact 40°	5697	40.5	42.0	1.5	0.2	<5	20	17	84
					5698	42.0	43.5	1.5	0.2	<5	20	34	103
40.5	45.65	100		Dacite tuff as in 12.0-38.8. altered as in 12.0-25.0	5699	43.5	45.0	1.5	0.2	<5	35	27	82
					5700	45.0	45.65	0.65	0.2	<5	20	19	95

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No 87-2

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
45.65	59.05	100		Monzonite as in 203.8-205.1 of 87-1. f.g. with 10-25%	5701	45.65	47.5	1.85	0.4	<5	35	37	54
				c.g. euhedral feldspar phenocrysts. U+L Contacts C/A 35° + 45°: chilled	5702	47.5	49.0	1.5	0.2	<5	170	38	54
				70 to 90% of the feldspars are partly to totally sericitized. Contain	5703	49.0	50.5	1.5	0.2	<5	35	41	71
				10% fg-mg chlorite clots and 5 to 7% py-chlorite clots. The matrix	5704	50.5	52.0	1.5	0.2	<5	15	35	58
				is partly sericitized throughout (15%) and the feldspars contain 5%	5705	52.0	53.5	1.5	0.4	<5	20	39	61
				calcite alt'n. Unit contains some f.g. Mg Monzonite xenoliths.	5706	53.5	55.0	1.5	0.2	<5	50	38	55
				56.5-58.8: quartz flooded with 7% diss. py. The phenocrysts are hazy	5707	55.0	56.5	1.5	0.2	<5	30	50	62
				57.5: 2mm wide calcite vein C/A 15°	5708	56.5	58.0	1.5	0.2	<5	90	36	54
				57.6: 2 mm wide calcite-py vein C/A: 70°	5709	58.0	59.05	1.05	0.2	<5	55	44	78
				58.25: 2mm wide clay-calcite-py gouge: C/A 35									
59.05	61.25	100		Dacite: blocky tuff: med grey to tan: contains 40% porphyritic	5710	59.05	60.5	1.45	0.2	<5	105	21	92
				dacite clasts as before in a matrix of grey ash tuff. The clasts are up									
				to 20cm long along the core and are much more susceptable to	5711	60.5	61.25	0.75	0.6	<5	135	8	107
				sericitization (15%). The unit contains 2-3% epidote related to chlorite-									
				calcite-py clots (5%). Also contains 5-7% silicification + 5% diss py cubes									
61.25	62.8	100		Megacrystic Monzonite as in 45.65-59.05. U+L contacts: 45 + 80°									
				contains 20% quartz flooding + 5% chlorite-py clots.	5759	61.25	62.8	1.55	1.6	5	3	32	94
62.8	67.65	95		Dacite tuff as in 12.0-38.8 + in part 59.05-61.25: med grey grn to brn.	5760	62.8	64.3	1.5	1.9	5	1.7	40	99
				contains 15% sericitization, 25% epidote, 5-10% chlorite, 2-3% calcite	5761	64.3	65.8	1.5	1.9	10	10	24	97
				and 5-7% diss py cubes and py-chlorite clots. localized silicification	5762	65.8	67.65	1.85	2.3	5	7	35	86
67.65	74.5	100		Andesite-Dacite: med grey-grn to dk grn brn: as in 87-1, vfg									
				with 5-10% vfg to mg feldspar phenocrysts. Unit contains									
				3-7% mafic clots. Unit contains 3-7% chlorite-py frac + clots.									
				L. contact C/A ~ 25°									
74.5	84.4	100		Dacite: grey to tan, dk grey to med grn at margins, vfg-fg with 20%	5763	79.05	79.8	0.75	1.6	5	23	1	17
				m.G to G.G. feldspar phenocrysts. Contains 5-7% fg-mg chlorite clots									
				- contains 3-5% chlorite-epidote-calcite-py clots + frac. trace to									
				5% calcite alt'n and tr. sericite. L. Contact: C/A 30°									
				79.05-79.5: 5% quartz flooding and diss py									
				75.5: 1mm wide calcite-epidote-py vein C/A: 25°									
				- unit maybe a dyke									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
84.4	91.1	100		Dacite tuff as before	5764	84.4	85.9	1.5	2.1	5	[illegible]	[illegible]	73
				84.4-86.1 : dk grey - silicified (hornfelsing?) with 5-7% po-py-	5765	85.9	87.4	1.5	[illegible]	[illegible]	[illegible]	[illegible]	84
				chlorite (±calcite +epidote) clots, fractures and disseminations	5766	87.4	88.9	1.5	0.6	5	101	29	94
				85.7 : calcite veinlet c/A: 15°	5767	88.9	90.4	1.5	0.5	10	115	39	104
				86.1-91.1 : grey to tan, 15% sericitized with 10% po-py-chlorite	5768	90.4	91.1	0.7	0.5	5	115	66	113
				-calcite (tourmaline + sphalerite + black metallic) clots, disseminations and									
				fractures. Also contains 1-2% calcite-po veinlets c/A: 15 to 20 (rare 80°)									
91.1	93.5	100		Dacite: med grey-grn, aphanitic with 20-25% euhedral C.G. feldspar	5769	91.1	92.6	1.5	1.9	5	30	90	80
				phenocrysts. The feldspars are zoned and locally exhibit a well developed									
				trachytic texture. c/A 45 to 50°. Matrix is partly silicified, contains	5770	92.6	93.5	0.9	2.0	5	15	78	83
				20% chlorite occurring with po-py disseminations, fractures + clots									
				(10% sulphides). The unit also contains 2-3% epidote and 5% calcite alt'n									
				occurring in patches.									
				Upper contact fault: c/A 75°									
93.5	93.85	100		Dacite tuff. sericitized as in 84.4-93.1. fault gouge at 93.5	5771	93.5	93.85	0.35	0.7	5	32	26	169
93.85	94.02	100		Dacite: grey to tan: aphanitic with 13% fg-MG feldspar phenocrysts +	5772	93.85	94.02	0.17	0.8	5	28	30	176
				5% CG sericitized feldspars. 5% chlorite-py diss. + frac.									
				U. + L. contacts c/A: 75°									
94.02	99.5	100		Dacite: as in 91.1-93.5 contains 1-2% dacite xenoliths (from above)	5773	94.02	95.5	1.48	1.0	10	201	70	127
				locally flow banded and trachytic c/A: 30 to 45°. altered as before.	5774	95.5	97.0	1.5	1.2	5	199	77	106
				95.5-96.0 : abundant (5%) calcite-py and chlorite-py fractures c/A: 55°	5775	97.0	98.5	1.5	1.6	5	88	79	86
				Lower contact c/A: 45°	5776	98.5	99.5	1.0	1.3	5	89	82	125
99.5	110.6	100		Dacite tuff as in 84.4-93.1	5777	99.5	100.5	1.0	0.8	10	129	38	115
				99.55-101.3 : 20% sericitization, 5 to 15% silicification 15%									
				chloritization with 3-5% calcite and 5 to 15% sulphides po-py with	5778	100.5	101.5	1.0	1.0	15	1123	77	97 + 13 ppm Sb
				trace arsenopyrite and black metallic? Contains some epidote + tourm.									
				99.8-99.9 : fault gouge c/A: 40° + amethyst veining	5779	101.5	102.5	1.0	1.9	5	199	53	143
				101.3-103.7 : 15-20% chlorite, 10% quartz flooding, 5% epidote, sericite + calcite									
				sulphides as above	5780	102.5	103.5	1.0	1.8	6	64	36	138
				103.7-105.4 alt'n as in 99.55-101.3. 5 to 15% sulphides: po-py with									
				trace arsenopyrite. - also contains 1-2% magnetite.	5781	103.5	104.0	1.0	1.9	5	175	80	92
				[illegible] chlorite									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
99.5	110.6			5% calcite and trace epidote, 7-10% diss. frac + patches of py	5782	104.0	105.0	1.0	1.8	5	287	61	109
	cont'd			(tr. sp) associated with bleaching + chlorite	5783	105.0	106.5	1.5	2.4	5	138	46	113
				106.15 - 108.6: 15% quartz-sericite alt'n with 15% chlorite and calcite with	5784	106.5	107.5	1.0	2.6	5	28	42	166
				1 to locally 5% epidote. 2-7% sulphides as before po ≥ py ≫ tr aspy + blk. met.	5785	107.5	108.5	1.0	2.5	5	79	52	187
				108.6-109.2: 25% quartz flooding, 10% sericitization with 5% chlorite	5786	108.5	109.5	1.0	2.1	5	86	53	92
				and epidote: 10-12% po + py as before	5787	109.5	110.6	1.1	1.5	10	65	31	112
				109.2 to 110.6: 20% quartz + sericite alt'n and 12% chlorite + epidote									
				and 5 to 7% Po + Py as before									
110.6	113.7	100		Dacite. med-grey-grn. aphanitic to v f g with 25% randomly oriented	5788	110.6	112.1	1.5	1.6	5	41	29	148
				MG-C.G. feldspar phenocrysts. Contains 1 to 5% epidote, sericite + pyrite altered									
				tuff xenoliths. Unit is 15% chlorite, 5% epidote and 2% calcite	5789	112.1	113.7	1.6	1.9	10	52	33	133
				altered. 5% diss. + clots of py > po + tr. sp associated with									
				bleached zones									
113.7	118.4	100		Dacite tuff: med grey-grn: fg with 10% subangular to ?clasts and	5790	113.7	115.2	1.5	2.3	10	119	58	105
				0 to 7% fg to mg feldspar crystals: both euhedral + broken	5791	115.2	116.7	1.5	2.1	5	96	45	72
				contain 10% chlorite and 2-5% sericite and epidote and 5-7% calcite	5792	116.7	118.4	1.7	2.1	10	171	44	85
				minor quartz flooding. 5% diss + frac Py + po L Contact C/A: 35									
118.4	123.4	100		Dacite dyke as in 91.1-93.5. 5 to 15% sericitization and 15%	5793	118.4	119.9	1.5	0.8	5	166	32	88
				chlorite which is associated with 5-7% py > po frac + clots									
				Matrix contains 10% calcite alt'n.	5794	119.9	121.4	1.5	0.7	5	88	53	100
				119.85: 1cm wide quartz-calcite vein C/A 50									
				123.3: flow banding and trachytic texture parallel to contact C/A: 40°	5795	121.4	123.4	2.0	0.7	5	192	78	93
123.4	123.95	100		Dacite tuff as in 113.7-118.4: 25% quartz flooding + sericitization	5796	123.4	123.95	0.55	0.7	5	885	62	87
123.95	126.2	95		Dacite to ? andesite: megacrystic as in 118.4-123.4	5797	123.95	125.5	1.55	0.4	5	208	47	114
				125.2, 126: 1-2 cm wide locally vuggy calcite-py veins C/A 10-20°									
				U. contact: chlorite-calcite fracture C/A 30°	5798	125.5	126.2	0.7	0.8	5	111	37	95
126.2	128.25	100		Andesite: dk grn v f g 10-15% fg-MG (locally C.G.) hazey									
				feldspar phenocrysts - weak to moderately magnetic. 15% chlorite-py clots									
				and fractures. 5% epidote + calcite alt'n.									

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
128.7	129.5	100		Andesite as in 126.2-128.25: contact gradational C/A 25° (L. contact)									
129.5	130.3	100		Dacite-and megacrystic as in 118.4-123.4									
130.3	132.75	100		Andesite as in 126.2-128.25	5799	132.75	134.0	1.25	1.1	25	1092	41	103
					5800	134.0	135.5	1.5	0.8	5	17	41	158
132.75	146.85	100		Dacite-and megacrystic as in 118.4-123.4. highly altered in	5812	135.5	137.0	1.5	0.8	5	1	24	142
				place to give unit a patchy appearance	5813	137.0	138.5	1.5	0.8	5	110	44	93
				132.75-143.2 15-20% chlorite as clots + fracture coatings with 5-10%	5814	138.5	140.0	1.5	0.6	5	232	30	129
				calcite + sericite alt'n. 5% diss + clots of py >> po	5815	140.0	141.5	1.5	1.3	10	54	28	120
				133.15: narrow calcite-py-quartz vein	5816	141.5	143.0	1.5	0.4	5	13	28	62
				143.2-145.5: 20% sericitization 5% chlorite, quartz + calcite alt'n	5817	143.0	144.5	1.5	0.4	5	65	28	71
				with 5-7% py-po clots and disseminations with associated chlorite	5818	144.5	146.0	1.5	0.3	5	103	24	60
				145.5-146.85: 20% silicification, 5% chlorite + sulphides as above	5819	146.0	146.85	0.85	0.2	5	153	21	51
146.85	147.9	100		Andesite as in 126.2-128.25: U contact C/A 35°. lower contact	5820	146.85	147.9	1.05	1.5	20	579	47	126 + 18 ppm Sb
				gradational. 2-5% choc. brn alt'n.									
147.9	149.0	100		Dacite-and as in 118.4-123.4	5821	147.9	149.0	1.1	1.6	5	45	41	150
149.0	149.95	100		Andesite as in 126.2-128.25 U + L. Contacts: C/A 45°	5822	149.0	149.95	0.95	1.5	5	15	42	88
149.95	157.85	100		Dacite-and as in 118.4-123.4 alt'n as before with 20% chlorite	5823	149.95	151.5	1.55	1.4	10	13	31	61
				and 3% epidote.	5824	151.5	153.0	1.5	1.8	5	5	40	89
				149.95-150.3: bleached zone with 10-25% quartz flooding, 10%	5825	153.0	154.5	1.5	2.4	5	32	43	117
				sericite and 10% py clots + cubes with only 5% chlorite	5826	154.5	156.0	1.5	2.1	5	69	45	100
				157.75: 1cm wide quartz-calcite-epidote-py vein	5827	156.0	157.85	1.85	2.5	10	73	56	88
157.85	158.75	100		Dacite ash tuff: grey-grn. aphanitic, massive. U+L contacts C/A 40°	5828	157.85	158.75	0.9	2.8	5	121	72	118
				Patchy 15% chlorite, 10% quartz and 3% epidote alt'n. 10% py/po									
				as clots and frac associated with quartz-sericite bleaching.									
158.75	162.85	100		Dacite. grey grn to tan grn; aphanitic with 5-15% euhedral fs-Mg	5829	158.75	160.0	1.25	2.9	5	18	31	87
				feldspar phenocrysts with rare lapilli to block size xenoliths of									
				aphanitic dacite with 2-5% feldspar phenocrysts: probably a flow. 5 to 15%	5830	160.0	161.5	1.5	1.2	5	75	74	107
				sericitization and 5 to 15% chlorite and epidote frac + clots. with 3-5% py + po									

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No 87-2

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
162.85	163.4	95%		Dacite dyke. med grey gn. aphanitic with 10-15% euhedral m.G.									
				to C.G. feldspar phenocrysts which increase in size and content									
				toward the center. U.+L. contacts chilled sericitized .5% fg chlorite									
				clots may represent remnant mafic minerals. Unit contains 2-3%									
				dus.[?] chlorite and py-po and 1% epidote.									
163.4	176.8	95%		Dacite-andesite flows as in 158.75-162.85. Locally trachytic	5832	163.4	165.0	1.6	0.5	5	9	57	97
				at 167.2 C/A: 60°. patchy alt'n throughout but generally									
				similar to 158.75-162.85.	5833	165.0	166.0	1.0	0.9	10	20	46	84
				163.7-163.9.: 10% sericitization, 10% py-clots and 5%									
				epidote + quartz flooding in a volc. xenolith.	5834	166.0	167.5	1.5	0.7	15	54	40	128
				165.5: 25cm zone of 30% sericitization and silicification with									
				30% calcite-yaartz[?] veining and brecciation G[?] with	5835	167.5	169.0	1.5	0.6	5	25	38	115
				well developed chlorite rims beside veins. 2-5% py.									
				165.6-166.85: 15 to 20% sericitization with 10% chlorite-quartz-									
				py clots + frac.									
				166.25: 2cm wide calcite-quartz (vuggy) vein with 15% fluorite	5836	169.0	170.5	1.5	1.0	5	12	37	152
				(clear) cubes and 5% py C/A: 30°									
				168.5: 1-4 cm wide calcite-fluorite (quartz) vein subparallel	5837	170.5	172.0	1.5	0.6	10	1	51	148
				to core C/A: 5°. 15% sericitization and 2-3% py on margins									
				168.7-169.2: zone of brecciation and pebble dykes (40%) with	5838	172.0	173.5	1.5	0.5	5	5	44	92
				sericitized fragments and a quartz-chlorite matrix									
				↓20%. contain 3-5% py [illegible] 10% chlorite.	5839	173.5	175.0	1.5	0.6	5	27	42	85
				169.2-169.7: 20% sericitization associated with 2-3cm									
				calcite veins C/A 5-10°	5840	175.0	176.8	1.8	0.9	5	30	49	79
				EOH									

AURUM GEOLOGICAL CONSULTANTS INC. — **DIAMOND DRILL LOG** — HOLE No. Dev 87-3

Property DEU	NTS 95L-1E	Claim GO-2	Elevation	Azimuth 270°	Length
Dip -55°	Coordinates 18400N / 15+70W	Dip Tests —	Advance —	Depth 141.7	Date Collared Sept 24
Date Completed Sept 26	Purposes IP anomaly B + geochem	Drilled by Tonto	Assays by Chemex / Min En	Logged by T. Garagan	

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag (ppm)	Au (ppb)	As (ppm)	Cu (ppm)	Zn (ppm)
0	24.3			Casing									
24.3	26.5	85		Dacite, med grey-grn. aphanitic with 15% mG-CG euhedral equant	5841	24.3	26.5	~2.2	0.3	5	28	30	54
				feldspar phenocrysts. The phenocrysts are hazey due to alt'n. The									
				feldspars are partially sericitized (25%). Unit contains 7 to 10%									
				diss (local clots) po >> py. Lower contact C/A 5 to 10°.									
26.5	33.4	100		Dacite tuff as in 87-1 & 87-2. 10 to 40% matrix, altered throughout	5842	26.5	28.0	1.5	0.3	5	18	17	74
				with 10 to 25% sericitization, 5 to 15% quartz flooding.	5843	28.0	29.5	1.5	0.5	5	14	22	58
				Contains 1-3% calcite throughout and tr apple green clay with sulphides	5844	29.5	31.0	1.5	0.5	10	28	26	198
				Contains 10 to locally 15% po>py (tr sp dk brn metallic) in seams, micro frac.	5845	31.0	32.5	1.5	0.7	5	83	18	188
				clots and as diss. Sulphides are weathered to give a vuggy texture.	5846	32.5	33.4	0.9	0.4	5	284	28	80
				26.5-28. 30% silicification, 5% sericitization									
33.4	35.1	100		Andesite: dk grey. vfg with 15% mG euhedral hazey feldspar	5847	34.85	35.1	0.25	0.8	5	604	25	80
				phenocrysts. The phenocrysts are partly (5%) altered to calcite. Contains									↳ +20 ppm Sb
				1% diss po. U+L Contacts C/A 30 + 45°									
				34.85-35.1: zone of 45% vuggy quartz-calcite-py veining									
				and quartz-calcite sealed breccia. Veins are 2mm to 3cm wide and									
				include a 1cm wide massive vfg py vein. The calcite vein									
				contains py seams and py cubes occur in the vugs. The wall rock									
				is 10% sericitized adjacent to and within the zone. vein C/A avg. 40°									
35.1	40.5	95		Dacite tuff as before. lapilli tuff fragments have increased	5848	35.1	36.5	1.4	0.4	10	394	21	42+21 ppm Sb
				sericite content up to 25% in the following zones: 35.1 to 36.[illegible] and 39.2 to 40.5	5849	36.5	38.0	1.5	0.6	5	54	25	55
				Unit contains 3-5% diss po > py >> sp.	5850	38.0	39.5	1.5	0.6	5	40	23	60
					5801	39.5	40.5	1.0	0.4	5	43	34	58
40.5	53.3	100		Andesite. dk grey to med tan grey: aphanitic with 5 to 25%									
				fg to coarse grained phenocrysts. Highly variable with increase in									
				phenocryst size corresponding to increased %. 50% of the phenocrysts are									
				dk grey to apple grn due to sericitization. Matrix is moderately magnetic									
				There is a local trachytic texture C/A 50°. Upper and lower contacts are									
				weakly sericitized over 30cm. Contains 2-3% diss + clots of									
				po + py									

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No 87-3

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn
53.3	56.15	95		Dacite to Andesite dyke. lt + med grey-grn. fg mesh texture with 0 to									
				locally 10% amygdules filled with ? zeolites, quartz and tr. calcite									
				The unit is flow banded with darker layers being strongly magnetic									
				2-3% calcite alt'n. U+L. Contacts C/A 50. L. contact gouge.									
				53.4: 5 cm fault gouge									
				54.5-55. 2-3mm wide calcite-quartz vein subparallel to core									
56.15	58.1	100		Andesite to dacite crystal ash tuff. dk brn to grey brn. contains 1 to 5%	5902	56.15	58.1	1.95	0.4	10	33	30	69
				feldspar crystals, 50% of which appear to be broken. Unit is mod. magnetic									
				2-5% calcite and 7-10% sericite alt'n which increases downward. 5% dis. po + py									
				L. contact - 5mm calcite vein C/A 35°									
58.1	66.55	100		Dacite tuffs as in 87-1 + 87-2. patchy tan and grey to variable alt'n	5903	58.1	59.5	1.4	0.4	10	27	23	73
				Sericitization occurs in 15-40% of the rock. Silica flooding 5 to 15%. Unit	5904	59.5	61.0	1.5	0.5	5	45	30	76
				contains 10-15% py >> po > sp as diss. fracture fillings, clots and as a	5905	61.0	62.5	1.5	0.5	5	82	31	62
				vfg replacement adjacent to fractures. sulphides occasionally weather	5906	62.5	64.0	1.5	0.6	5	68	26	63
				out to give a vuggy texture. Unit is moderately magnetic throughout	5907	64.0	65.5	1.5	0.5	5	6	28	65
				and contains 2-3% chlorite and 5% calcite alt'n and frac. Also	5908	65.5	66.55	1.05	0.7	5	35	34	88
				some calcite vugs at fracture openings.									
6.55	67.75	100		Andesite, dk grey, vfg, massive with 5% chlorite-calcite-po clots	5909	66.55	67.75	1.2	1.1	5	14	31	74
				67-67.15: 15% sericitization, 5% po, 2-3% py									
7.75	69.95	100		Dacite tuff as above. 25 to 35% sericitization with 7 to 12%	5910	67.75	69.0	1.25	0.7	5	14	38	93
				py >> po > sp as in 58.1-66.55.	5911	69.0	69.95	0.95	0.5	10	20	41	84
69.95	71.65	100		Andesite: dk grey-brn. fg, massive with 5-10% MG to up	5912	69.95	71.65	1.7	1.4	10	9	30	95
				to 2cm in diameter amygdules: 2 types 1: calcite-quartz tr. py, po, sp									
				2. chlorite-calcite " " " "									
				Some of the amygdules are elongate, probably parallel to flow direction									
				C/A: 40°. Unit has 1-5% sericitization and 5% py > po > sp in									
				vugs and frac									
1.65	94	100		Dacite tuff as before with an interlayered flow between 73.5	5913	71.65	73.0	1.35	0.5	5	36	42	90
				and 76.1. boundaries obscured by alt'n; but presence marked by	5914	73.0	74.5	1.5	0.5	5	29	31	98
				calcite-quartz amygdules. The unit contains 15 to 30%	5915	74.5	76.0	1.5	0.5	5	25	36	92
				sericitization, 10 to 15% quartz flooding and is very blotchy	5916	76.0	77.5	1.5	0.5	5	107	30	108

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb	
71.65	94			possibly reflecting the inhomogeneous nature of the tuffs. Slightly	5917	77.5	79.0	1.5	0.5	5	128	31	101		Contg given in
	cont'd			magnetic throughout. Contains 2-5% calcite alt'n and frac. (to up to	5918	79.0	80.5	1.5	0.5	5	117	32	96		zones >10ppm
				0.5cm wide at 80.95) with shallow C/A between 10 & 25°. Unit contains	5919	80.5	82.0	1.5	0.5	10	198	29	98		-see Appendix A
				8 to 12% py=po>>sp as in 58.1-66.55	5920	82.0	83.5	1.5	0.4	5	58	29	94		for rest of
				lower contact undulate with core from 85.5 to 94	5921	83.5	85.0	1.5	0.4	5	27	34	111		results)
				78.1: flt gouge C/A 30°	5922	85.0	86.5	1.5	0.5	5	35	27	115		
				90.8: " " C/A 15°	5923	86.5	88.0	1.5	0.5	5	51	30	164		
				-several fractures contain a black-green stain on	5924	88.0	89.5	1.5	0.7	5	44	29	156		
				exposed surfaces.	5925	89.5	91.0	1.5	0.9	5	103	31	214		
					5926	91.0	92.5	1.5	0.9	5	139	38	164		
94.	101.95	100		Dacite to andesite: med brn: aphanitic with 25% coarse feldspar	5927	92.5	94.0	1.5	0.7	10	91	54	171		
				megacrysts with a trachytic texture. The bladed feldspars are up to	5928	94.0	95.5	1.5	0.7	5	37	77	130		
				3cm x 0.5cm. The trachytic texture averages C/A 25°, but varies	5929	95.5	97.0	1.5	0.7	5	13	88	174		
				from subparallel to the core to 35°. They are rarely glomeroporphyritic	5930	97.0	98.5	1.5	0.6	5	31	96	127		
				The feldspars are 15% sericitized. The unit contains 5%	5931	98.5	100.0	1.5	0.5	5	301	80	203		
				veinlets and clots (up to 0.5cm) of po>py>>sp>aspy. The po is dominant	5932	100.0	101.95	1.95	0.5	5	111	79	156		
				as clots and the py is dominant in veinlets. Some calcite and tourmaline											
				is associated with the clots.											
101.95	103.15	100		Dacite: med grey to tan. vfg-fg with 5-10% vfg-fg feldspar crystal	5933	101.95	103.15	1.2	0.5	20	1847	28	167		
				fragments -massive. Also contains 5-7% fg-mg chlorite clots											
				contains 15% sericite throughout and 1-2% apple green clay. Contains											
				5-7% diss + clots of po=py=sp-aspy.											
				102.3-102.7: calcite-clay shear + vein zone with 7-10%											
				aspy-sp-py in veining.											
103.15	105.1	100		Dacite to Andesite: feldspar megacrystic dyke as in 94-101.95	5934	103.15	105.1	1.95	0.5	15	1133	60	82	56	
				alt'n and min as before.											
				Lower contact is a vuggy calcite-quartz cemented breccia											
				zone C/A: 30°. also contains 5% kaolinite, 5% py and 5-10% vfg											
				quartz and tourmaline and trace aspy.											
105.1	105.6	100		Dacite ash tuff as in 56.15 - 58.1 with 3-5% py + po and 10% sericite	5935	105.1	105.6	0.5	0.5	10	733	56	125	48	
105.6	105.75	100		Dacite to And as in 94-101.95 U+L contact C/A: 25°. Lower											
				Contact is a fault with chlorite-py gouge.	5936	105.6	106.5	0.9	0.6	5	174	40	103	11	

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb (only >10ppm)
105.75	107.5	100		Dacite ashtuff : aa aphanitic with 5% vfg feldspars and ? 5%	5937	106.5	107.5	1.0	0.8	10	150	36	158	21
				glass shards?? which are altered - possibly welded. C/A: 40°. Contains										
				7-10% diss clots and frac (mainly py) of Po = Py > Sp > aspy										
				107.2: Banded 1cm wide calcite-ankerite-quartz-py vein C/A 20°										
107.5	109.3	100		Dacite tuffs as in 87-1, 87-2 and 26.5-33.4. 25% sericite, 2-3%										
				apple green clay and 10% chloritization. 5-7% fract/clots of pos py	5938	107.5	109.3	1.8	0.4	5	235	36	80	16
109.3	119	100		Dacite ash tuff as in 105.75-107.5. locally welded and with	5939	109.3	111.0	1.7	0.3	5	106	17	77	10
				well developed bands at 109.8, 117.7 C/A 20 to 30°. U. contact C/A 20°	5940	111.0	112.5	1.5	0.2	5	183	16	59	
				Contains 20 to 25% sericitization, 10-15% chlorite ass. with	5941	112.5	114.0	1.5	0.3	5	913	19	54	38
				sulphides. also 1-5% quartz flooding and 10% calcite alt'n and veins	5942	114	115.5	1.5	0.4	10	388	19	78	
				up to 1cm in diameter. Unit contains 10-12% clots, diss. and frac of	5943	115.5	117.0	1.5	0.2	5	108	16	66	
				Py > Po >> Sp. Also includes vfg py which replaces wallrock along	5944	117.0	118.0	1.0	0.5	5	337	36	70	
				fractures. Sulphides weather out to form a vuggy texture.	5945	118.0	119.0	1.0	0.4	5	84	44	136	
				* Note: this zone is very similar to Equity silver "South Tail" zone										
				footwall *										
119	141.7	100		Monzonite dyke. grey grn. highly variable aphanitic to fg with										
				5 to 25% M.G to C.G euhedral feldspar phenocrysts (locally										
				totally sericitized). Also contains 1-5% fine grained chlorite										
				pseudomorphs after f.g. ferro magnesium minerals. Also										
				contains 5-10% chlorite associated with 2-3% py-po clots, diss +										
				frac.										
				U. Contact C/A 15°. - appears to be composite dyke as										
				there is an intrusive contact at 121.8 C/A 15°										
				119.7-120.9: zone of intense calcite-quartz-py veining and	5946	119.7	120.9	1.2	0.5	10	306	19	77	
				brecciation in 15% of the core and with individual										
				veins up to 2cm wide with avg C/A 15 to 20°										
				zone is also intensely sericitized ~ 15%										

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No. 87-4

Property: DEV	NTS: 93L-1E	Claim: GO 2	Elevation
Azimuth: 270	Length	Dip: -55	
Coordinates: 22+00N / 9+20W	Dip Tests: —	Advance	Depth: 114.3m
Date Collared: Sept 26	Date Completed: Sept 26		
Purposes: Drill under altered tuffs in Sump	Drilled by: Tonto (had 200' shift on 87-4)	Assays by: Min-En	Logged by: T. Garagan in rain.

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag (ppm)	Au (ppb)	As (ppm)	Cu (ppm)	Zn (ppm)	Sb (ppm)
0	7.6			Casing										
					5947	7.6	10.1	2.5	0.1	5	68	22	64	3
7.6	15.5	90%		Dacite: grey grn to rusty lithic lapilli tuff Similar to 87-1 + 87-2	5948	10.1	11.6	1.5	0.3	5	27	24	79	1
				15-20% silicification and 5% sericite and 10% chlorite-associated	5949	11.6	13.1	1.5	0.5	10	35	20	101	1
				with sulphide clots + microfrac. 1-2% calcite. contain 3-5% py cubes and 5%	5950	13.1	14.6	1.5	0.3	5	61	20	92	5
				py=po clots and microfrac. Some frac have narrow Kfsp alt'n bands.	5951	14.6	15.5	0.9	0.2	5	98	33	117	3
15.5	19.65	95		Dacite: red-grey to purple. massive aphanitic with 10% fine grained acicular	5952	15.5	17.0	1.5	0.5	5	27	19	57	2
				sericite pseudomorphs after ? feldspar or glass shards? . some alignment C/A: 40°	5953	17.0	18.5	1.5	1.4	5	9	18	63	1
				at 15.9. Blotchy grey and purple throughout. grey areas are areas	5954	18.5	19.65	1.15	1.3	10	13	22	68	1
				of silicification (15%), 10% chlorite and 5% diss. clots + frac of py+po										
				U. Contact: hazy L. Contact: C/A 35°										
19.65	22.5	100		Andesite: med grey to green to dk purple: vfg with 5 to 15% MG to										
				locally C.G. dk grey (alt'd) feldspar phenocrysts and 3-5% fg										
				chlorite clots. Unit is weakly chloritized (2-3%) and 2-3% diss + frac py.										
22.5	27.5	100		Dacite as in 7.6 to 15.5. Some bedding at 24.55 of C/A 55°. Unit	5955	22.5	24.0	1.5	0.7	5	55	45	113	5
				contains 15-20% sericitization throughout with tr. to 5%	5956	24.0	25.5	1.5	0.5	5	451	34	100	171
				apple green clay (24.55) and 5% chloritization which decreases down	5957	25.5	26.5	1.0	0.6	5	26	52	100	7
				the hole. 10% silicification throughout 2-3% med bn alt'n in	5958	26.5	27.5	1.0	0.4	5	16	65	112	2
				upper 30cm - ? jasper. 5-7% vfg diss + frac py, tr po: unit is magnetic										
				25.0: 6cm zone of 2 rusty + smokey quartz and calcite veins C/A 30										
27.5	33.5	100		Andesite as in 19.65 with 10-15% feldspar phenocrysts. U. contact C/A 35										
				lower contact appears brecciated and x-cut by a 2.5cm calcite-										
				quartz vein. Unit is locally trachytic C/A: 45°										
				Contains 5 to locally 15% sericitization and 2-5% chlorite and 5%										
				po>py as clots + frac.										
					5959	33.5	35.0	1.5	0.7	10	115	39	111	5
33.5	49.1	100		Dacite as in 7.6 to 15.5. weakly magnetic	5960	35.0	36.5	1.5	0.6	5	47	25	94	3
				Contains 15% sericitization, 10-15% silicification and 5% chlorite	5961	36.5	38.0	1.5	1.0	5	55	31	94	3
				alt'n with 5-7% calcite frac fill'n. The unit contains 7-10% diss.	5962	38.0	39.5	1.5	1.2	5	26	32	85	1
				clot and microfrac. of po ≥ py >> sp	5963	39.5	41	1.5	1.5	5	15	29	81	2

AURUM GEOLOGICAL CONSULTANTS INC. DIAMOND DRILL LOG HOLE No 87-4

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb
33.5	49.1			37.85-38.0: zone of frac with 20% py veining and replacement	5964	41.0	42.5	1.5	1.8	10	3	33	81	1
	Cont'd			of wall rock with 20% sericite + 15% calcite C/A: 45°	5965	42.5	44.0	1.5	2.1	5	15	24	83	1
				40.35: silicified shear zone C/A 25°	5966	44.0	45.5	1.5	0.9	5	5	27	89	2
				47.6: 1cm wide fault gouge zone C/A: 26°	5967	45.5	47.0	1.5	0.7	5	38	23	89	7
					5968	47.0	48.0	1.0	0.5	15	1279	17	84	15
49.1	50.1	100		Andesite: choc brn, fg with 15% mG (hazy boundaries) feldspar	5969	48.0	49.1	1.1	0.5	5	154	15	51	4
				phenocrysts and 10% chlorite clots, which may be Fe-Mg mineral										
				pseudomorphs. - Strongly magnetic. contains 2-4% diss + frac										
				po=py and 10% calcite U+L contacts: C/A 88 + 80°										
50.1	54.4	100		Dacite as in 7.6-15.5. with 10-15% sericitization, 10%	5970	50.1	51.6	1.5	1.0	5	55	27	131	1
				silicification, 1-2% chlorite, 5-7% calcite, tr-1% apple green clay.	5971	51.6	53.1	1.5	0.8	5	343	21	138	6
				weakly to mod. magnetic. contain 7-10% py+po>>sp as before	5972	53.1	54.4	1.3	1.0	5	22	22	196	1
54.4	54.85	100		Dacite-Andesite dyke: med grn. vfg with a central area of										
				5% calcite amygdules. Unit is locally flow banded which is parallel										
				to U+L contacts C/A: 45°. U. contact: narrow gouge zone.										
54.85	57.3	100		Dacite as in 7.6-15.5. altered and mineralized as before: locally	5973	54.85	56.35	1.5	0.9	5	26	22	144	3
				vuggy due to weathering of sulphides.	5974	56.35	57.3	0.95	1.1	5	14	43	191	5
				57.2: 0.5 cm wide calcite-chlorite-py vein C/A 35°										
57.3	61.95	100		Andesite-dacite as in 49.1-50.1										
				57.8-58.9: contains 15% silicification, 5-10% sericitization and 7%	5975	57.8	58.9	1.1	1.2	10	2	29	143	9
				diss, clots + frac of py, tr po										
				59.85: 2mm ch-py vein with 10% adjacent sericitization over 10cm: C/A: 40										
				61.3-61.95: 15% chloritization and 15% sericitization with 5% quartz	5976	61.3	61.95	0.65	0.6	5	68	15	168	2
				flooding occuring at 61.67. 5-7% py ≥ po										
61.95	62.15	100		Intensely fractured and silicified zone: banded grey, white and green	5977	61.95	62.15	0.20	0.3	5	34	5	41	1
				also 10% sericite and 1% vfg diss. py. cubes C/A 40°										
62.15	70.0	100		Dacite-tuffs? Lapilli frags? are fine grained and are obscured by	5978	62.15	63.7	1.55	1.1	5	944	40	134	5
				patchy (15%) sericitization. Also contains 15% chloritization which	5979	63.7	65.2	1.5	0.8	15	473	20	149	2
				increases downwards. 5-7% py>po>>sp=aspy as before. 2-3% frac	5980	65.2	66.7	1.5	0.7	5	151	20	138	2
				64.5: clay-py gouge zone C/A: 20°	5981	66.7	68.2	1.5	0.5	10	131	24	154	8
				64.9: calcite cemented breccia zone and gouge with sericitized volcanic										

Interval From	Interval To	Rec'y %	RQD	DESCRIPTION	Sample No.	Interval From	Interval To	Core Width	Ag	Au	As	Cu	Zn	Sb
52.15	70.0			fragments in breccia. C/A: 20°	5982	68.2	68.7	0.5	2.1	25	6236	36	138	106
	cont'd			68.5: 5cm wide zone of chlorite-sulphide veining - intensely sericitized	5983	68.7	70.0	1.3	0.8	5	308	36	94	4
				chloritized with 45% aspy and 5% py. zone is refractured										
					5984	70.0	71.5	1.5	1.6	5	47	31	128	5
70.0	91.0	100		Dacite ashtuff?. med grey to grey grn vfg with 10% fg-mg irregularly	5985	71.5	73.0	1.5	1.0	5	142	35	141	2
				shaped mafic clots - altered volcanic fragments. locally poorly bedded	5986	73.0	74.5	1.5	1.6	5	188	42	109	4
				near U. contact and at 80.0. C/A: 25°. - may reflect welding or flow banding	5987	74.5	76.0	1.5	2.2	10	18	41	141	4
				also!! Unit contains 15-25% chloritization (increases down) and 1-5%	5988	76.0	77.5	1.5	3.1	5	21	50	134	4
				sericitization (decreases down). Contains 1-2% apple-green clay	5989	77.5	79.0	1.5	2.7	5	11	42	116	3
				87.75-88.65: 5% apple green clay and 5% sericite with 5-7% py, aspy	5990	79.0	80.5	1.5	3.2	5	4	46	100	6
				+ po + tr. sp.	5991	80.5	82.0	1.5	3.0	5	6	54	109	3
				88.4-88.65. zone of 40% calcite-quartz veining and brecciation	5992	82.0	83.5	1.5	2.6	5	19	46	107	4
				with fragments sericitized and silicified. consists of 2 outer calcite-	5993	83.5	85.0	1.5	2.8	10	11	53	105	1
				silicate vein (7cm) and a central 2cm wide chlorite-quartz-calcite	5994	85	86.5	1.5	3.4	5	32	43	132	5
				-aspy (30%) - py (30%) vein	5995	86.5	88.0	1.5	2.6	5	59	42	156	4
					5996	88.0	89.0	1.0	1.2	5	883	35	132	17
91.0	114.3	100		Dacite to Andesites purple-brn to grey grn. aphanitic and massive - hard.	5997	89.0	90.0	1.0	2.7	5	27	48	109	7
				Contains some interlayered Dacite ash tuff from 70-91. Unit contains	5998	90.0	91.0	1.0	2.9	5	19	41	111	5
				2 to 5% diss + microfrac py + po with associated chlorite + bleaching.										
				97.65-98.5: 15-20% sericite and calcite alt'n with a 15cm quartz-	5999	96.0	97.65	1.65	2.5	5	23	41	75	1
				calcite vein from 98.15-98.3. vein is vuggy with 10% py C/A 45°.	6000	97.65	98.5	0.85	1.0	15	443	37	59	26
				105.1-106.8. 15% quartz-sericite alt'n with 5-10% chlorite and 5-7%	5851	98.5	100.0	1.5	2.5	5	31	37	73	5
				diss py + po. surrounding 2 1 and 3cm wide veins of calcite-quartz at 105.4	5852	100.0	101.75	1.75	2.2	10	17	40	71	5
				and 106.7	5853	101.75	101.95	0.2	0.9	5	57	17	100	2
				107.9-108.5: 15 to 20% quartz-sericite alt'n associated with	5854	101.95	103.6	1.65	2.1	5	15	43	66	4
				15cm wide (108-108.15) quartz-calcite cemented breccia which	5855	103.6	105.1	1.5	1.5	5	20	40	64	1
				contains 20% vein material.	5856	105.1	106.8	1.7	1.0	5	71	35	78	1
				108.7: 2cm wide zone of chlorite-calcite-py (25%) - aspy (10%)	5857	106.8	107.9	1.1	1.7	5	43	37	105	3
				vein within a 20cm wide calcite-quartz-sericite alt'd zone	5858	107.9	108.8	0.9	0.9	5	616	43	79	20
				101.75-101.95: 10 cm wide banded quartz-calcite-chlorite	5859	108.8	110.3	1.5	2.0	5	26	36	80	1
				-sulphide zone with 15% sulphides (py >> po > sp) occurring										
				as seams and disseminations within 3-7mm wide bands. C/A: 30°										
				5cm wide sericitized zone on either side.										
				EOH										

APPENDIX B

ANALYTICAL RESULTS

COMPANY: SEMA INTERNATIONAL RESOURCES | MIN-EN LABS ICP REPORT | (ACT:GEO2): PAGE 1 OF 1
PROJECT NO: DEV. | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 6-1214/P1+2
ATTENTION: R.BARCLAY | (604)980-5814 OR (604)988-4524 | * TYPE SOIL GEOCHEM * DATE:DEC 1, 1986

(VALUES IN PPM)	AS	CU	MN	PB	SB	ZN	AU-PPB
BL 0+00N 20M	1.0	25	272	35	5	93	5
BL 1+00N 20M	1.6	38	1082	55	7	98	10
BL 2+00N 20M	3.1	90	817	69	8	76	5
BL 3+00N	.6	16	136	18	2	40	5
BL 4+00N	.9	26	364	23	3	71	5
BL 5+00N	1.0	39	617	39	5	62	5
BL 6+00N 40M	1.7	49	479	48	7	98	5
BL 7+00N 20M	4.2	60	282	45	3	97	10
BL 8+00N	1.4	35	1521	32	6	117	5
BL 9+00N	.9	34	205	31	5	72	5
BL 10+00N	1.1	25	206	36	7	108	3
BL 11+00N 20M	1.4	32	428	36	4	71	5
BL 12+00N	1.7	44	885	46	6	93	5
BL 13+00N	1.0	32	342	28	4	69	10
BL 14+00N 40M	.9	26	700	28	4	57	5
BL 15+00N	1.0	31	390	30	6	67	5
BL 16+00N	.8	26	251	16	3	57	15
BL 17+00N 20M	3.0	45	509	48	5	102	10
BL 19+00N	1.2	31	288	27	5	80	5
BL 21+00N	1.1	20	173	24	5	97	5
BL 23+00N	1.7	34	264	36	5	80	5
BL 27+00N 20M	.6	27	618	49	6	113	10
18+00N 0+00 40M	.8	23	236	26	4	69	5
18+00N 0+50W	.6	15	241	24	2	52	5
18+00N 1+00W 20M	1.4	50	2406	68	7	102	10
18+00N 1+50W	.9	19	201	23	3	56	5
18+00N 2+00W	1.1	23	208	20	4	71	5
18+00N 2+50W	1.2	26	459	25	3	60	5
18+00N 3+00W 20M	1.2	16	82	19	1	52	5
18+00N 3+50W	.7	14	117	26	3	48	5
18+00N 4+00W 40M	1.2	25	498	38	3	76	5
18+00N 4+50W	1.3	22	273	29	5	97	5
18+00N 5+00W	1.1	16	335	23	2	62	3
18+00N 5+50W 20M	1.9	34	616	50	2	87	5
18+00N 6+00W	2.0	24	196	32	5	67	10
18+00N 6+50W	1.4	19	132	24	2	56	5
18+00N 7+00W	1.7	22	164	30	2	71	5
18+00N 7+50W	1.7	37	588	49	6	99	5
18+00N 8+00W 40M	2.5	45	1706	51	5	86	5
18+00N 8+50W	2.3	39	198	41	2	65	5
18+00N 9+00W	1.2	34	199	42	4	78	5
18+00N 9+50W 40M	1.5	24	275	31	2	67	3
18+00N 10+00W	2.3	47	1149	62	7	109	10
18+00N 10+50W40M	1.9	41	568	49	5	91	5
18+00N 11+00W	2.4	59	921	61	7	102	5
18+00N 11+50W	3.5	70	729	72	7	130	5
18+00N 12+00W	2.2	39	555	53	6	104	5
20+00N 0+00	1.2	24	240	28	5	112	3
20+00N 0+50W 40M	2.6	40	2177	59	9	106	5
20+00N 1+00W	.8	20	373	21	3	68	5
20+00N 1+50W	.5	16	520	20	2	47	5
20+00N 2+00W	1.1	26	241	35	5	99	10
20+00N 2+50W	.9	13	119	21	1	46	5
20+00N 3+00W 40M	1.4	56	951	63	6	117	5
20+00N 3+50W	1.0	34	657	41	5	100	3
20+00N 4+00W	.8	32	251	52	7	85	5
20+00N 4+50W	1.6	37	817	54	7	93	10
20+00N 5+00W	2.3	32	494	39	2	73	5
20+00N 5+50W	2.4	33	111	42	1	64	5
20+00N 6+00W	2.9	25	146	46	3	69	5

COMPANY: EIMA INTERNATIONAL RESOURCES — MIN-EN LABS ICP REPORT — (ACT:GEO27) PAGE 1 OF 1

PROJECT NO: DEV. — 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 — FILE NO: 6-1214/P3+4

ATTENTION: R.BARCLAY — (604)980-5814 OR (604)988-4524 — * TYPE SOIL GEOCHEM * — DATE:DEC 1, 1986

(VALUES IN PPM)	AG	CU	MN	PB	SB	ZN	AU-PPB
20+00N 6+50W 40M	1.9	42	585	55	5	101	5
20+00N 7+00W	9.6	75	770	80	7	142	5
20+00N 7+50W 20M	3.9	61	1267	70	6	126	3
20+00N 8+00W	2.0	38	381	46	3	85	10
20+00N 8+50W	2.1	32	461	42	3	78	5
20+00N 9+00W	1.2	13	103	20	1	26	5
20+00N 9+50W	1.7	32	373	50	6	107	5
20+00N 10+00W	1.3	27	179	31	5	57	10
20+00N 10+50W	1.5	30	542	47	5	100	5
20+00N 11+00W40M	2.1	31	800	47	5	97	5
20+00N 11+50W	2.2	40	704	41	6	97	5
20+00N 12+00W	1.7	33	490	43	6	54	10
22+00N 0+00	1.2	26	336	39	6	91	5
22+00N 0+50W 40M	2.4	51	3305	891	11	136	5
22+00N 1+00W	1.3	26	356	28	3	67	10
22+00N 1+50W 20M	.9	17	244	14	1	64	5
22+00N 2+00W	1.2	24	203	23	2	67	5
22+00N 2+50W	1.7	36	378	44	5	97	10
22+00N 3+00W	2.8	61	992	68	8	124	5
22+00N 3+50W	1.9	39	736	44	6	100	5
22+00N 4+00W	1.3	37	781	49	6	89	10
22+00N 4+50W 40M	1.2	34	607	28	4	76	5
22+00N 5+00W 40M	1.2	29	317	24	4	77	3
22+00N 5+50W 40M	1.2	23	587	28	3	84	5
22+00N 6+00W	1.3	27	388	27	3	72	10
22+00N 6+50W	1.1	23	249	29	3	66	3
22+00N 7+00W	1.2	21	245	25	3	58	5
22+00N 7+50W	2.0	36	857	47	6	90	5
22+00N 8+00W	1.0	22	198	25	3	59	10
22+00N 8+50W 40M	2.5	33	1507	32	4	83	5
22+00N 9+00W	2.1	38	302	42	6	108	5
22+00N 9+50W 40M	5.4	85	774	76	9	165	5
22+00N 10+00W20M	3.2	85	1177	73	9	168	5
22+00N 10+50W	1.8	32	374	34	8	156	10
22+00N 11+00W	1.5	34	357	27	6	164	5
22+00N 11+50W40M	.5	26	240	18	4	94	5
22+00N 12+00W40M	1.2	34	199	62	7	106	5
24+00N 0+00	.7	22	219	22	3	93	5
24+00N 0+50W 40M	1.1	42	1564	56	5	126	3
24+00N 1+00W	.6	23	294	23	4	78	5
24+00N 1+50W	.8	31	792	37	7	89	5
24+00N 2+00W 40M	1.6	31	1698	46	5	100	10
24+00N 2+50W	.7	19	339	21	3	62	5
24+00N 3+00W	.5	32	689	34	6	105	5
24+00N 3+50W 40M	1.8	43	1493	53	5	132	5
24+00N 4+00W	.5	23	183	24	4	81	5
24+00N 4+50W	.6	20	194	33	3	67	5
24+00N 5+00W 40M	1.5	37	802	45	5	112	10
24+00N 5+50W	1.0	34	782	46	6	107	5
24+00N 6+00W 40M	1.1	40	1062	50	5	94	5
24+00N 6+50W	1.3	39	1019	44	6	107	5
24+00N 7+00W 40M	1.0	29	309	26	3	77	10
24+00N 7+50W 40M	1.2	37	516	39	6	107	5
24+00N 8+00W	1.4	34	1200	54	7	110	5
24+00N 8+50W	1.0	33	1497	46	9	103	5
24+00N 9+00W 40M	1.2	41	1516	58	6	119	60
24+00N 9+50W 40M	3.2	90	948	59	6	130	5
24+00N 10+00W40M	3.4	70	1129	59	6	127	5
25+00N 0+00	.8	28	223	35	6	91	10
25+00N 0+50W 20M	.8	21	216	21	2	62	5

COMPANY: SEMA INTERNATIONAL RESOURCES | MIN-EN LABS ICP REPORT | (ACT:SE027) PAGE 1 OF 1
PROJECT NO: DEV.7 | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 6-1214/P5-6
ATTENTION: R.BARCLAY | (604)980-5814 OR (604)988-4524 | * TYPE SOIL GEOCHEM * | DATE:DEC 1, 1986

(VALUES IN PPM)	AG	CU	MN	PB	SB	ZN	AU-PPB
25+00N 1+00W 40M	.8	23	306	25	4	79	5
25+00N 1+50W 40M	2.8	37	542	43	3	98	10
25+00N 2+00W 40M	1.3	31	1140	35	4	93	5
25+00N 2+50W	1.8	46	502	41	4	102	5
25+00N 3+00W 40M	2.0	40	1070	50	5	103	10
25+00N 3+50W	1.4	32	459	29	5	88	5
25+00N 4+00W	1.1	25	304	31	3	75	5
25+00N 4+50W	1.2	22	652	25	3	64	5
25+00N 5+00W	.9	19	145	18	2	52	3
25+00N 5+50W 40M	.6	14	122	16	1	34	5
25+00N 6+00W	1.5	26	442	27	4	101	5
25+00N 6+50W	1.0	20	239	18	3	49	15
25+00N 7+00W	1.2	22	646	34	4	85	5
25+00N 7+50W	1.2	17	244	19	2	66	10
25+00N 8+00W	1.6	32	410	43	5	102	5
25+00N 8+50W 40M	1.2	22	264	26	3	90	5
25+00N 9+00W	1.3	22	283	26	3	81	5
25+00N 9+50W	1.3	21	229	25	4	80	10
25+00N 10+00W	1.6	29	320	26	5	75	5
26+00N 0+00	1.2	21	244	19	3	62	5
26+00N 0+50W	1.6	25	212	31	2	57	5
26+00N 1+00W 40M	.8	17	265	23	4	51	10
26+00N 1+50W 20M	1.0	19	273	17	5	66	5
26+00N 2+00W	1.0	17	245	22	2	56	15
26+00N 2+50W 40M	2.1	39	1900	36	7	99	5
26+00N 3+00W	1.4	20	253	20	3	62	5
26+00N 3+50W 40M	1.2	24	349	26	5	82	5
26+00N 4+00W	.8	17	160	22	2	47	10
26+00N 4+50W	1.1	17	230	20	2	59	5
26+00N 5+00W	1.2	21	249	23	2	71	5
26+00N 5+50W	1.0	26	345	34	4	65	5
26+00N 6+00W 20M	2.0	59	1211	81	8	146	3
26+00N 6+50W 40M	.8	29	520	22	4	76	5
26+00N 7+00W	.8	23	355	22	3	59	10
26+00N 7+50W	1.5	38	605	39	5	84	5
26+00N 8+00W	1.1	33	412	34	5	91	5
26+00N 8+50W 40M	1.2	28	2049	41	5	87	5
26+00N 9+00W	1.3	38	909	46	5	111	5
26+00N 9+50W	2.4	39	1917	64	4	106	10
26+00N 10+00W	2.1	48	630	58	5	130	5
28+00N 0+00	1.1	31	258	19	5	69	15
28+00N 0+50W	.8	29	656	17	5	33	5
28+00N 1+00W	.8	22	288	15	4	56	10
28+00N 1+50W	1.2	26	340	21	6	55	5
28+00N 2+00W	1.0	21	222	24	5	79	15
28+00N 2+50W	1.1	24	222	20	7	71	5
28+00N 3+00W	.9	27	354	21	5	85	5
28+00N 3+50W	1.2	32	350	30	8	170	5
28+00N 4+00W	1.0	24	347	19	3	73	10
28+00N 4+50W	.9	19	258	17	3	52	5
28+00N 5+00W	.9	20	647	20	2	67	5
28+00N 5+50W	.9	23	506	20	3	93	7
28+00N 6+00W	1.4	31	1084	31	4	97	5
28+00N 6+50W 40M	.4	22	213	17	4	77	5
28+00N 7+00W	.6	20	402	19	3	79	10
28+00N 7+50W	1.0	24	216	25	3	86	5
28+00N 8+00W 40M	.8	23	390	18	3	70	5
28+00N 8+50W 40M	.5	19	317	20	4	136	10
28+00N 9+00W 20M	1.4	54	608	49	6	92	5
28+00N 9+50W	1.0	25	204	29	4	92	5

COMPANY: SEMA INTERNATIONAL RESOURCES MIN-EN LABS ICP REPORT (ACT:8E027)

PROJECT NO: DEV. 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 6-1214/P7

ATTENTION: R.BARCLAY (604)980-5814 OR (604)988-4524 * TYPE SOIL GEOCHEM * DATE:DEC 1, 1986

(VALUES IN PPM)	AG	CU	MN	PB	SB	ZN	AU-PPB
28+00N 10+00W	1.2	24	292	34	5	141	5

COMPANY: BEMA INT. RESOURCES MIN-EN LABS ICP REPORT (ACT:GE027) PAGE 1 OF 1
PROJECT NO: 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 6-1029S/P1+2
ATTENTION: R.BARCLAY (604)980-5814 OR (604)988-4524 * TYPE SOIL GEOCHEM * DATE:OCT 23, 1986

(VALUES IN PPM)	AG	CU	MN	PB	SB	ZN	AU-PPB
L25+00N05+000E40	.2	66	684	74	1	98	10
L25+00N08+000E40	.1	24	765	36	1	53	5
L25+00N09+000E	.1	29	2218	45	1	77	15
L25+00N10+000E20	.1	31	660	36	1	46	10
L25+00N11+000E	.1	40	728	57	1	64	5
L25+00N12+000E	.1	23	1559	50	1	80	10
L25+00N13+000E	.1	23	213	58	1	80	5
L25+00N14+000E	.1	16	254	24	1	44	5
L25+00N15+000E	.1	18	153	27	1	48	5
L25+00N16+000E	.1	18	287	18	1	39	5
L25+00N17+000E	.1	26	194	46	1	85	5
L25+00N18+000E	.1	27	1574	42	1	78	5
L25+00N19+000E40	.1	26	1206	38	1	54	5
L25+00N20+000E	.2	25	223	44	1	68	5
L0+00N0+000W40M	.3	62	661	62	1	87	5
L0+00N0+100W	.2	26	181	38	1	87	10
L0+00N0+200W	.2	22	184	33	1	52	5
L0+00N0+300W20M	.2	36	169	7	1	25	5
L0+00N0+400W	.1	41	836	50	1	60	5
L0+00N0+500W	.2	55	694	44	1	55	10
L0+00N6+000W	.1	21	134	39	1	59	5
L0+00N7+000W40M	.2	91	823	40	1	74	5
L0+00N8+000W	.3	80	1296	46	1	135	5
L0+00N9+000W	.2	33	210	47	3	54	5
L0+00N10+000W	.1	30	243	56	6	92	5
L0+00N11+000W	.1	13	693	28	2	59	20
L0+00N12+000W	.1	21	2166	75	1	92	5
L0+00N13+000W	.1	13	7547	74	1	128	5
L0+00N14+000W	.1	8	148	31	2	60	5
L0+00N15+000W	.1	25	4304	61	1	110	5
L0+00N16+000W40	.2	53	1173	78	1	80	10
L0+00N17+000W	.1	19	228	50	1	61	5
L0+00N18+000W	.1	22	483	45	1	68	5
L0+00N19+000W	.1	33	579	60	2	58	10
L25+00N0+000W	.2	31	513	60	2	98	10
L25+00N0+100W	.1	26	1383	67	7	105	5
L25+00N0+200W	.1	24	371	37	1	45	5
L25+00N0+300W	.1	20	299	44	1	74	5
L25+00N0+400W	.2	34	541	62	3	114	10
L25+00N0+500W	.1	20	200	39	1	71	10
L25+00N0+600W	.1	12	94	26	1	34	5
L25+00N0+700W40	.4	27	301	56	1	94	5
L25+00N0+800W	.1	21	244	53	1	85	5
L25+00N0+900W20	.5	33	311	60	1	78	5
L25+00N10+000W	.4	44	593	69	1	96	10
L25+00N10+100W40	.4	32	362	62	1	89	5
L25+00N10+200W	.1	33	371	47	1	100	5
L25+00N10+300W	.1	26	221	42	3	56	10
L25+00N10+400W	.1	35	551	60	4	86	5
L25+00N10+500W	.2	68	307	79	5	159	15
L25+00N10+600W	.2	35	218	76	4	108	10
L25+00N10+700W	.1	33	549	51	2	73	5
L25+00N10+800W	.1	28	229	50	2	66	5
L25+00N10+900W	.1	21	163	39	2	56	10
L25+00N20+000W	.1	25	498	43	1	73	10

COMPANY: NORMINE RESOURCES | MIN-EN LABS ICP REPORT | (ACT:F31)
PROJECT NO: DEU | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 7-1530/P1+2
ATTENTION: G.NORDEEN | (604)980-5814 OR (604)988-4524 | * TYPE SOIL GEOCHEM * | DATE:OCT 11, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
L2N 0+50W	.8	24380	22	1	280	1.4	3	2970	.1	6	21	44060
L2N 1+00W	1.1	22820	21	1	443	1.0	2	11460	.7	5	43	26860
L2N 1+50W	.6	27560	27	19	279	1.4	1	2480	.6	5	21	42910
L2N 2+00W	1.7	27910	20	3	584	1.2	2	15110	1.6	7	64	30990
L2N 2+50W —	2.4	35970	28	9	811	1.6	1	17650	.5	11	103	39230
L2N 3+00W	.6	27430	24	3	366	1.2	1	6650	.9	8	40	35480
L2N 3+50W	.5	16870	1	1	289	.9	1	5820	.5	5	33	25730
L2N 4+00W	.6	19180	1	1	283	1.2	2	7080	.1	7	24	35140
L2N 4+50W	1.0	23230	21	1	488	1.5	1	10490	.5	7	76	40310
L2N 5+00W	.8	25150	2	18	438	1.6	1	8590	.5	8	37	47670
L2N 5+50W	.9	24670	1	1	432	1.4	1	10280	.1	7	38	40690
L2N 6+00W	1.3	25080	5	2	530	1.3	2	12460	.6	7	59	36450
L2N 6+50W	1.0	23750	3	2	347	1.4	1	10950	.4	9	40	41570
L2N 7+00W	1.0	23190	7	1	528	1.3	1	14680	.3	7	40	36890
L2N 7+50W	.6	24760	1	1	322	1.3	1	4410	.3	9	27	39320
L2N 8+00W	2.0	22800	4	2	676	1.4	1	19130	.9	7	93	35510
L2N 8+50W	.3	19050	16	1	249	1.2	1	4500	.4	5	19	39670
L2N 9+00W	.3	23220	22	1	291	1.3	1	3810	.6	7	20	39960
L2N 9+50W	.3	26210	1	3	433	1.6	1	3630	.6	7	27	49170
L2N 10+00W	.2	31590	28	7	341	1.6	1	2660	.6	7	21	49200
L2N 10+50W	.3	28450	22	4	269	1.5	2	2530	.3	5	18	46190
L2N 11+00W	.3	29650	16	7	423	1.7	1	3100	.8	7	24	54150
L2N 11+50W	.3	14510	9	1	194	1.4	1	1700	.1	4	14	47430
L2N 12+00W	.7	28100	21	4	710	1.4	1	14010	.3	6	35	38320
L4N 0+50W	1.2	27970	23	4	304	1.2	2	5500	.6	7	36	35250
L4N 1+00W	.9	25070	22	1	261	1.1	2	4760	.1	6	33	33630
L4N 1+50W	1.1	38870	27	13	418	1.4	1	5210	.8	7	60	41650
L4N 2+00W 40M	1.3	36380	26	13	477	1.4	1	8510	.8	11	79	41380
L4N 2+50W	1.6	26120	11	3	478	1.6	2	12320	.2	8	35	45950
L4N 3+00W	1.1	24230	1	1	362	1.1	2	9520	.4	6	38	30070
L4N 3+50W	.5	16600	10	1	299	1.1	1	5240	1.1	6	33	31140
L4N 4+00W	.8	26110	1	4	426	1.4	1	5540	.2	8	54	38180
L4N 4+50W –	2.2	32610	1	12	677	1.5	1	13350	.5	6	83	37060
L4N 5+00W —	1.8	28280	22	9	573	1.4	2	13610	.8	7	61	38360
L4N 5+50W	1.1	40570	29	18	542	1.7	2	8290	.2	9	61	45690
L4N 6+00W	1.5	40290	26	16	761	1.6	1	7920	.2	9	66	39280
L4N 6+50W	.7	28830	22	8	409	1.4	26	3660	.2	6	1873	40640
L4N 7+00W	1.5	23090	2	4	417	1.3	5	8390	.7	8	56	38020
L4N 7+50W 40M	1.5	19570	12	4	495	1.5	2	15530	.9	10	53	44060
L4N 8+00W	1.1	21190	5	2	288	1.2	1	9310	.4	8	29	36400
L4N 8+50W	.7	30450	24	11	396	1.5	1	5710	.4	9	29	44320
L4N 9+00W	.5	20130	12	1	310	1.2	2	3670	.6	6	19	39140
L4N 9+50W	.7	28410	16	9	384	1.4	15	3730	.1	7	1149	40470
L4N 10+00W	.8	23150	13	4	889	1.4	1	4960	.4	7	31	40550
L4N 10+50W	.5	28480	21	12	301	1.5	2	2520	.6	6	27	48960
L4N 11+00W	.3	26880	15	10	476	1.5	2	4210	.4	6	84	47080
L4N 11+50W	1.7	30140	24	12	652	1.6	1	13520	.4	8	66	43120
L4N 12+00W	2.3	29870	1	9	629	1.4	2	21510	.3	5	134	27600
L6N 0+50W	1.0	23900	19	6	305	1.2	1	3800	.3	6	31	36650
L6N 1+00W	1.4	21150	1	3	254	1.3	11	3480	.2	7	583	42420
L6N 1+50W	.9	31070	23	12	291	1.5	3	4140	.1	7	36	45550
L6N 2+00W	1.4	32550	21	12	303	1.3	1	4360	.2	7	43	35570
L6N 2+50W	1.0	21710	5	3	260	1.2	2	5230	.2	8	28	35940
L6N 3+00W –	2.1	18470	3	1	550	.9	1	20640	1.0	5	64	20760
L6N 3+50W –	2.3	32620	5	12	522	1.5	1	10750	.3	8	86	40870
L6N 4+00W 40M –	1.8	24530	3	6	515	1.0	1	16050	.3	5	44	24840
L6N 4+50W	.8	27610	4	7	447	1.2	1	7910	.5	9	25	34560
L6N 5+00W –	2.6	32670	1	12	742	1.7	1	11010	1.5	8	105	41760
L6N 5+50W	.5	11410	6	1	247	.9	1	6430	.5	5	23	25200
L6N 6+00W	.8	21430	14	1	405	1.1	1	3230	.4	4	35	31640

COMPANY: NORMINE RESOURCES
PROJECT NO: DEU
ATTENTION: G.NORDEEN

MIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 7-1530/P1+2
* TYPE SOIL GEOCHEM * DATE:OCT 11, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
L2N 0+50W	830	18	4540	224	1	130	4	2440	19	1	33	1
L2N 1+00W	820	13	5410	460	1	210	12	670	13	2	144	1
L2N 1+50W	640	17	3900	181	2	180	3	1050	10	2	32	1
L2N 2+00W	1180	12	6660	811	1	220	14	1270	15	1	169	1
L2N 2+50W	1220	12	6220	2570	3	120	24	1580	17	1	239	1
L2N 3+00W	1300	13	6590	536	2	240	13	1320	20	2	70	1
L2N 3+50W	760	11	5030	248	1	210	10	1050	17	2	56	1
L2N 4+00W	930	11	6770	470	1	280	8	990	19	3	73	1
L2N 4+50W	1080	12	6370	725	1	200	19	1030	18	2	121	1
L2N 5+00W	1470	16	7160	557	2	330	17	950	18	2	110	1
L2N 5+50W	1300	26	5800	390	1	230	13	660	16	2	129	1
L2N 6+00W	1420	15	6670	633	1	270	16	1100	22	3	144	1
L2N 6+50W	1760	15	7290	797	1	350	15	1210	25	3	132	1
L2N 7+00W	1290	19	6110	607	1	190	9	1090	18	3	197	1
L2N 7+50W	1210	18	6270	328	1	170	6	930	13	3	56	1
L2N 8+00W	1280	21	5640	887	1	140	12	1130	21	3	254	1
L2N 8+50W	1210	14	4720	216	1	100	2	1370	14	3	40	1
L2N 9+00W	700	14	5620	315	1	110	1	350	11	2	49	1
L2N 9+50W	1140	18	5200	356	1	110	6	1030	9	3	36	1
L2N 10+00W	1080	17	4800	270	1	90	2	1140	8	2	23	1
L2N 10+50W	1050	21	3980	251	1	200	1	1670	10	2	26	1
L2N 11+00W	1190	22	5000	298	1	100	1	2070	9	2	23	1
L2N 11+50W	1090	10	1630	138	1	70	1	640	11	4	30	1
L2N 12+00W	750	36	6200	718	1	160	2	880	15	5	232	1
L4N 0+50W	1260	13	7320	527	1	240	10	1110	17	2	61	1
L4N 1+00W	1330	12	6400	295	1	260	9	860	17	3	55	1
L4N 1+50W	1400	18	8060	381	1	260	12	780	14	2	70	1
L4N 2+00W 40M	1280	17	8970	1012	1	290	16	860	17	2	115	1
L4N 2+50W	980	14	6180	1202	2	200	11	1180	22	2	151	1
L4N 3+00W	890	13	5840	371	1	210	12	1130	14	2	111	1
L4N 3+50W	760	10	6420	387	1	170	13	800	16	1	63	1
L4N 4+00W	990	12	7580	580	1	180	14	970	25	1	76	1
L4N 4+50W	1340	14	7390	724	1	140	19	990	18	6	178	1
L4N 5+00W	1370	13	7080	817	1	170	20	1130	18	2	163	1
L4N 5+50W	1630	18	9160	799	1	160	16	1320	15	1	103	1
L4N 6+00W	1340	16	7870	1178	2	100	14	1230	13	7	138	1
L4N 6+50W	1190	13	5380	537	1	150	11	880	20	5	60	1
L4N 7+00W	1040	14	6750	539	1	360	12	890	18	3	99	1
L4N 7+50W 40M	1370	12	7280	830	1	310	18	1410	25	5	146	1
L4N 8+00W	1270	12	6890	392	1	300	12	1110	25	2	90	1
L4N 8+50W	1100	17	6180	804	1	210	8	980	16	2	77	1
L4N 9+00W	790	12	4150	336	2	110	7	640	18	2	50	1
L4N 9+50W	800	16	5190	451	1	180	7	540	13	3	68	1
L4N 10+00W	810	13	4130	1016	1	110	5	460	20	4	61	1
L4N 10+50W	1450	28	4980	354	2	620	2	1060	12	2	29	1
L4N 11+00W	1460	24	4750	308	1	190	2	1730	11	2	34	1
L4N 11+50W	1100	39	6950	883	2	220	15	1130	21	3	191	1
L4N 12+00W	510	22	2960	769	4	120	9	1440	9	5	317	1
L6N 0+50W	1030	13	5130	260	1	190	7	770	15	2	56	1
L6N 1+00W	900	10	5570	403	1	210	9	720	21	5	48	1
L6N 1+50W	1160	15	5880	260	1	240	10	1250	14	2	41	1
L6N 2+00W	1120	15	7310	281	1	130	11	950	18	1	47	1
L6N 2+50W	820	13	6620	399	1	190	10	1440	22	2	47	1
L6N 3+00W	790	6	5300	640	2	100	19	1150	18	2	261	1
L6N 3+50W	1420	16	7880	817	2	170	22	1180	29	2	139	1
L6N 4+00W 40M	880	9	5120	781	2	100	12	960	11	1	193	1
L6N 4+50W	740	25	5680	1255	2	140	14	680	17	3	110	1
L6N 5+00W	1240	19	7850	1718	3	150	26	1130	26	3	180	1
L6N 5+50W	490	7	5420	430	1	90	10	1170	24	1	59	1
L6N 6+00W	380	11	3080	201	1	60	2	890	12	2	65	1

COMPANY: NORMINE RESOURCES
PROJECT NO: DEU
ATTENTION: G.NORDEEN

KIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 7-1530/P1+2
* TYPE SOIL GEOCHEM * DATE:OCT 11, 1987

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
L2N 0+50W	1	84.6	182	2	3	1	37	10
L2N 1+00W	1	49.3	105	1	2	1	18	5
L2N 1+50W	1	91.2	148	1	4	2	34	5
L2N 2+00W	2	60.6	118	1	2	2	19	5
L2N 2+50W	2	63.6	128	1	3	2	19	5
L2N 3+00W	1	73.5	102	1	2	2	25	5
L2N 3+50W	1	50.3	61	1	2	1	15	5
L2N 4+00W	1	69.7	91	1	2	1	27	5
L2N 4+50W	1	72.2	117	1	2	1	26	5
L2N 5+00W	1	89.4	129	1	2	2	36	10
L2N 5+50W	2	75.7	155	1	1	1	29	5
L2N 6+00W	1	66.3	90	1	1	2	23	5
L2N 6+50W	1	78.8	124	1	2	1	29	5
L2N 7+00W	3	68.2	80	1	1	1	16	5
L2N 7+50W	1	80.2	112	1	1	1	20	5
L2N 8+00W	1	60.7	97	1	1	1	15	5
L2N 8+50W	1	81.0	104	1	1	1	18	5
L2N 9+00W	1	85.3	83	1	1	1	18	10
L2N 9+50W	1	80.4	96	1	1	1	23	5
L2N 10+00W	1	80.4	133	1	1	2	23	10
L2N 10+50W	1	78.2	128	1	1	2	21	5
L2N 11+00W	1	105.1	144	1	1	2	20	5
L2N 11+50W	1	100.3	111	1	1	1	12	5
L2N 12+00W	1	72.8	97	1	1	1	14	10
L4N 0+50W	1	70.8	101	1	2	1	24	5
L4N 1+00W	1	65.7	98	1	2	2	25	5
L4N 1+50W	1	78.8	141	1	2	2	25	5
L4N 2+00W 40M	1	83.0	131	1	3	2	25	10
L4N 2+50W	1	68.9	100	1	3	1	16	5
L4N 3+00W	1	63.4	97	1	2	1	21	5
L4N 3+50W	1	59.9	79	1	2	1	28	5
L4N 4+00W	1	65.7	100	1	2	1	23	5
L4N 4+50W	1	57.0	115	1	2	1	18	10
L4N 5+00W	1	65.5	142	1	3	2	24	5
L4N 5+50W	3	80.5	134	2	2	2	24	5
L4N 6+00W	1	63.4	133	2	2	2	16	5
L4N 6+50W	1	82.0	119	1	3	2	28	10
L4N 7+00W	1	79.0	88	1	3	1	32	5
L4N 7+50W 40M	2	90.0	96	2	3	1	35	5
L4N 8+00W	1	68.9	86	1	1	1	28	5
L4N 8+50W	1	86.3	135	1	2	2	27	5
L4N 9+00W	1	83.8	138	1	3	1	32	5
L4N 9+50W	1	76.6	147	1	4	2	26	10
L4N 10+00W	2	82.6	147	1	3	1	29	10
L4N 10+50W	1	98.5	146	1	4	1	24	5
L4N 11+00W	1	92.8	179	1	4	2	16	5
L4N 11+50W	1	72.1	134	1	3	2	21	5
L4N 12+00W	1	39.2	73	1	3	2	9	10
L6N 0+50W	1	75.0	128	1	3	1	28	5
L6N 1+00W	1	95.5	98	1	1	1	40	5
L6N 1+50W	1	91.2	107	1	3	2	33	5
L6N 2+00W	1	72.8	118	1	3	2	21	10
L6N 2+50W	1	78.3	121	1	1	1	28	5
L6N 3+00W	1	33.1	93	1	2	1	8	5
L6N 3+50W	1	68.9	115	1	2	2	21	5
L6N 4+00W 40M	1	36.6	91	1	3	1	9	5
L6N 4+50W	1	63.6	84	1	2	1	19	10
L6N 5+00W	1	63.7	122	1	3	2	21	5
L6N 5+50W	1	41.4	60	1	1	1	13	5
L6N 6+00W	1	54.1	96	1	1	1	15	5

PROJECT NO: DEU
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
FILE NO: 7-1530/P3+4
ATTENTION: G.NORDEEN
(604)980-5814 OR (604)988-4524
* TYPE SOIL GEOCHEM * DATE:OCT 11, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
L6N 6+50W	1.4	25070	1	4	403	1.4	3	10750	.6	8	42	41470
L6N 7+00W	.6	20950	18	1	306	1.2	1	6520	.3	7	22	36650
L6N 7+50W	1.1	22230	1	1	367	1.3	2	7930	1.2	8	27	39000
L6N 8+00W	.5	33000	26	10	425	1.5	2	6180	.5	7	36	43250
L6N 8+50W	1.1	28040	5	5	439	1.4	2	8980	.8	9	45	41550
L6N 9+00W	.5	27700	22	4	495	1.3	2	7120	.1	7	23	37130
L6N 9+50W	.7	31700	26	8	477	1.5	2	9160	.7	8	28	42450
L6N 10+00W	1.5	45360	31	18	720	1.8	2	9770	.3	10	40	45090
L6N 10+50W	.4	35780	20	11	310	1.7	3	2140	.2	7	27	54340
L6N 11+00W	.2	20790	9	1	240	1.2	1	1960	.5	4	19	37690
L6N 11+50W	.3	22710	10	1	197	1.1	1	1650	.2	4	13	36270
L6N 12+00W	1.0	33080	22	12	419	1.5	3	2970	.1	8	27	46980
L8N 0+50W	1.1	30530	2	8	323	1.4	3	5360	.3	8	31	41590
L8N 1+00W	1.2	35030	23	13	326	1.3	1	4150	.7	7	43	36820
L8N 1+50W	2.0	29760	1	8	476	1.4	1	12970	.1	7	60	37760
L8N 2+00W	1.5	38880	29	16	631	1.5	2	14470	.1	7	113	37830
L8N 2+50W	1.1	22180	3	3	309	1.2	5	9540	.3	7	28	37520
L8N 3+00W	1.4	33220	1	11	453	1.5	3	14280	.1	8	59	42310
L8N 3+50W	.7	30680	1	8	327	1.3	2	7330	.6	8	33	38300
L8N 4+00W	1.8	29360	1	8	445	1.5	3	10210	.7	8	79	41720
L8N 4+50W	1.4	23610	4	3	371	1.3	4	8130	.6	7	35	36830
L8N 5+00W	1.7	36550	21	13	469	1.5	1	5840	.7	9	35	43260
L8N 5+50W	1.0	14530	7	1	462	1.2	1	19400	.8	4	29	35670
L8N 6+00W	1.3	27170	2	9	388	1.4	2	9430	.4	8	41	39760
L8N 6+50W	1.3	19340	4	1	295	1.3	5	8150	.6	8	31	39910
L8N 7+00W	1.3	24820	1	3	396	1.3	3	10890	.8	8	32	38080
L8N 7+50W	2.6	37560	26	14	642	1.7	1	9830	.3	10	59	46440
L8N 8+00W	1.3	23430	3	3	451	1.3	1	7930	.5	7	38	37580
L8N 8+50W	.5	24680	1	3	338	1.3	2	5700	.2	5	23	40450
L8N 9+00W	.5	23710	1	1	387	1.3	1	5220	.9	6	19	36200
L8N 9+50W	.6	32760	22	8	488	1.5	2	7400	.7	9	36	42520
L8N 10+00W	.6	28750	1	4	327	1.2	1	9140	.1	5	25	34550
L8N 10+50W	2.3	44130	17	18	570	1.7	2	12750	.2	10	55	45580
L8N 11+00W	.5	11570	10	1	140	.6	2	1320	.1	3	11	14360
L8N 11+50W	1.4	33860	29	9	401	1.6	2	3960	.6	10	38	42780
L8N 12+00W	.3	48510	35	21	247	2.1	2	1470	.2	4	46	64150
L10N 0+50W	.8	16510	1	1	216	1.2	4	3050	.8	5	25	37470
L10N 1+00W	1.6	30930	25	7	416	1.4	1	9960	.1	7	67	38490
L10N 1+50W	1.2	23870	16	1	400	1.1	1	7120	.4	6	43	30070
L10N 2+00W	.4	15820	1	1	319	1.0	2	2990	.4	4	20	33150
L10N 2+50W	1.1	20500	9	1	282	1.4	2	9130	1.2	7	33	44800
L10N 3+00W	1.2	21330	5	1	375	1.2	1	12730	.7	7	42	35130
L10N 3+50W	1.9	36290	1	13	456	1.6	2	10270	.6	12	66	43370
L10N 4+00W	1.0	25940	1	4	301	1.1	5	5280	.2	6	27	32030
L10N 4+50W	2.3	38090	1	15	485	1.6	2	6920	.9	9	59	44850
L10N 5+00W	1.1	25490	5	8	201	1.3	1	5630	.4	6	29	42540
L10N 5+50W	1.4	18790	11	2	271	1.5	2	9970	.6	9	42	48590
L10N 6+00W	1.8	32120	1	11	408	1.5	1	10200	.4	8	53	41850
L10N 6+50W	.9	25080	6	6	307	1.3	1	6660	.7	8	41	38750
L10N 7+00W	.9	24300	1	6	308	1.2	2	5550	.2	7	24	36540
L10N 7+50W	.7	22630	9	2	184	1.3	2	4430	.1	7	35	40140
L10N 8+00W	.9	24500	5	3	157	1.3	1	4000	.7	5	23	39680
L10N 8+50W	.5	21680	1	1	265	1.3	2	3220	.5	6	21	37540
L10N 9+00W	1.2	26080	3	4	279	1.2	2	6580	.3	6	25	35810
L10N 9+50W	.8	20610	2	1	310	1.0	1	5760	.8	6	17	30280
L10N 10+00W	.9	24330	2	5	314	1.2	2	6690	.1	7	25	34870
L10N 10+50W	1.7	31380	6	10	513	1.4	2	8990	.6	8	45	38640
L10N 11+00W	2.0	33210	12	11	550	1.5	1	9820	.3	7	58	39800
L10N 11+50W	2.0	33380	36	11	579	1.7	1	8340	.1	9	65	45800
L10N 12+00W	1.8	22470	45	2	530	1.3	2	16200	1.5	6	77	33380

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
L6N 6+50W	860	12	7530	552	1	230	16	1350	28	2	119	1
L6N 7+00W	680	11	5910	946	1	140	9	970	19	2	78	1
L6N 7+50W	860	10	6910	834	1	260	14	1290	20	2	94	1
L6N 8+00W	760	31	5880	401	1	200	6	550	14	6	90	1
L6N 8+50W	1110	17	8510	728	1	340	16	950	21	3	116	1
L6N 9+00W	650	15	4220	596	1	100	1	710	14	1	94	1
L6N 9+50W	830	17	6790	546	1	140	11	1050	13	1	119	1
L6N 10+00W	950	16	6500	1926	3	110	9	1170	18	1	108	1
L6N 10+50W	1170	26	6150	298	1	100	4	1260	8	2	27	1
L6N 11+00W	1340	8	3230	314	1	90	2	930	12	1	22	1
L6N 11+50W	1680	3	3190	221	1	90	1	740	5	1	11	1
L6N 12+00W	1160	21	6840	321	1	140	10	960	18	2	35	1
L8N 0+50W	1100	12	6510	359	1	270	12	1440	14	2	53	1
L8N 1+00W	1260	16	7420	321	1	140	10	860	12	1	53	1
L8N 1+50W	1330	15	7720	629	1	330	16	1130	26	4	164	1
L8N 2+00W	1260	18	6850	622	2	150	14	1190	17	2	214	1
L8N 2+50W	920	16	6910	625	1	300	12	1170	25	4	100	1
L8N 3+00W	1460	16	8350	792	1	230	18	1110	22	2	182	1
L8N 3+50W	1650	16	7950	543	1	210	15	1050	17	3	93	1
L8N 4+00W	1380	15	8330	580	1	300	21	960	26	2	134	1
L8N 4+50W	1170	14	7330	454	1	320	13	1150	25	4	98	1
L8N 5+00W	1070	22	6250	308	1	170	12	1140	19	1	90	1
L8N 5+50W	590	7	4370	478	2	130	5	1090	18	2	234	1
L8N 6+00W	2590	8	7660	641	1	390	11	1240	25	3	95	1
L8N 6+50W	1030	10	7120	637	1	390	12	1120	29	4	87	1
L8N 7+00W	1020	13	7370	553	1	330	14	1110	25	2	117	1
L8N 7+50W	970	16	8050	1016	1	280	17	730	17	1	115	1
L8N 8+00W	960	14	7200	537	1	260	15	890	16	3	84	1
L8N 8+50W	500	14	4730	257	1	270	6	890	15	1	60	1
L8N 9+00W	540	13	5760	392	1	140	6	540	16	2	48	1
L8N 9+50W	910	14	6670	876	1	140	17	1090	18	6	78	1
L8N 10+00W	640	15	4450	195	1	120	3	670	10	1	120	1
L8N 10+50W	1040	22	7740	500	1	230	28	610	15	1	164	1
L8N 11+00W	260	5	2260	269	1	80	7	220	8	1	19	1
L8N 11+50W	820	15	6560	830	1	290	19	810	15	1	49	1
L8N 12+00W	1210	34	5020	194	2	30	1	1430	9	7	13	1
L10N 0+50W	640	6	3590	188	1	90	5	610	37	4	52	1
L10N 1+00W	1070	16	7770	461	1	170	16	1160	24	2	150	1
L10N 1+50W	800	8	4070	390	1	120	4	710	19	4	121	1
L10N 2+00W	760	7	2420	231	1	80	3	370	14	4	54	1
L10N 2+50W	920	12	6940	475	1	220	16	1500	25	4	103	1
L10N 3+00W	920	11	7020	467	1	220	16	1230	26	3	178	1
L10N 3+50W	1350	15	8800	1437	2	240	15	1080	30	3	168	1
L10N 4+00W	800	15	6430	273	1	230	8	860	20	2	79	1
L10N 4+50W	1370	17	8810	1218	2	180	17	1010	25	3	121	1
L10N 5+00W	880	21	6820	285	1	190	9	880	32	4	66	1
L10N 5+50W	1220	14	7340	631	1	230	21	1620	37	1	104	1
L10N 6+00W	1430	15	7990	929	1	250	16	1270	23	3	136	1
L10N 6+50W	1000	15	6570	641	1	150	10	810	27	3	91	1
L10N 7+00W	790	16	6140	338	2	160	8	940	22	3	76	1
L10N 7+50W	730	12	6220	394	1	150	9	1440	22	5	33	1
L10N 8+00W	630	13	5100	229	1	190	6	1880	16	3	34	1
L10N 8+50W	550	10	4660	256	1	120	7	1220	18	3	41	1
L10N 9+00W	720	12	6600	295	1	170	10	1430	21	3	71	1
L10N 9+50W	570	13	6740	340	1	150	11	860	16	2	74	1
L10N 10+00W	1010	15	7070	411	1	150	11	1270	18	3	76	1
L10N 10+50W	1170	17	8720	839	1	200	18	1250	21	3	123	1
L10N 11+00W	1110	17	7860	694	2	110	14	990	37	3	140	1
L10N 11+50W	900	25	7220	1018	1	110	20	800	30	4	130	1
L10N 12+00W	650	11	6710	627	1	110	22	1440	46	4	212	1

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
L6N 6+50W	1	81.7	103	2	2	1	32	5
L6N 7+00W	1	72.5	117	2	2	1	28	20
L6N 7+50W	1	77.5	101	2	3	1	30	10
L6N 8+00W	1	72.9	123	1	3	1	23	5
L6N 8+50W	1	73.9	88	2	1	2	29	10
L6N 9+00W	1	72.7	117	2	2	1	18	20
L6N 9+50W	1	71.5	123	2	2	2	17	50
L6N 10+00W	1	81.3	142	1	2	2	11	10
L6N 10+50W	1	102.5	143	2	2	2	25	20
L6N 11+00W	1	84.2	82	1	1	1	4	5
L6N 11+50W	1	92.3	80	1	1	1	2	10
L6N 12+00W	1	95.3	166	2	1	2	33	5
L8N 0+50W	1	80.4	105	1	1	2	29	5
L8N 1+00W	1	71.2	128	1	1	2	20	30
L8N 1+50W	1	70.4	114	1	2	1	25	10
L8N 2+00W	1	67.7	134	1	1	2	21	10
L8N 2+50W	1	83.5	133	1	1	1	34	5
L8N 3+00W	1	77.4	140	1	2	2	24	5
L8N 3+50W	1	71.7	118	1	1	2	24	10
L8N 4+00W	1	80.0	102	1	2	2	29	5
L8N 4+50W	1	75.0	98	2	1	1	28	5
L8N 5+00W	1	81.6	142	1	1	2	27	5
L8N 5+50W	2	36.5	71	1	1	1	10	5
L8N 6+00W	1	83.2	118	1	2	2	26	5
L8N 6+50W	1	84.4	100	1	1	1	34	5
L8N 7+00W	1	75.8	118	1	1	1	28	5
L8N 7+50W	3	84.6	176	2	2	2	27	5
L8N 8+00W	3	69.2	85	1	1	1	26	10
L8N 8+50W	1	80.3	90	1	1	1	26	20
L8N 9+00W	2	69.4	105	1	1	1	22	10
L8N 9+50W	2	75.1	114	2	3	2	22	5
L8N 10+00W	2	67.4	116	1	1	1	20	5
L8N 10+50W	3	78.8	136	1	3	2	25	5
L8N 11+00W	2	26.0	49	1	1	1	9	5
L8N 11+50W	3	77.6	128	2	3	2	25	5
L8N 12+00W	2	93.8	122	1	1	2	3	10
L10N 0+50W	1	88.6	91	1	1	1	34	5
L10N 1+00W	1	69.4	111	1	2	2	21	5
L10N 1+50W	3	60.2	92	1	2	1	20	5
L10N 2+00W	1	76.9	96	1	1	1	28	5
L10N 2+50W	1	104.1	92	1	1	1	45	5
L10N 3+00W	2	68.5	97	1	1	1	25	20
L10N 3+50W	3	81.4	125	1	1	2	26	5
L10N 4+00W	1	68.7	107	1	1	2	24	5
L10N 4+50W	1	79.7	146	1	1	2	25	5
L10N 5+00W	1	91.7	128	1	1	1	30	5
L10N 5+50W	1	111.9	101	1	1	1	50	10
L10N 6+00W	1	78.8	115	1	2	2	26	5
L10N 6+50W	1	81.5	124	1	1	2	27	490
L10N 7+00W	1	77.4	126	1	2	2	25	40
L10N 7+50W	2	79.0	89	1	1	2	26	5
L10N 8+00W	1	79.6	96	1	2	2	28	5
L10N 8+50W	1	75.2	87	1	1	1	26	5
L10N 9+00W	1	71.7	96	1	2	1	23	10
L10N 9+50W	1	64.0	99	1	2	1	19	5
L10N 10+00W	1	67.8	128	1	3	2	23	50
L10N 10+50W	1	73.3	144	1	4	2	22	5
L10N 11+00W	2	73.0	144	1	3	2	17	5
L10N 11+50W	1	79.4	154	2	4	2	22	5
L10N 12+00W	3	53.5	114	1	3	1	15	5

COMPANY: NORMINE RESOURCES
PROJECT NO: DEU
ATTENTION: G.NORDEEN

MIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 7-1530/P5+6
* TYPE SOIL GEOCHEM * DATE:OCT 11, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
L12N 0+50W	.9	23970	11	4	364	1.1	1	4090	.4	5	34	26590
L12N 1+00W	.4	26200	17	7	240	1.4	2	4230	.6	6	34	41620
L12N 1+50W	.5	23370	12	4	284	1.1	3	4200	.5	6	23	33160
L12N 2+00W	.6	27570	13	6	285	1.3	3	3300	.6	6	20	38210
L12N 2+50W	.7	29270	8	8	276	1.3	1	3580	.1	7	26	35860
L12N 3+00W	.6	22450	14	2	190	1.0	4	3210	.5	6	19	32310
L12N 3+50W	.6	21950	15	2	221	1.0	4	4600	.2	6	18	30610
L12N 4+00W	.5	23350	5	3	212	1.0	2	2970	.1	5	18	29630
L12N 4+50W	.4	20800	11	1	220	.9	2	3380	.2	5	18	27150
L12N 5+00W	.4	26450	20	6	165	1.4	1	3290	.7	6	36	42090
L12N 5+50W	1.4	34440	15	12	501	1.3	1	6530	.4	7	47	35190
L12N 6+00W	1.8	32560	13	12	459	1.4	1	4920	.2	8	69	39010
L12N 6+50W	1.3	27520	1	8	539	1.2	1	6100	.5	7	46	35400
L12N 7+00W	2.2	33500	19	13	558	1.5	2	6010	.7	9	87	42370
L12N 7+50W	1.9	27910	1	7	522	1.3	1	5570	.1	7	68	36780
L12N 8+00W	3.3	35620	1	16	460	1.6	1	4770	.8	6	83	39340
L12N 8+50W	2.2	34620	24	14	500	1.6	1	6340	.7	11	91	41260
L12N 9+00W	1.7	23470	15	4	351	1.1	1	6900	.2	6	42	32500
L12N 9+50W	1.1	21240	11	1	439	.8	3	6620	.3	5	24	23640
L12N 10+00W	.9	15400	20	1	323	.8	3	11650	1.0	5	26	25870
L12N 10+50W	6.6	17020	74	1	525	1.1	3	25600	1.8	7	104	21720
L12N 11+00W	.3	11840	4	1	266	.9	1	6140	.7	5	25	27490
L12N 11+50W	1.6	24820	8	4	582	1.2	1	11570	.4	6	59	28360
L12N 12+00W	.2	13770	1	1	135	1.0	1	1570	.4	4	16	31020
L35N 0+50E	1.2	32050	12	10	378	1.4	8	7300	.1	8	23	35790
L35N 1+00E	1.3	29060	11	7	334	1.2	10	5760	.3	8	19	34740
L35N 0+50W	1.1	30560	9	8	347	1.1	10	5700	.6	8	17	33040
L35N 1+00W	.9	32760	12	10	316	1.3	4	7270	.1	8	27	34580
L35N 1+50W N/S												
L35N 2+00W N/S												
L35N 2+50W	.3	58190	10	27	325	1.6	3	2940	.7	7	17	45950
L35N 3+00W	1.7	41250	8	16	314	1.8	11	7380	.3	12	27	50770
L35N 3+50W	1.5	41280	11	16	455	1.6	11	6690	.3	11	23	46600
L35N 4+00W	.9	34160	4	9	354	1.5	9	3580	.4	10	21	43450
L35N 4+50W	1.3	44140	4	18	393	1.7	6	4740	.6	10	24	51870
L35N 5+00W	.8	52050	10	24	480	1.6	5	4460	.2	11	21	44360
L35N 5+50W	.8	33950	9	9	411	1.4	5	5420	.8	8	19	38980
L35N 6+00W	.9	31370	7	6	393	1.4	7	5290	.2	9	27	37040
L37N 0+50E	1.5	32900	10	9	349	1.5	10	9180	.7	11	24	39640
L37N 1+00E	1.3	23530	13	1	360	1.2	11	8490	.3	8	19	33860
L37N 0+00W	1.1	32600	13	7	361	1.4	10	6570	.5	9	21	38880
L37N 0+50W	1.3	27600	13	4	370	1.2	10	7580	.3	9	20	36810
L37N 1+00W	1.7	27080	17	4	433	1.3	13	7380	.6	10	20	39990
L37N 1+50W	1.4	32690	14	8	348	1.5	9	6840	.1	11	22	41700
L37N 2+00W	1.5	50460	17	23	336	2.1	5	9100	.1	15	39	50670
L37N 2+50W	1.0	47120	13	20	509	1.7	6	4860	.9	13	27	52240
L37N 3+00W N/S												
L37N 3+50W N/S												
L37N 4+00W	.5	32800	1	10	341	1.4	5	3140	.3	7	21	43590
L37N 4+50W	1.0	29770	10	4	369	1.1	6	5790	.2	8	22	28890
L37N 5+00W	1.0	44490	11	16	763	1.6	1	6240	.8	10	28	44210
L37N 5+50W	.4	49090	10	19	489	1.6	2	3410	.1	8	18	49390
L37N 6+00W	1.0	32220	18	7	597	1.5	3	9640	.5	10	27	41980
L42N 0+50E	1.3	25180	16	1	342	1.2	9	8690	.1	9	21	34700
L42N 1+00E	1.4	25880	17	1	294	1.2	11	8160	.5	9	24	37070
L42N 1+50E	1.8	32310	17	6	313	1.5	10	7980	.7	10	27	41910
L42N 2+00E	1.9	30680	18	5	375	1.4	12	10070	.6	11	27	43840
L42N 2+50E	1.5	30340	19	4	290	1.3	11	7490	.3	10	25	40160
L42N 3+00E	2.0	42620	19	14	450	1.6	12	9220	.4	14	27	43640
L42N 0+50W	1.8	26340	1	1	360	1.4	12	9570	.6	10	27	40710

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
L12N 0+50W	500	11	5200	582	1	110	8	1160	17	3	52	1
L12N 1+00W	590	16	5680	334	1	250	6	2240	22	2	32	1
L12N 1+50W	680	11	5820	457	2	160	9	1080	17	1	46	1
L12N 2+00W	620	12	5610	255	1	150	5	1820	15	1	31	1
L12N 2+50W	820	14	6730	545	2	180	8	1100	17	5	45	1
L12N 3+00W	700	12	5390	292	1	140	7	840	13	2	41	1
L12N 3+50W	710	11	5990	250	1	200	9	1140	16	1	49	1
L12N 4+00W	860	11	4530	188	1	130	7	580	10	1	43	1
L12N 4+50W	580	12	5350	222	1	140	8	740	17	1	42	1
L12N 5+00W	470	14	5290	269	1	110	9	1860	19	4	23	1
L12N 5+50W	940	14	6770	512	1	150	13	950	21	6	107	1
L12N 6+00W	1170	14	7140	586	1	140	11	980	19	2	83	1
L12N 6+50W	1040	13	6030	758	1	150	11	810	20	2	85	1
L12N 7+00W	1270	16	7450	886	1	150	17	940	26	3	88	1
L12N 7+50W	1080	14	6690	615	2	160	14	940	21	2	74	1
L12N 8+00W	1020	17	6400	571	1	120	12	1040	28	2	91	1
L12N 8+50W	1090	16	7070	1459	1	110	14	680	32	4	100	1
L12N 9+00W	910	12	5640	521	1	130	9	1000	20	3	95	1
L12N 9+50W	790	12	4040	747	1	90	3	750	16	2	98	1
L12N 10+00W	690	15	6470	502	1	110	12	870	33	2	146	1
L12N 10+50W	240	3	2380	3578	5	50	42	1360	24	4	290	1
L12N 11+00W	790	4	3010	357	1	130	12	790	13	2	59	1
L12N 11+50W	580	14	4500	1188	3	100	32	1200	17	1	118	1
L12N 12+00W	550	4	3060	423	1	80	5	410	15	2	21	1
L35N 0+50E	990	13	8230	429	1	490	15	1050	9	5	107	1
L35N 1+00E	890	16	7140	335	2	420	13	790	8	1	94	1
L35N 0+50W	970	13	7230	322	2	320	14	1020	12	1	88	1
L35N 1+00W	880	12	7740	482	1	330	23	1010	3	4	96	1
L35N 1+50W N/S												
L35N 2+00W N/S												
L35N 2+50W	570	9	5700	277	1	190	4	3720	5	5	38	1
L35N 3+00W	1310	19	10700	612	1	460	19	1460	11	6	98	1
L35N 3+50W	1130	15	9260	421	1	670	18	1250	8	7	113	1
L35N 4+00W	800	15	6500	348	2	380	13	1180	5	6	61	1
L35N 4+50W	1050	18	8800	366	2	270	20	2490	4	5	68	1
L35N 5+00W	720	11	6740	296	1	330	17	1340	13	6	80	1
L35N 5+50W	760	11	6950	261	2	370	14	1220	4	6	75	1
L35N 6+00W	850	11	6700	395	2	360	13	1010	12	5	98	1
L37N 0+50E	1100	13	10720	707	1	590	19	1230	13	5	140	1
L37N 1+00E	1030	10	8690	335	1	660	15	1020	13	1	144	1
L37N 0+00W	980	14	8910	410	2	530	14	820	9	6	123	1
L37N 0+50W	1050	11	8610	386	1	690	14	930	11	1	128	1
L37N 1+00W	1010	11	8890	320	2	750	17	1000	15	1	129	1
L37N 1+50W	980	14	9830	728	1	500	19	790	12	6	106	1
L37N 2+00W	1090	19	12130	1078	1	260	25	1110	7	6	111	1
L37N 2+50W	870	11	9500	379	3	390	30	1960	16	6	81	1
L37N 3+00W N/S												
L37N 3+50W N/S												
L37N 4+00W	780	10	5030	616	1	210	6	3400	5	5	41	1
L37N 4+50W	940	11	5830	353	1	350	11	820	10	4	95	1
L37N 5+00W	1050	12	8050	822	2	320	12	1240	10	6	101	1
L37N 5+50W	490	12	6280	256	1	150	13	4410	11	5	35	1
L37N 6+00W	1070	13	7280	1029	1	380	14	1190	17	1	139	1
L42N 0+50E	1120	10	8700	320	1	910	17	1010	13	1	243	1
L42N 1+00E	1120	11	8630	401	1	870	20	780	14	1	205	1
L42N 1+50E	1050	13	9480	428	2	730	24	880	13	1	200	1
L42N 2+00E	1250	12	10210	385	1	920	24	1350	11	2	243	1
L42N 2+50E	1030	14	9490	349	1	860	22	580	9	3	184	1
L42N 3+00E	1210	14	9590	493	2	950	22	1430	7	1	257	1
L42N 0+50W	1220	11	9030	432	1	950	22	1130	15	4	272	1

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
L12N 0+50W	1	52.1	97	1	2	2	17	5
L12N 1+00W	1	75.8	121	1	2	2	25	5
L12N 1+50W	1	65.7	103	1	1	2	23	10
L12N 2+00W	1	75.0	100	1	1	2	25	5
L12N 2+50W	1	69.7	118	1	3	3	23	5
L12N 3+00W	1	68.9	97	1	1	2	24	5
L12N 3+50W	1	63.5	84	1	1	2	23	5
L12N 4+00W	1	64.0	90	1	1	2	22	10
L12N 4+50W	1	52.5	82	1	2	2	18	5
L12N 5+00W	1	80.9	106	1	3	2	28	5
L12N 5+50W	1	62.2	111	2	3	3	20	5
L12N 6+00W	1	65.0	111	2	3	3	21	5
L12N 6+50W	1	68.6	103	1	3	2	21	10
L12N 7+00W	1	75.9	130	1	2	3	24	5
L12N 7+50W	1	68.5	103	2	3	2	21	5
L12N 8+00W	1	60.3	121	1	2	3	22	5
L12N 8+50W	1	75.3	136	1	1	3	23	5
L12N 9+00W	1	65.5	107	1	2	2	21	5
L12N 9+50W	1	53.3	138	1	2	2	17	5
L12N 10+00W	1	57.3	115	1	1	2	15	10
L12N 10+50W	1	27.1	53	1	1	1	9	5
L12N 11+00W	1	59.1	105	1	1	1	23	5
L12N 11+50W	1	46.6	109	1	1	2	17	5
L12N 12+00W	1	76.0	73	1	2	1	26	5
L35N 0+50E	1	68.1	92	1	2	2	30	5
L35N 1+00E	1	69.6	94	1	3	2	34	5
L35N 0+50W	1	59.5	133	1	3	3	29	5
L35N 1+00W	1	71.6	91	1	4	3	31	5
L35N 1+50W N/S								
L35N 2+00W N/S								
L35N 2+50W	1	86.3	128	1	1	4	40	5
L35N 3+00W	1	96.9	140	1	1	3	43	10
L35N 3+50W	1	90.6	105	1	1	3	49	10
L35N 4+00W	1	91.6	133	1	1	3	53	5
L35N 4+50W	1	92.7	173	1	1	4	50	5
L35N 5+00W	1	90.9	114	1	1	4	44	5
L35N 5+50W	1	75.5	92	1	1	3	33	10
L35N 6+00W	1	77.2	112	1	1	3	39	10
L37N 0+50E	2	80.7	102	1	1	3	38	5
L37N 1+00E	2	69.7	81	1	1	2	42	5
L37N 0+00W	1	76.7	98	1	1	3	39	5
L37N 0+50W	1	74.8	91	1	1	2	41	5
L37N 1+00W	2	80.6	86	1	1	2	48	5
L37N 1+50W	1	86.0	113	1	1	3	37	5
L37N 2+00W	1	96.7	123	1	1	4	43	5
L37N 2+50W	2	116.4	113	1	1	4	67	30
L37N 3+00W N/S								
L37N 3+50W N/S								
L37N 4+00W	1	80.1	122	1	1	3	39	5
L37N 4+50W	1	64.8	99	1	1	2	31	5
L37N 5+00W	2	93.1	129	1	1	4	33	5
L37N 5+50W	2	91.2	140	1	1	4	41	5
L37N 6+00W	1	82.8	117	1	1	3	32	5
L42N 0+50E	3	72.9	74	1	1	2	53	10
L42N 1+00E	2	76.9	77	1	1	2	60	5
L42N 1+50E	2	82.3	94	1	1	3	58	5
L42N 2+00E	1	88.1	91	2	1	3	64	5
L42N 2+50E	2	78.3	93	1	1	3	59	5
L42N 3+00E	1	93.0	93	2	1	3	66	5
L42N 0+50W	1	87.2	82	2	1	2	65	5

PROJECT NO: DEU 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1530/P7+8
ATTENTION: G.NORDEEN (604)980-5814 OR (604)988-4524 * TYPE SOIL GEOCHEM * DATE:OCT 11, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
L42N 1+00W	.9	29110	9	6	327	1.3	7	8340	.4	8	20	35220
L42N 1+50W	.7	25600	10	2	360	1.2	6	8530	.6	6	17	32410
L42N 2+00W	.7	24780	4	1	288	1.2	7	7370	.7	7	18	31980
L42N 2+50W	1.2	27820	8	3	389	1.2	9	9180	.6	9	18	33830
L42N 3+00W	1.4	56430	11	26	352	1.7	7	7250	.6	11	30	45410
L42N 3+50W	1.3	42050	8	14	444	1.6	9	7780	.5	11	23	44320
L42N 4+00W	1.7	59310	5	29	399	2.0	8	4920	.2	13	28	52670
L42N 4+50W	1.0	55710	11	24	507	1.4	6	5130	.3	11	24	39650
L42N 5+00W	1.0	42270	9	15	381	1.5	5	5060	.4	8	17	41430
L42N 5+50W	1.3	53390	3	24	409	1.9	7	2940	.1	11	23	57760
L42N 6+00W	1.0	48450	8	20	425	1.6	5	2850	.3	10	22	44760
L42N 6+50W	.9	48910	9	20	339	1.6	6	2500	.6	8	19	50710
L42N 7+00W	1.6	46250	8	20	356	1.7	7	5250	.4	18	26	50460
L44N 0+50E	1.0	25950	14	2	274	1.3	7	7780	.5	8	21	34920
L44N 1+00E	1.2	30250	21	6	448	1.4	6	12210	.6	9	25	37000
L44N 1+50E	1.0	26820	8	4	291	1.2	8	6450	.1	7	19	33420
L44N 2+00E	1.0	24810	15	3	324	1.3	8	8010	.2	9	19	37750
L44N 2+50E	1.2	28770	10	6	453	1.5	8	9610	.3	11	24	44380
L44N 3+00E	1.0	31770	14	7	272	1.4	8	6190	.2	9	23	39070
L44N 0+50W	1.1	26980	13	3	265	1.3	10	6160	.2	10	21	39050
L44N 1+00W	1.2	29690	1	6	288	1.4	8	9000	.5	9	25	39240
L44N 1+50W 40M	1.4	38780	19	13	249	1.8	6	13940	.2	13	36	41340
L44N 2+00W 40M	1.4	40680	17	15	262	1.9	5	13970	.4	12	33	42020
L44N 2+50W	1.4	29690	16	5	335	1.3	10	11270	.1	9	27	34520
L44N 3+00W N/S												
L44N 3+50W	1.0	29590	9	6	403	1.4	8	5750	.5	10	21	40890
L44N 4+00W N/S												
L44N 4+50W	.8	25720	13	1	276	1.1	9	5490	.2	8	16	32350
L44N 5+00W	.9	30850	7	5	378	1.2	8	6510	.3	8	17	34110
L44N 5+50W	.9	36200	8	9	593	1.2	7	6120	.5	9	17	34200
L44N 6+00W	1.1	31640	7	6	380	1.2	6	5860	.4	8	17	35900
L44N 6+50W	.8	36150	7	8	392	1.2	3	5460	.3	8	18	35730
L44N 7+00W	.8	43530	7	15	525	1.4	5	3650	.1	10	18	42470

COMPANY: NORMINE RESOURCES | MIN-EN LABS ICP REPORT | (ACT:F31) PAGE 2 OF 3
PROJECT NO: DEU | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 7-1530/P7+8
ATTENTION: G.NORDEEN | (604)980-5814 OR (604)988-4524 | * TYPE SOIL GEOCHEM * | DATE:OCT 11, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
L42N 1+00W	900	14	9260	463	1	510	23	1040	14	4	210	1
L42N 1+50W	890	12	8390	306	1	480	20	1360	8	4	211	1
L42N 2+00W	930	10	8400	308	1	520	18	910	9	3	199	1
L42N 2+50W	1060	10	9010	335	1	620	17	1300	14	3	222	1
L42N 3+00W	1030	15	9560	345	1	380	27	2300	16	7	89	1
L42N 3+50W	1040	14	9920	931	1	410	25	1440	6	6	143	1
L42N 4+00W	1060	19	10890	1115	1	280	24	1450	17	7	91	1
L42N 4+50W	1050	16	10580	307	3	200	30	1550	5	6	125	1
L42N 5+00W	610	10	5970	260	1	300	8	1810	3	7	77	1
L42N 5+50W	900	15	8450	320	1	200	18	3030	15	9	72	1
L42N 6+00W	800	13	7600	415	1	250	20	1760	13	6	65	1
L42N 6+50W	780	12	6140	259	2	140	8	3830	12	7	40	1
L42N 7+00W	1080	14	11920	1912	2	220	22	1220	17	8	96	1
L44N 0+50E	860	11	9290	402	1	530	22	450	15	2	191	1
L44N 1+00E	1070	13	10870	443	1	620	31	1220	8	1	280	1
L44N 1+50E	770	14	8410	252	1	450	19	440	8	1	183	1
L44N 2+00E	880	12	8770	470	1	610	26	900	9	1	163	1
L44N 2+50E	1100	14	9740	504	1	680	31	1350	12	1	213	1
L44N 3+00E	920	14	9850	456	2	410	23	530	14	2	176	1
L44N 0+50W	850	15	9660	497	1	590	26	470	12	2	176	1
L44N 1+00W	970	13	10600	410	1	490	28	610	13	2	203	1
L44N 1+50W 40M	990	15	12630	1139	1	330	36	910	12	1	180	1
L44N 2+00W 40M	1000	15	11970	1195	2	300	33	960	13	1	199	1
L44N 2+50W	1060	11	10280	368	1	690	25	1220	12	1	252	1
L44N 3+00W N/S												
L44N 3+50W	860	8	6940	490	2	570	21	1170	9	1	89	1
L44N 4+00W N/S												
L44N 4+50W	780	10	7330	435	1	380	15	930	15	1	124	1
L44N 5+00W	820	10	7700	278	1	410	18	1230	11	6	141	1
L44N 5+50W	800	9	6920	255	1	400	20	1340	12	1	163	1
L44N 6+00W	720	12	8720	320	1	200	20	1200	13	4	117	1
L44N 6+50W	800	12	9230	308	2	190	19	1060	7	5	136	1
L44N 7+00W	670	11	7600	270	1	200	23	1570	12	5	121	1

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
L42N 1+00W	1	75.0	86	2	2	3	46	5
L42N 1+50W	1	65.5	77	2	1	2	40	10
L42N 2+00W	1	63.8	73	1	1	2	41	5
L42N 2+50W	1	69.3	74	1	2	2	48	10
L42N 3+00W	1	85.2	149	1	1	4	41	5
L42N 3+50W	1	85.8	129	3	1	3	44	5
L42N 4+00W	1	89.7	188	2	1	5	36	5
L42N 4+50W	1	65.1	132	1	6	4	37	10
L42N 5+00W	1	85.1	133	2	1	3	42	5
L42N 5+50W	2	99.8	155	2	7	4	49	5
L42N 6+00W	2	81.8	161	2	1	4	40	5
L42N 6+50W	1	80.9	152	1	1	4	39	5
L42N 7+00W	3	96.5	135	1	1	4	36	5
L44N 0+50E	3	66.7	87	1	1	2	46	10
L44N 1+00E	4	70.6	83	2	1	3	50	5
L44N 1+50E	2	66.2	92	1	1	2	47	5
L44N 2+00E	1	79.4	103	1	2	2	59	10
L44N 2+50E	2	97.2	89	2	2	2	70	5
L44N 3+00E	2	83.9	103	1	1	3	54	5
L44N 0+50W	1	79.1	95	1	1	2	57	5
L44N 1+00W	1	73.2	101	1	2	3	54	10
L44N 1+50W 40M	1	78.6	102	1	4	3	46	5
L44N 2+00W 40M	1	87.6	103	1	5	3	43	10
L44N 2+50W	1	69.1	80	2	2	2	61	5
L44N 3+00W N/S								
L44N 3+50W	1	92.7	86	1	2	3	45	5
L44N 4+00W N/S								
L44N 4+50W	1	64.9	89	1	2	2	36	5
L44N 5+00W	1	69.2	81	2	1	3	38	10
L44N 5+50W	1	66.9	101	1	1	3	39	5
L44N 6+00W	1	62.1	119	2	1	3	32	10
L44N 6+50W	1	58.8	117	2	4	3	27	5
L44N 7+00W	1	81.2	114	1	4	3	43	5

PROJECT NO: DEV 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1715/P1+2

ATTENTION: (604)980-5814 OR (604)988-4524 TYPE SOIL GEOCHEM DATE:NOV 2, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
L14 050W	.8	25200	3	18	327	1.2	4	4770	.5	6	19	32680
L14 100W	.9	25110	5	16	231	1.3	1	3200	.7	6	19	38880
L14 150W	1.1	40080	19	29	398	1.6	1	5430	.7	11	29	47630
L14 200W	.9	25770	18	18	300	1.5	4	6010	.6	10	41	43070
L14 250W	1.1	31450	17	23	321	1.6	2	5320	.6	10	39	47420
L14 300W	1.8	26000	19	19	460	1.4	2	11230	1.5	9	43	37900
L14 350W	.8	24710	16	18	286	1.4	5	4760	.6	9	29	42540
L14 400W	1.2	23970	17	17	326	1.3	2	4300	1.2	7	32	37780
L14 450W	1.1	23250	16	16	378	1.2	2	7940	1.3	7	43	32070
L14 500W	1.1	22750	13	17	268	1.2	4	4550	.6	7	27	36730
L14 550W	.5	25880	10	18	168	1.1	1	1820	.2	4	24	33860
L14 600W	.6	16410	8	11	168	1.0	4	1740	1.0	5	22	30900
L14 650W	2.5	26310	20	21	468	1.3	2	9230	.9	7	48	35190
L14 750W	.6	20760	17	14	349	1.4	2	3480	1.3	7	38	41910
L14 850W	.4	12700	1	7	212	.9	2	4580	1.1	5	21	27170
L14 900W	.6	22170	13	18	189	1.3	1	4060	.6	6	35	39320
L14 950W	.8	17830	9	12	273	1.1	2	5010	.5	6	31	32620
L14 1000W	1.0	26600	20	20	189	1.4	1	3760	.6	7	40	44040
L14 1050W	1.6	23690	16	18	245	1.6	1	4000	.8	6	31	50220
L14 1100W	1.2	19620	1	13	244	1.2	1	2230	.8	6	39	36070
L14 1150W	2.6	23810	15	20	285	.9	1	2560	1.0	4	49	24620
L14 1200W	1.2	25790	21	19	195	1.3	1	3900	.5	6	42	36730
L16 050W	1.0	16890	10	11	194	1.0	8	2140	.7	6	16	29630
L16 100W	.8	27400	9	19	189	1.2	4	1570	.1	6	18	37390
L16 150W	1.8	59840	20	45	645	1.9	1	5020	.6	17	57	54320
L16 200W	.7	23150	12	16	258	1.0	2	2190	.3	6	21	29940
L16 250W	.9	25600	13	18	207	1.2	4	3140	.4	6	20	36320
L16 300W	.7	29610	6	21	173	1.1	2	2260	.6	6	23	33550
L16 350W	.2	28450	8	24	214	1.7	1	1680	.8	4	18	54160
L16 400W	.8	24910	10	18	297	1.1	1	4230	.6	6	29	31460
L16 450W	.7	19780	1	21	204	1.1	2	4700	.7	5	30	33260
L16 500W	.4	16020	9	14	195	.9	1	3000	.8	5	29	28520
L16 550W	.8	13680	5	10	158	1.2	1	1560	.6	4	37	37820
L16 600W	.8	17820	9	12	294	1.2	1	3850	.8	5	44	36480
L16 650W	.8	23140	15	15	300	1.2	1	4210	.3	6	43	35970
L16 700W	2.2	35090	9	26	438	1.4	1	5100	.4	6	78	37400
L16 750W	1.2	25890	7	18	295	1.2	1	5580	.3	6	42	33470
L16 800W	.9	25210	13	17	270	1.2	1	5110	.3	6	45	35000
L16 850W	.4	20580	1	12	253	.9	1	4290	.1	4	29	25200
L16 900W 20M	1.3	23450	10	15	333	1.1	1	10030	.3	6	38	30220
L16 950W 40M	1.9	38490	30	28	495	1.7	2	9600	.7	9	94	46770
L16 1000W	2.1	45280	34	38	598	1.8	1	10870	.8	11	97	48770
L16 1050W 40M	1.6	27130	22	20	365	1.9	1	9180	1.4	9	58	57830
L16 1100W	1.7	22820	1	17	318	1.3	2	8460	1.6	8	73	37470
L16 1150W	1.8	31850	26	22	421	1.6	1	5860	.5	9	98	45760

PROJECT NO: DEV
ATTENTION:

7?* WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 7-1715/P1+2
'PE SOIL GEOCHEM # DATE:NOV 2, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
L14 050W	670	12	5780	246	1	240	8	1150	11	1	58	1
L14 100W	600	12	4910	220	1	120	5	1930	12	1	34	1
L14 150W	870	13	7730	397	1	250	14	1960	6	6	69	1
L14 200W	1040	11	7010	522	1	260	13	1540	23	3	57	1
L14 250W	1150	14	6950	430	1	260	10	1790	23	3	58	1
L14 300W	1150	13	7340	771	1	250	16	1230	23	3	125	1
L14 350W	830	11	6020	403	2	310	13	1680	15	2	45	1
L14 400W	880	13	6380	349	1	150	14	780	23	3	60	1
L14 450W	880	12	6120	487	1	180	16	1110	23	4	91	1
L14 500W	820	16	5610	368	1	150	11	930	16	3	59	1
L14 550W	610	12	3670	159	2	120	1	840	16	2	28	1
L14 600W	690	6	3760	192	1	110	6	790	15	3	28	1
L14 650W	920	13	6640	646	1	160	13	1200	20	4	118	1
L14 750W	690	15	5310	317	1	100	10	570	30	1	55	1
L14 850W	500	8	5110	261	1	110	10	1010	20	1	40	1
L14 900W	940	11	6080	265	1	330	8	1350	30	4	32	1
L14 950W	630	13	4740	309	1	120	10	460	22	2	64	1
L14 1000W	960	12	5850	484	1	150	8	1300	30	1	36	1
L14 1050W	830	19	5570	262	1	120	7	1660	22	5	44	1
L14 1100W	780	8	3910	917	2	110	6	890	25	4	40	1
L14 1150W	910	11	5010	218	1	130	9	970	17	2	41	1
L14 1200W	1120	13	7210	335	1	150	13	1270	33	5	31	1
L16 050W	610	7	3780	193	1	170	7	530	14	3	36	1
L16 100W	610	12	3630	201	1	140	2	1080	10	3	22	1
L16 150W	1510	19	9650	3045	4	110	15	1050	22	1	81	1
L16 200W	840	10	4330	307	2	140	5	520	18	3	36	1
L16 250W	920	13	5130	242	1	170	5	1140	18	2	32	1
L16 300W	860	11	5550	209	2	140	7	1280	13	2	26	1
L16 350W	870	16	3600	155	1	110	1	5230	10	3	16	1
L16 400W	810	12	5840	425	1	190	8	1060	13	3	45	1
L16 450W	700	14	5710	269	1	120	7	760	24	3	35	1
L16 500W	500	12	4830	382	1	70	8	880	31	3	24	1
L16 550W	570	7	2790	213	1	80	3	1090	27	3	18	1
L16 600W	760	12	5550	321	1	120	9	770	23	1	45	1
L16 650W	900	12	6310	496	1	140	8	860	24	1	49	1
L16 700W	1150	14	7310	662	1	140	11	740	19	2	68	1
L16 750W	890	12	6540	489	1	160	10	1020	19	3	59	1
L16 800W	810	14	6770	385	1	140	9	990	19	3	55	1
L16 850W	780	9	4730	241	1	130	9	420	12	1	57	1
L16 900W 20M	890	12	5780	492	1	150	12	1110	14	2	127	1
L16 950W 40M	1480	19	7970	1097	2	160	21	1350	25	4	127	1
L16 1000W	1600	21	9240	1411	2	160	24	1640	20	4	168	1
L16 1050W 40M	970	19	10240	809	1	170	21	1400	31	6	99	1
L16 1100W	890	17	7440	649	1	230	26	1170	29	4	102	1
L16 1150W	1040	33	5940	477	2	110	23	1150	28	4	98	1

PROJECT NO: DEV   20^ WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2   FILE NO: 7-1715/P1+2

ATTENTION: (604)980-5814 OR (604)988-4524   /PE SOIL GEOCHEM   DATE:NOV 2, 1987

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
L14 050W	1	64.0	99	1	2	2	25	10
L14 100W	1	71.3	109	1	1	2	25	20
L14 150W	1	88.1	121	1	2	3	33	5
L14 200W	1	86.8	109	1	1	2	32	10
L14 250W	1	92.2	129	1	1	3	32	5
L14 300W	1	69.8	108	1	1	2	24	10
L14 350W	1	87.4	104	1	1	2	35	5
L14 400W	1	75.7	97	1	1	2	26	50
L14 450W	1	59.4	96	1	1	2	21	10
L14 500W	1	75.6	150	1	1	2	30	15
L14 550W	1	67.5	85	1	1	2	24	20
L14 600W	1	70.5	92	1	1	1	29	5
L14 650W	1	62.3	113	1	1	2	19	5
L14 750W	1	84.0	116	1	1	2	28	5
L14 850W	1	59.4	78	1	1	1	20	10
L14 900W	1	79.0	119	1	1	2	27	10
L14 950W	1	68.2	113	1	1	1	26	5
L14 1000W	1	89.0	124	1	1	2	30	5
L14 1050W	1	99.2	158	1	1	2	38	5
L14 1100W	1	74.2	102	1	1	1	27	5
L14 1150W	1	47.1	104	1	1	1	18	10
L14 1200W	1	69.8	106	1	1	2	22	30
L16 050W	2	67.2	81	1	1	1	30	5
L16 100W	1	76.2	122	2	2	2	33	5
L16 150W	1	85.0	180	1	1	4	17	10
L16 200W	2	66.2	89	2	1	2	23	5
L16 250W	1	76.7	114	2	1	2	27	5
L16 300W	2	66.3	102	1	1	2	23	5
L16 350W	2	67.4	161	1	1	2	22	5
L16 400W	2	61.1	104	1	2	2	20	10
L16 450W	1	69.1	133	1	1	2	28	10
L16 500W	1	50.4	115	1	1	2	15	5
L16 550W	1	75.2	111	1	1	2	28	5
L16 600W	1	72.1	121	1	1	2	25	10
L16 650W	2	71.8	116	1	1	2	21	5
L16 700W	2	67.0	144	1	2	3	17	5
L16 750W	1	65.0	110	1	1	2	18	15
L16 800W	1	67.0	111	1	1	2	19	10
L16 850W	1	53.8	79	1	1	2	15	10
L16 900W 20M	1	55.2	96	1	1	2	14	5
L16 950W 40M	1	79.7	165	2	1	3	21	5
L16 1000W	1	72.5	163	1	1	4	21	5
L16 1050W 40M	1	140.5	127	1	1	3	25	10
L16 1100W	2	72.8	127	2	1	2	26	20
L16 1150W	1	73.3	173	2	2	3	23	15

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.
BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DEV
Comments: ATTN: G. NORDINE

Date :15-OCT-87
Invoice #:I-8723915
P.O. # :

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
5551	205 238	< 5	2.03	0.2	50	130	0.5	< 2	3.61	< 0.5	20	101	22	4.23	20	< 1	0.30	< 10	1.60	685
5552	205 238	< 5	2.33	0.2	50	170	0.5	< 2	3.32	< 0.5	16	84	28	4.24	20	< 1	0.43	< 10	1.65	558
5553	205 238	< 5	1.93	0.2	70	220	0.5	< 2	3.48	< 0.5	19	77	21	4.44	20	< 1	0.26	< 10	1.71	677
5554	205 238	< 5	1.76	0.2	35	230	0.5	< 2	4.37	< 0.5	22	86	21	4.11	20	< 1	0.23	< 10	1.39	742
5555	205 238	< 5	2.12	0.2	35	100	0.5	< 2	3.59	< 0.5	21	82	28	4.39	20	< 1	0.31	< 10	1.67	675
5556	205 238	< 5	2.13	0.2	50	130	0.5	< 2	3.38	< 0.5	23	77	29	4.15	20	< 1	0.41	< 10	1.51	587
5557	205 238	< 5	2.24	0.2	55	290	0.5	< 2	3.78	< 0.5	20	74	22	3.71	20	< 1	0.34	< 10	1.75	631
5558	205 238	< 5	2.45	0.2	230	550	0.5	< 2	4.25	< 0.5	22	82	22	4.00	20	< 1	0.39	< 10	1.83	626
5559	205 238	< 5	2.30	0.2	90	210	0.5	< 2	3.99	< 0.5	19	82	24	4.01	20	< 1	0.35	< 10	1.76	664
5560	205 238	< 5	1.87	0.2	165	70	0.5	< 2	3.98	< 0.5	20	89	34	4.95	20	< 1	0.19	< 10	1.74	682
5561	205 238	< 5	2.33	0.2	140	650	1.0	< 2	4.04	< 0.5	20	80	19	4.01	20	< 1	0.25	< 10	1.69	710
5562	205 238	15	2.61	0.2	95	660	1.5	< 2	4.17	< 0.5	19	68	20	4.17	20	< 1	0.25	< 10	1.84	734
5563	205 238	5	2.80	0.2	145	340	0.5	< 2	3.52	< 0.5	22	135	58	4.67	20	< 1	0.17	< 10	2.40	934
5564	205 238	< 5	2.51	0.2	135	60	0.5	< 2	3.94	< 0.5	22	133	45	4.36	20	< 1	0.17	< 10	2.14	857
5565	205 238	< 5	2.52	0.2	85	90	0.5	< 2	3.34	< 0.5	21	128	46	4.41	20	< 1	0.28	< 10	2.06	774
5566	205 238	< 5	2.46	0.2	140	120	0.5	< 2	4.08	< 0.5	20	121	52	4.24	20	< 1	0.21	< 10	2.39	1015
5567	205 238	< 5	2.29	0.2	115	200	0.5	< 2	3.80	< 0.5	23	125	57	4.10	20	< 1	0.20	< 10	2.24	919
5568	205 238	< 5	2.16	0.2	75	70	0.5	< 2	3.78	< 0.5	21	125	50	4.43	20	< 1	0.26	< 10	2.03	765
5569	205 238	< 5	2.00	0.2	85	70	1.0	< 2	3.47	< 0.5	21	113	38	4.19	20	< 1	0.24	< 10	1.74	555
5570	205 238	< 5	2.08	0.2	65	90	1.0	< 2	4.11	< 0.5	20	116	37	3.98	20	< 1	0.22	< 10	1.92	565
5571	205 238	< 5	2.50	0.2	85	110	1.0	< 2	4.66	< 0.5	25	142	34	4.52	20	< 1	0.31	< 10	2.25	648
5572	205 238	< 5	2.60	0.2	145	140	1.0	< 2	4.07	< 0.5	22	134	38	4.52	20	< 1	0.53	< 10	2.09	485
5573	205 238	< 5	2.21	0.2	315	130	0.5	< 2	3.95	< 0.5	21	126	33	4.43	20	1	0.26	< 10	1.85	440
5574	205 238	< 5	2.09	0.2	190	670	0.5	< 2	3.51	< 0.5	23	120	34	4.19	20	< 1	0.25	< 10	2.27	432
5575	205 238	< 5	2.15	0.2	220	270	1.0	< 2	4.20	< 0.5	22	120	39	4.52	20	< 1	0.29	< 10	2.36	508
5576	205 238	< 5	1.76	0.2	240	200	0.5	< 2	3.21	< 0.5	21	114	29	3.78	10	< 1	0.35	< 10	1.76	335
5577	205 238	< 5	1.83	0.2	275	220	0.5	< 2	4.42	< 0.5	20	111	42	4.31	20	< 1	0.24	< 10	2.24	606
5578	205 238	< 5	2.11	0.2	60	160	0.5	< 2	3.35	< 0.5	21	136	28	3.70	20	< 1	0.50	< 10	2.46	565
5579	205 238	< 5	2.07	0.2	95	350	0.5	< 2	3.53	< 0.5	22	136	30	3.87	10	< 1	0.38	< 10	2.60	643
5580	205 238	< 5	2.02	0.2	125	120	1.0	< 2	3.80	< 0.5	24	127	37	3.87	10	< 1	0.33	< 10	2.29	656
5581	205 238	< 5	1.68	0.2	35	160	0.5	< 2	2.94	< 0.5	24	128	41	3.81	10	< 1	0.52	< 10	2.22	566
5582	205 238	< 5	2.29	0.2	90	470	0.5	< 2	2.93	< 0.5	22	141	43	3.63	10	< 1	0.82	< 10	2.62	561
5583	205 238	< 5	0.68	0.2	100	1420	0.5	< 2	8.33	< 0.5	19	39	11	2.83	10	< 1	0.31	< 10	2.92	784
5584	205 238	< 5	0.85	0.2	140	360	0.5	< 2	3.61	< 0.5	22	65	23	3.53	10	< 1	0.27	< 10	1.47	418
5585	205 238	< 5	1.20	0.2	100	310	1.0	< 2	4.28	< 0.5	18	82	18	3.84	10	< 1	0.25	< 10	2.01	498
5586	205 238	< 5	1.69	0.2	65	480	0.5	< 2	4.06	< 0.5	18	102	20	4.25	20	< 1	0.20	< 10	2.37	574
5587	205 238	5	1.98	0.2	105	270	1.0	< 2	4.24	< 0.5	21	130	28	4.14	20	< 1	0.19	< 10	2.06	585
5588	205 238	< 5	2.19	0.2	140	110	1.0	< 2	4.40	< 0.5	22	147	44	4.09	20	< 1	0.12	< 10	2.26	649
5589	205 238	< 5	2.31	0.2	80	140	0.5	< 2	3.20	< 0.5	23	149	39	4.07	10	< 1	0.43	< 10	2.69	719
5590	205 238	< 5	1.94	0.2	85	90	1.0	< 2	4.13	< 0.5	23	133	36	4.13	10	< 1	0.27	< 10	2.00	717

CERTIFICATION : ________

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DEV
Comments: ATTN, G NORDINE

Date :15-OCT-87
Invoice #:I-8723915
P.O. #

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Se ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
5551	205	238	4	0.05	47	2150	12	5	< 10	430	0.03	< 10	< 10	78	5	44
5552	205	238	20	0.02	40	2410	8	5	< 10	264	< 0.01	< 10	< 10	70	5	53
5553	205	238	14	0.03	43	2130	4	5	< 10	256	< 0.01	< 10	< 10	63	5	42
5554	205	238	7	0.03	57	2240	< 2	5	< 10	511	< 0.01	< 10	< 10	61	< 5	36
5555	205	238	4	0.02	54	2380	10	< 5	< 10	327	< 0.01	< 10	< 10	63	< 5	49
5556	205	238	6	0.02	57	2190	10	< 5	< 10	296	< 0.01	< 10	< 10	63	5	45
5557	205	238	5	0.02	43	2080	2	5	< 10	316	< 0.01	< 10	< 10	70	5	47
5558	205	238	39	0.02	48	2290	< 2	5	< 10	311	< 0.01	< 10	< 10	76	5	48
5559	205	238	< 1	0.02	47	2180	6	< 5	< 10	254	< 0.01	< 10	< 10	75	5	44
5560	205	238	< 1	0.04	55	2360	10	< 5	< 10	218	< 0.01	< 10	< 10	90	< 5	34
5561	205	238	11	0.02	53	2020	8	5	< 10	376	< 0.01	< 10	< 10	79	< 5	52
5562	205	238	25	0.02	55	1890	6	< 5	< 10	462	< 0.01	< 10	< 10	80	5	73
5563	205	238	2	0.04	83	2000	6	< 5	< 10	289	< 0.01	< 10	< 10	98	5	55
5564	205	238	4	0.03	90	2220	4	< 5	< 10	343	< 0.01	< 10	< 10	82	10	47
5565	205	238	2	0.03	75	2220	6	5	< 10	296	< 0.01	< 10	< 10	70	< 5	47
5566	205	238	2	0.02	70	1860	2	5	< 10	387	< 0.01	< 10	< 10	76	5	49
5567	205	238	5	0.02	84	1950	< 2	< 5	< 10	360	< 0.01	< 10	< 10	71	5	41
5568	205	238	1	0.03	78	1950	10	5	< 10	367	< 0.01	< 10	< 10	62	< 5	36
5569	205	238	8	0.02	85	2130	4	< 5	< 10	321	< 0.01	< 10	< 10	59	< 5	27
5570	205	238	8	0.03	87	1970	4	5	< 10	387	< 0.01	< 10	< 10	57	5	25
5571	205	238	1	0.04	107	2150	2	< 5	< 10	545	0.02	< 10	< 10	74	5	30
5572	205	238	5	0.04	94	2650	2	< 5	< 10	446	0.02	< 10	< 10	76	5	25
5573	205	238	3	0.02	82	2820	10	5	< 10	340	< 0.01	< 10	< 10	73	5	19
5574	205	238	4	0.02	94	1980	8	5	< 10	413	< 0.01	< 10	< 10	65	< 5	23
5575	205	238	3	0.03	90	2000	< 2	5	< 10	484	< 0.01	< 10	< 10	64	5	25
5576	205	238	26	0.02	84	1840	2	5	< 10	404	< 0.01	< 10	< 10	55	5	19
5577	205	238	17	0.02	93	2130	2	5	< 10	456	< 0.01	< 10	< 10	68	5	25
5578	205	238	1	0.04	93	1890	< 2	< 5	< 10	346	0.06	< 10	< 10	86	5	35
5579	205	238	< 1	0.05	99	1890	12	< 5	< 10	339	0.14	< 10	< 10	95	< 5	45
5580	205	238	2	0.05	109	1970	8	< 5	< 10	370	0.13	< 10	< 10	88	5	56
5581	205	238	< 1	0.08	114	1940	< 2	< 5	< 10	256	0.27	< 10	< 10	95	< 5	70
5582	205	238	2	0.08	91	1910	10	5	< 10	258	0.19	< 10	< 10	88	5	54
5583	205	238	36	0.01	56	1330	< 2	10	< 10	550	< 0.01	< 10	< 10	19	5	54
5584	205	238	6	0.02	88	1770	< 2	10	< 10	237	< 0.01	< 10	< 10	28	5	33
5585	205	238	4	0.02	72	1890	6	5	< 10	307	< 0.01	< 10	< 10	40	5	37
5586	205	238	6	0.02	71	1960	4	< 5	< 10	710	< 0.01	< 10	< 10	64	< 5	44
5587	205	238	2	0.06	79	2020	10	5	< 10	313	< 0.01	< 10	< 10	77	5	38
5588	205	238	2	0.05	85	2160	< 2	< 5	< 10	364	< 0.01	< 10	< 10	87	5	52
5589	205	238	1	0.07	87	1990	8	5	< 10	318	0.18	< 10	< 10	91	< 5	58
5590	205	238	3	0.05	93	2040	6	5	< 10	347	0.14	< 10	< 10	86	5	60

CERTIFICATION

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DRV
Comments: ATTN; G NORDINE

Date : 15-OCT-87
Invoice # : I-8723915
P.O. #

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
5591	205	238	< 5	2.21	0.2	110	100	0.5	< 2	4.11	< 0.5	24	149	37	4.46	20	< 1	0.22	< 10	2.15	806
5592	205	238	< 5	2.18	0.2	70	30	0.5	< 2	4.56	< 0.5	18	131	27	3.88	20	< 1	0.15	< 10	1.99	720
5593	205	238	< 5	2.04	0.2	195	60	0.5	< 2	4.26	< 0.5	19	115	50	4.33	20	< 1	0.15	< 10	1.65	699
5594	205	238	< 5	2.11	0.2	160	70	0.5	< 2	3.57	< 0.5	19	68	49	4.04	20	< 1	0.23	< 10	1.51	501
5595	205	238	< 5	2.18	0.2	135	360	0.5	< 2	4.46	< 0.5	20	119	37	3.80	20	< 1	0.23	< 10	1.83	654
5596	205	238	< 5	1.44	0.2	130	390	0.5	< 2	5.56	< 0.5	18	72	30	3.71	10	< 1	0.23	< 10	1.55	684
5597	205	238	< 5	1.48	0.2	85	500	0.5	< 2	3.88	< 0.5	23	18	32	2.22	20	< 1	0.35	10	0.98	387
5598	205	238	< 5	2.71	0.2	125	220	0.5	< 2	3.42	< 0.5	23	88	44	4.32	20	< 1	0.38	< 10	2.28	625
5599	205	238	< 5	1.74	0.2	55	100	0.5	< 2	2.01	< 0.5	17	91	28	3.42	10	< 1	0.39	10	1.77	479
5600	205	238	< 5	2.39	0.2	50	160	0.5	< 2	2.58	< 0.5	23	107	39	4.54	10	< 1	0.52	< 10	2.47	781
5601	205	238	< 5	2.08	0.2	250	270	0.5	< 2	3.53	< 0.5	19	22	49	3.94	20	< 1	0.29	20	1.37	692
5602	205	238	< 5	2.22	0.2	695	620	0.5	< 2	3.26	< 0.5	15	60	25	3.07	10	< 1	0.48	< 10	1.49	639
5603	205	238	20	0.48	2.0	475	290	0.5	< 2	12.75	< 0.5	12	28	36	3.55	10	< 1	0.23	< 10	2.78	2620
5604	205	238	10	2.56	0.2	230	810	0.5	< 2	4.08	< 0.5	16	69	43	3.47	20	< 1	0.45	< 10	1.88	633
5605	205	238	< 5	1.93	0.2	70	130	0.5	< 2	2.33	< 0.5	18	87	32	3.71	10	< 1	0.45	10	1.87	518
5606	205	238	< 5	1.30	0.2	20	60	0.5	< 2	1.57	< 0.5	17	71	32	3.27	10	< 1	0.16	10	1.35	390
5607	205	238	< 5	1.55	0.2	45	50	0.5	< 2	2.19	< 0.5	18	83	33	3.56	10	< 1	0.16	10	1.62	538
5608	205	238	< 5	1.34	0.2	45	60	0.5	< 2	1.57	< 0.5	18	82	33	3.37	10	< 1	0.17	10	1.39	431
5609	205	238	< 5	1.08	0.2	20	60	0.5	< 2	1.05	< 0.5	16	71	30	2.96	10	< 1	0.15	20	1.03	301
5610	205	238	< 5	1.28	0.2	15	70	0.5	< 2	1.21	< 0.5	17	75	31	3.08	10	< 1	0.25	20	1.28	363
5611	205	238	< 5	1.88	0.2	55	140	0.5	< 2	1.83	< 0.5	18	93	39	3.83	10	< 1	0.55	20	1.83	445
5612	205	238	< 5	1.29	0.2	30	80	0.5	< 2	1.45	< 0.5	16	73	31	3.00	10	< 1	0.22	10	1.24	331
5613	205	238	< 5	2.04	0.2	165	340	0.5	< 2	4.13	< 0.5	16	80	30	3.45	10	< 1	0.37	< 10	1.51	588
5614	205	238	< 5	1.53	0.2	60	490	0.5	< 2	2.64	< 0.5	10	61	14	2.24	10	< 1	0.38	< 10	0.87	308
5615	205	238	< 5	1.79	0.2	70	60	0.5	< 2	4.85	< 0.5	8	58	11	1.97	10	< 1	0.43	< 10	1.00	497
5616	205	238	< 5	1.92	0.2	80	90	0.5	< 2	2.83	< 0.5	18	93	34	3.61	10	< 1	0.36	< 10	1.80	526
5617	205	238	< 5	1.74	0.2	60	200	0.5	< 2	2.34	< 0.5	17	80	35	3.44	10	< 1	0.33	10	1.78	481
5618	205	238	< 5	1.61	0.2	35	100	0.5	< 2	2.00	< 0.5	17	87	30	3.34	10	< 1	0.30	10	1.67	446
5619	205	238	< 5	1.91	0.6	50	500	0.5	< 2	6.38	0.5	16	66	27	3.28	10	< 1	0.28	< 10	1.54	926
5620	205	238	< 5	1.52	0.2	50	110	0.5	< 2	1.82	< 0.5	16	74	27	3.06	10	< 1	0.28	10	1.42	489
5621	205	238	< 5	1.42	0.2	30	90	0.5	< 2	1.60	0.5	15	78	31	3.02	10	< 1	0.34	20	1.36	444
5622	205	238	< 5	1.91	0.2	90	100	0.5	< 2	3.06	< 0.5	16	75	24	3.40	10	< 1	0.32	< 10	1.59	653
5623	205	238	< 5	1.46	0.2	55	70	0.5	< 2	1.71	< 0.5	16	80	26	3.07	10	< 1	0.25	20	1.43	478
5624	205	238	< 5	1.37	0.2	45	40	0.5	< 2	1.32	< 0.5	17	73	33	3.07	10	< 1	0.12	20	1.25	414
5625	205	238	< 5	1.29	0.2	25	50	0.5	< 2	1.20	< 0.5	16	73	37	3.08	10	< 1	0.12	20	1.22	378
5626	205	238	< 5	1.50	0.2	70	60	0.5	< 2	1.85	< 0.5	18	82	36	3.45	10	< 1	0.16	10	1.56	526
5627	205	238	< 5	1.91	0.2	115	50	0.5	< 2	2.95	< 0.5	20	122	38	3.99	10	< 1	0.13	< 10	1.94	750
5628	205	238	< 5	1.98	0.2	160	230	< 0.5	6	2.38	< 0.5	30	142	41	4.76	10	< 1	0.23	10	1.44	656
5629	205	238	< 5	2.49	0.2	85	350	< 0.5	2	2.19	< 0.5	20	78	32	4.17	10	< 1	0.26	20	1.77	979
5630	205	238	< 5	1.79	0.2	75	60	< 0.5	< 2	2.40	< 0.5	20	91	32	3.78	< 10	< 1	0.16	< 10	1.83	639

CERTIFICATION :

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DEV
Comments: ATTN; G. NORDINE

Date :15-OCT-87
Invoice # :I-8723915
P.O. # :

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Se ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
5591	205	238	1	0.06	96	2180	4	5	< 10	318	0.12	10	< 10	102	< 5	59
5592	205	238	1	0.04	71	1920	6	< 5	< 10	306	0.01	20	< 10	95	< 5	50
5593	205	238	3	0.05	65	2170	20	< 5	< 10	272	< 0.01	10	< 10	91	5	65
5594	205	238	2	0.04	65	2310	14	5	< 10	247	< 0.01	20	< 10	94	5	29
5595	205	238	3	0.04	71	1880	12	< 5	< 10	322	< 0.01	10	< 10	86	5	27
5596	205	238	16	0.02	48	1580	12	5	< 10	448	< 0.01	10	< 10	51	5	42
5597	205	238	3	0.04	59	3740	6	5	< 10	269	< 0.01	30	< 10	48	5	39
5598	205	238	3	0.05	61	1750	14	< 5	< 10	321	0.02	10	< 10	77	< 5	61
5599	205	238	1	0.10	44	1490	< 2	< 5	< 10	156	0.26	< 10	< 10	84	< 5	56
5600	205	238	< 1	0.13	61	1650	< 2	< 5	< 10	176	0.29	10	< 10	107	< 5	63
5601	205	238	1	0.06	54	3620	4	5	< 10	182	0.01	20	< 10	90	< 5	33
5602	205	238	7	0.03	39	1770	12	5	< 10	280	< 0.01	20	< 10	50	5	45
5603	205	238	64	< 0.01	14	580	32	15	< 10	596	< 0.01	< 10	< 10	11	10	48
5604	205	238	3	0.03	41	1740	12	10	< 10	425	< 0.01	10	< 10	62	5	50
5605	205	238	1	0.07	43	1710	6	< 5	< 10	158	0.19	10	< 10	85	5	43
5606	205	238	1	0.08	36	1580	10	< 5	< 10	94	0.24	10	< 10	65	< 5	38
5607	205	238	1	0.07	42	1660	< 2	< 5	< 10	137	0.22	< 10	< 10	75	5	62
5608	205	238	1	0.10	44	1690	8	5	< 10	119	0.28	10	< 10	70	< 5	59
5609	205	238	< 1	0.09	41	1670	10	< 5	< 10	65	0.26	10	< 10	57	5	59
5610	205	238	2	0.09	42	1630	8	< 5	< 10	72	0.26	10	< 10	67	< 5	57
5611	205	238	1	0.10	43	1710	4	< 5	< 10	115	0.27	10	< 10	88	< 5	58
5612	205	238	1	0.07	39	1580	8	< 5	< 10	82	0.24	10	< 10	62	< 5	56
5613	205	238	16	0.05	39	1630	4	5	< 10	293	0.05	10	< 10	64	5	48
5614	205	238	15	0.04	24	1290	8	< 5	< 10	156	< 0.01	10	< 10	35	< 5	23
5615	205	238	11	0.03	25	1310	16	5	< 10	297	< 0.01	10	< 10	33	< 5	22
5616	205	238	3	0.08	40	1660	6	5	< 10	161	0.22	10	< 10	87	< 5	50
5617	205	238	2	0.07	39	1630	< 2	5	< 10	164	0.17	10	< 10	81	< 5	48
5618	205	238	< 1	0.08	39	1530	2	< 5	< 10	195	0.25	10	< 10	79	< 5	44
5619	205	238	10	0.04	30	1360	14	5	< 10	465	0.02	10	< 10	59	< 5	42
5620	205	238	1	0.08	33	1570	16	< 5	< 10	110	0.19	10	< 10	70	< 5	52
5621	205	238	1	0.09	37	1550	10	< 5	< 10	90	0.20	10	< 10	71	< 5	72
5622	205	238	7	0.06	35	1550	18	5	< 10	253	0.11	10	< 10	71	< 5	75
5623	205	238	1	0.08	36	1550	12	< 5	< 10	88	0.23	10	< 10	74	< 5	79
5624	205	238	1	0.08	38	1580	4	< 5	< 10	91	0.25	10	< 10	64	< 5	66
5625	205	238	2	0.08	38	1570	10	< 5	< 10	78	0.27	10	< 10	63	< 5	59
5626	205	238	1	0.08	42	1690	4	< 5	< 10	100	0.22	10	< 10	75	< 5	60
5627	205	238	1	0.07	67	1770	12	5	< 10	142	0.14	10	< 10	97	5	64
5628	205	238	4	0.05	112	2040	12	5	< 10	62	< 0.01	< 10	< 10	91	< 5	56
5629	205	238	3	0.04	58	1960	14	< 5	< 10	71	< 0.01	< 10	< 10	81	< 5	97
5630	205	238	2	0.07	46	1660	10	5	< 10	134	0.27	< 10	< 10	95	< 5	55

CERTIFICATION : ________

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DEV
Comments: ATTN; G NORDINE

Page No. : 3-A
Tot. Pages: 5
Date : 15-OCT-87
Invoice # : I-8723915
P.O. # :

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
5631	205	238	< 5	1.91	< 0.2	115	40	< 0.5	4	2.94	< 0.5	22	126	30	3.99	< 10	< 1	0.09	< 10	1.97	737
5632	205	238	< 5	2.00	< 0.2	125	30	< 0.5	< 2	3.39	< 0.5	24	144	28	3.98	< 10	< 1	0.05	< 10	1.92	652
5633	205	238	< 5	1.80	< 0.2	100	50	< 0.5	< 2	2.76	< 0.5	18	22	45	3.90	< 10	< 1	0.11	< 10	1.42	505
5634	205	238	< 5	1.81	< 0.2	125	40	< 0.5	< 2	2.93	< 0.5	23	19	39	4.06	< 10	< 1	0.14	< 10	1.36	555
5635	205	238	< 5	1.81	< 0.2	235	60	< 0.5	2	3.53	< 0.5	22	17	45	4.04	< 10	< 1	0.20	< 10	1.41	510
5636	205	238	< 5	2.36	< 0.2	135	60	< 0.5	2	4.13	0.5	22	145	42	4.14	10	< 1	0.25	< 10	2.19	600
5637	205	238	< 5	2.64	0.2	95	250	< 0.5	2	3.69	< 0.5	24	162	46	3.69	10	< 1	0.32	< 10	2.19	603
5638	205	238	< 5	2.45	0.2	100	50	< 0.5	4	4.06	< 0.5	21	146	40	3.75	10	< 1	0.33	< 10	2.11	640
5639	205	238	< 5	2.51	0.2	125	70	< 0.5	4	3.43	< 0.5	25	142	57	4.20	10	< 1	0.22	< 10	2.29	695
5640	205	238	< 5	2.46	0.2	120	40	< 0.5	< 2	3.67	< 0.5	27	153	28	4.29	10	< 1	0.24	< 10	2.33	839
5641	205	238	< 5	3.46	< 0.2	95	360	< 0.5	4	3.39	0.5	24	165	33	4.29	< 10	< 1	0.68	< 10	3.15	1045
5642	205	238	< 5	2.50	< 0.2	110	580	< 0.5	2	4.05	< 0.5	22	119	39	4.07	< 10	< 1	0.37	< 10	2.39	858
5643	205	238	< 5	1.90	0.2	130	660	< 0.5	2	3.82	< 0.5	22	97	44	3.76	< 10	1	0.39	< 10	2.03	851
5644	205	238	< 5	0.99	0.2	135	470	< 0.5	< 2	4.04	< 0.5	19	111	24	2.88	< 10	< 1	0.41	< 10	1.39	644
5645	205	238	< 5	1.26	< 0.2	100	240	< 0.5	4	3.67	< 0.5	19	82	24	3.11	< 10	< 1	0.47	< 10	1.42	704
5646	205	238	< 5	1.39	0.2	105	330	0.5	4	3.81	< 0.5	22	96	50	3.39	< 10	< 1	0.42	< 10	1.74	983
5647	205	238	< 5	1.61	0.2	115	80	0.5	2	3.54	< 0.5	21	108	39	4.16	< 10	< 1	0.34	< 10	1.34	1075
5648	205	238	70	1.26	0.6	1065	30	0.5	2	2.11	< 0.5	23	65	51	3.50	< 10	< 1	0.55	< 10	0.57	478
5649	205	238	180	0.96	1.8	1770	210	0.5	< 2	2.31	< 0.5	23	76	56	2.59	< 10	1	0.52	< 10	0.54	398
5650	205	238	15	1.74	0.4	415	680	0.5	6	2.14	< 0.5	22	57	46	3.50	< 10	< 1	0.44	10	0.89	557
5651	205	238	5	1.36	0.2	405	80	< 0.5	4	3.12	< 0.5	20	58	41	3.94	< 10	< 1	0.31	< 10	1.19	770
5652	205	238	< 5	1.95	< 0.2	170	150	< 0.5	2	2.87	< 0.5	20	82	39	4.05	< 10	< 1	0.44	< 10	2.14	801
5653	205	238	< 5	1.16	< 0.2	160	270	< 0.5	4	3.48	< 0.5	15	36	40	3.56	< 10	< 1	0.25	< 10	1.54	673
5654	205	238	5	2.10	< 0.2	75	70	< 0.5	< 2	2.91	0.5	21	101	32	4.17	< 10	< 1	0.20	< 10	2.19	861
5655	205	238	< 5	1.79	0.2	85	180	< 0.5	2	2.42	0.5	17	53	48	4.32	10	< 1	0.22	30	1.67	727
5656	205	238	< 5	1.71	< 0.2	165	150	< 0.5	< 2	2.23	< 0.5	21	93	37	3.81	< 10	< 1	0.49	< 10	1.94	728
5657	205	238	< 5	1.82	< 0.2	155	220	< 0.5	2	2.92	0.5	20	110	35	3.85	< 10	< 1	0.42	< 10	1.93	858
5658	205	238	< 5	1.68	< 0.2	115	210	< 0.5	< 2	2.32	0.5	21	106	39	3.92	< 10	< 1	0.70	< 10	1.93	772
5659	205	238	< 5	1.07	0.6	350	390	1.0	2	5.49	< 0.5	16	56	26	3.05	< 10	< 1	0.43	< 10	1.71	1105
5660	205	238	25	1.19	0.4	705	250	0.5	4	5.89	< 0.5	19	56	34	3.88	< 10	< 1	0.48	< 10	1.77	1130
5661	205	238	< 5	1.70	< 0.2	110	170	< 0.5	2	2.54	< 0.5	19	115	31	3.64	< 10	< 1	0.45	< 10	1.82	801
5662	205	238	< 5	1.76	< 0.2	40	150	< 0.5	2	2.04	0.5	22	111	38	3.99	< 10	< 1	0.41	10	1.88	622
5663	205	238	< 5	1.31	< 0.2	20	150	< 0.5	2	1.27	0.5	20	94	32	3.56	< 10	1	0.34	10	1.55	427
5664	205	238	< 5	1.33	< 0.2	75	160	< 0.5	< 2	1.26	< 0.5	17	93	36	3.74	< 10	< 1	0.44	20	1.63	430
5665	205	238	< 5	1.23	< 0.2	20	150	< 0.5	< 2	1.19	< 0.5	20	96	37	3.63	< 10	< 1	0.43	10	1.47	396
5666	205	238	< 5	1.62	< 0.2	25	160	< 0.5	< 2	1.52	0.5	17	70	36	3.84	< 10	< 1	0.41	20	1.78	543
5667	205	238	< 5	1.23	< 0.2	210	60	< 0.5	2	1.88	< 0.5	12	31	43	3.21	< 10	< 1	0.15	40	1.11	626
5668	205	238	< 5	1.52	< 0.2	45	240	0.5	< 2	1.58	< 0.5	13	28	35	3.44	< 10	< 1	0.51	30	1.68	708
5669	205	238	< 5	1.25	0.2	10	60	< 0.5	2	2.29	< 0.5	11	32	35	3.16	10	< 1	0.12	30	1.43	668
5670	205	238	< 5	1.35	< 0.2	65	300	0.5	2	1.01	0.5	21	90	35	3.67	< 10	1	0.73	20	1.77	362

CERTIFICATION : ________

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.
BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DBV
Comments: ATTN: G NORDINE

Date : 15-OCT-87
Invoice # I-8723915
P.O. #

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
5631	205 238	1	0.07	75	1790	14	5	< 10	123	0.23	< 10	< 10	105	< 5	65
5632	205 238	2	0.07	106	1880	12	5	< 10	195	0.26	< 10	< 10	112	< 5	64
5633	205 238	1	0.08	40	2590	8	5	< 10	137	0.28	< 10	< 10	132	< 5	52
5634	205 238	< 1	0.08	46	2490	16	5	< 10	123	0.28	< 10	< 10	117	< 5	32
5635	205 238	1	0.06	43	2670	14	10	< 10	131	0.13	< 10	< 10	113	< 5	33
5636	205 238	2	0.06	102	1980	16	5	< 10	162	0.01	< 10	< 10	103	< 5	55
5637	205 238	1	0.05	106	1950	6	< 5	< 10	148	< 0.01	< 10	< 10	96	< 5	56
5638	205 238	1	0.05	94	1840	6	< 5	< 10	170	0.01	< 10	< 10	94	< 5	40
5639	205 238	3	0.05	108	1730	6	5	< 10	141	0.01	< 10	< 10	99	< 5	59
5640	205 238	1	0.07	113	1850	8	< 5	< 10	168	0.06	< 10	< 10	105	< 5	59
5641	205 238	1	0.24	114	1870	2	5	< 10	287	0.29	< 10	< 10	120	< 5	83
5642	205 238	1	0.05	96	1730	18	< 5	< 10	273	0.02	< 10	< 10	68	< 5	65
5643	205 238	1	0.03	85	1920	24	5	< 10	169	< 0.01	< 10	< 10	53	< 5	96
5644	205 238	3	0.02	76	1770	18	5	< 10	218	< 0.01	< 10	< 10	23	< 5	51
5645	205 238	1	0.02	82	1920	18	10	< 10	188	< 0.01	< 10	< 10	35	< 5	88
5646	205 238	1	0.04	94	1900	8	5	< 10	211	< 0.01	< 10	< 10	50	< 5	77
5647	205 238	1	0.04	80	2000	10	5	< 10	621	< 0.01	< 10	< 10	69	< 5	62
5648	205 238	8	0.01	90	1960	28	15	< 10	109	< 0.01	< 10	< 10	27	< 5	45
5649	205 238	12	0.01	87	1670	30	30	< 10	203	< 0.01	< 10	< 10	21	< 5	71
5650	205 238	1	0.02	80	2430	16	10	< 10	134	< 0.01	< 10	< 10	50	< 5	70
5651	205 238	3	0.03	60	2590	10	10	< 10	196	< 0.01	< 10	< 10	59	< 5	56
5652	205 238	2	0.07	53	2170	4	5	< 10	206	0.15	< 10	< 10	97	< 5	54
5653	205 238	6	0.05	23	2050	8	5	< 10	198	< 0.01	< 10	< 10	50	< 5	45
5654	205 238	2	0.07	53	1660	22	5	< 10	188	0.08	< 10	< 10	98	< 5	111
5655	205 238	4	0.07	29	2300	30	5	< 10	145	0.02	< 10	< 10	83	< 5	89
5656	205 238	2	0.08	55	1640	14	5	< 10	130	0.21	< 10	< 10	85	< 5	137
5657	205 238	3	0.07	53	1630	20	10	< 10	189	0.06	< 10	< 10	85	< 5	184
5658	205 238	2	0.10	51	1590	20	5	< 10	167	0.21	< 10	< 10	95	< 5	170
5659	205 238	21	0.02	40	1390	22	15	< 10	268	< 0.01	< 10	< 10	29	< 5	122
5660	205 238	13	0.03	46	1500	18	15	< 10	292	< 0.01	< 10	< 10	38	< 5	102
5661	205 238	2	0.09	56	1660	10	< 5	< 10	162	0.19	< 10	< 10	94	< 5	92
5662	205 238	2	0.12	56	1690	16	5	< 10	133	0.33	< 10	< 10	104	< 5	92
5663	205 238	2	0.10	55	1640	14	5	< 10	90	0.30	< 10	< 10	83	< 5	70
5664	205 238	3	0.10	56	1720	12	5	< 10	103	0.30	< 10	< 10	89	< 5	98
5665	205 238	< 1	0.12	57	1660	12	< 5	< 10	84	0.27	< 10	< 10	78	< 5	85
5666	205 238	1	0.11	38	1730	20	5	< 10	92	0.30	< 10	< 10	97	< 5	79
5667	205 238	7	0.06	6	1660	12	10	< 10	75	0.02	< 10	< 10	65	< 5	48
5668	205 238	1	0.08	12	1860	10	5	< 10	77	0.16	< 10	< 10	104	< 5	76
5669	205 238	5	0.08	4	1750	14	< 5	< 10	73	0.25	< 10	< 10	87	< 5	74
5670	205 238	2	0.12	46	1830	12	< 5	< 10	74	0.27	< 10	< 10	88	< 5	94

CERTIFICATION : ____

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DEV
Comments: ATTN: G. NORDINE

Date :15-OCT-87
Invoice # I-8723915
P.O. #

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
5671	205	238	< 5	1.29	0.2	5	190	< 0.5	4	1.00	< 0.5	21	91	32	3.62	< 10	< 1	0.48	20	1.70	403
5672	205	238	10	1.02	0.2	30	150	< 0.5	< 2	0.93	< 0.5	19	77	33	3.24	< 10	< 1	0.52	20	1.28	263
5673	205	238	< 5	0.98	0.2	50	100	< 0.5	2	1.34	0.5	18	85	33	3.01	< 10	< 1	0.35	20	1.12	350
5674	205	238	< 5	0.86	0.2	15	190	0.5	< 2	0.95	< 0.5	7	49	58	2.15	< 10	< 1	0.22	30	0.68	267
5675	205	238	< 5	1.30	0.2	435	640	0.5	2	3.49	< 0.5	21	40	39	3.36	< 10	1	0.25	< 10	0.69	610
5676	205	238	< 5	0.90	0.2	135	200	0.5	2	2.39	< 0.5	9	58	26	2.02	< 10	< 1	0.30	30	0.45	258
5677	205	238	5	2.39	0.2	70	420	0.5	4	2.13	< 0.5	20	133	35	4.89	10	< 1	0.10	10	2.29	1540
5678	205	238	< 5	2.56	0.2	30	970	0.5	4	2.65	< 0.5	24	132	34	4.41	10	< 1	0.10	< 10	2.41	1515
5679	205	238	< 5	2.33	0.2	15	130	< 0.5	< 2	2.68	0.5	22	139	33	3.84	< 10	< 1	0.12	< 10	2.21	937
5680	205	238	< 5	2.55	0.2	40	300	0.5	4	3.77	< 0.5	24	142	28	4.26	10	< 1	0.17	< 10	2.29	850
5681	205	238	< 5	2.47	0.2	30	440	< 0.5	2	3.80	0.5	21	131	30	3.92	10	< 1	0.19	< 10	2.29	857
5682	205	238	< 5	2.90	0.2	20	460	< 0.5	4	3.79	0.5	24	141	32	4.57	10	< 1	0.23	< 10	2.59	1095
5683	205	238	< 5	2.55	0.2	15	450	< 0.5	4	4.15	0.5	18	121	27	4.07	10	< 1	0.19	< 10	2.44	1265
5684	205	238	< 5	2.81	0.2	25	1100	< 0.5	4	4.84	0.5	20	125	41	4.21	10	1	0.27	< 10	2.57	1385
5685	205	238	10	2.34	0.2	65	210	< 0.5	< 2	4.68	< 0.5	19	123	18	3.96	< 10	< 1	0.15	< 10	2.35	1200
5686	205	238	10	2.38	0.2	40	70	< 0.5	< 2	3.73	< 0.5	24	138	21	4.28	< 10	< 1	0.24	< 10	2.42	889
5687	205	238	< 5	1.91	0.2	< 5	170	< 0.5	< 2	3.22	1.0	22	112	16	4.55	10	< 1	0.13	< 10	2.50	1050
5688	205	238	< 5	1.62	0.2	5	200	< 0.5	< 2	3.76	< 0.5	19	129	22	4.26	< 10	< 1	0.21	< 10	1.93	884
5689	205	238	< 5	1.88	0.2	15	150	< 0.5	< 2	3.52	< 0.5	22	115	20	4.10	< 10	< 1	0.13	< 10	2.37	1155
5690	205	238	< 5	1.91	0.2	< 5	290	< 0.5	< 2	2.65	< 0.5	20	113	27	4.10	40	< 1	0.23	< 10	2.12	898
5691	205	238	< 5	1.74	0.2	35	130	< 0.5	< 2	3.03	< 0.5	19	75	27	4.11	10	< 1	0.18	< 10	2.02	985
5692	205	238	< 5	1.51	0.2	75	110	< 0.5	< 2	4.37	< 0.5	18	72	32	4.11	10	< 1	0.30	< 10	1.30	931
5693	205	238	< 5	1.82	0.4	25	150	< 0.5	< 2	4.80	< 0.5	21	65	21	3.92	< 10	< 1	0.19	< 10	2.08	833
5694	205	238	< 5	2.69	0.2	55	500	< 0.5	< 2	4.06	< 0.5	22	115	37	4.10	10	< 1	0.29	< 10	2.50	935
5695	205	238	< 5	2.80	0.4	50	350	< 0.5	< 2	3.89	< 0.5	28	107	27	4.11	10	< 1	0.31	< 10	2.13	919
5696	205	238	15	1.96	0.2	30	940	< 0.5	< 2	3.82	0.5	12	37	28	2.99	10	< 1	0.39	< 10	1.25	625
5697	205	238	< 5	2.73	0.2	20	1080	< 0.5	< 2	4.56	< 0.5	17	73	17	3.70	10	< 1	0.26	< 10	2.38	840
5698	205	238	< 5	3.20	0.2	20	530	< 0.5	< 2	4.94	< 0.5	19	96	34	4.39	10	< 1	0.33	< 10	2.58	924
5699	205	238	< 5	2.87	0.2	55	300	< 0.5	< 2	3.78	< 0.5	27	88	27	3.89	10	< 1	0.34	< 10	2.13	724
5700	205	238	< 5	3.03	0.2	20	320	< 0.5	< 2	3.41	< 0.5	24	89	19	3.75	10	< 1	0.35	< 10	2.39	750
5701	205	238	< 5	1.99	0.4	35	110	< 0.5	< 2	2.95	< 0.5	13	39	37	2.95	10	< 1	0.29	10	1.32	567
5702	205	238	< 5	1.85	0.2	170	130	< 0.5	< 2	2.95	< 0.5	12	43	38	2.97	< 10	< 1	0.22	10	1.30	629
5703	205	238	< 5	2.02	0.2	35	440	< 0.5	< 2	3.72	< 0.5	15	54	41	3.34	10	< 1	0.15	< 10	1.65	871
5704	205	238	< 5	1.65	0.2	15	450	< 0.5	< 2	2.82	< 0.5	11	31	35	2.83	10	< 1	0.15	20	1.22	824
5705	205	238	< 5	1.72	0.4	20	320	< 0.5	< 2	2.90	< 0.5	12	47	39	3.01	10	< 1	0.17	20	1.27	786
5706	205	238	< 5	1.62	0.2	50	60	< 0.5	< 2	2.91	< 0.5	11	28	38	2.87	10	< 1	0.14	20	1.19	752
5707	205	238	< 5	1.73	0.2	30	120	< 0.5	< 2	3.41	0.5	13	34	50	3.14	10	< 1	0.12	10	1.35	777
5708	205	238	< 5	1.61	0.2	90	120	< 0.5	< 2	3.02	< 0.5	13	35	36	2.77	10	< 1	0.19	10	1.09	655
5709	205	238	< 5	1.75	0.2	55	130	< 0.5	< 2	3.25	0.5	14	29	44	3.14	10	< 1	0.15	< 10	1.35	1010
5710	205	238	< 5	1.95	0.2	105	290	< 0.5	< 2	4.30	< 0.5	18	70	21	3.66	10	< 1	0.14	< 10	1.70	1170

CERTIFICATION : [signature]

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4

Project : DEV
Comments: ATTN; G NORDINE

Date :15-OCT-87
Invoice #:I-8723915
P.O. # :

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Se ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
5671	205	238	< 1	0.11	48	1860	14	5	< 10	70	0.27	< 10	< 10	80	< 5	74
5672	205	238	3	0.10	46	1680	2	5	< 10	70	0.18	< 10	< 10	69	< 5	78
5673	205	238	3	0.09	42	1620	< 2	< 5	< 10	96	0.13	< 10	< 10	65	< 5	73
5674	205	238	5	0.07	9	930	4	5	< 10	60	0.19	< 10	< 10	44	< 5	44
5675	205	238	6	0.03	48	1750	12	25	< 10	176	< 0.01	< 10	< 10	45	< 5	106
5676	205	238	5	0.05	5	980	18	5	< 10	284	< 0.01	< 10	< 10	18	< 5	37
5677	205	238	< 1	0.04	84	2280	12	5	< 10	151	0.01	< 10	< 10	94	< 5	126
5678	205	238	< 1	0.04	111	2030	8	< 5	< 10	195	0.02	< 10	< 10	93	< 5	105
5679	205	238	< 1	0.04	96	1900	4	< 5	< 10	143	0.13	< 10	< 10	97	< 5	68
5680	205	238	< 1	0.04	100	2040	< 2	< 5	< 10	247	0.08	< 10	< 10	96	< 5	71
5681	205	238	< 1	0.04	84	2010	10	< 5	< 10	236	0.03	< 10	< 10	84	< 5	94
5682	205	238	< 1	0.04	99	2020	16	< 5	< 10	251	0.01	< 10	< 10	92	< 5	134
5683	205	238	< 1	0.03	73	1920	20	< 5	< 10	288	0.01	< 10	< 10	82	< 5	153
5684	205	238	< 1	0.03	75	1900	26	5	< 10	330	< 0.01	< 10	< 10	85	< 5	140
5685	205	238	< 1	0.04	71	1660	6	< 5	< 10	309	< 0.01	< 10	< 10	71	5	97
5686	205	238	< 1	0.03	90	1810	2	5	< 10	291	0.03	< 10	< 10	75	5	111
5687	205	238	< 1	0.02	83	1790	10	5	< 10	1545	< 0.01	< 10	< 10	63	5	136
5688	205	238	< 1	0.03	77	1810	< 2	5	< 10	368	< 0.01	< 10	< 10	49	5	130
5689	205	238	< 1	0.04	93	1730	< 2	5	< 10	343	0.02	< 10	< 10	63	< 5	137
5690	205	238	< 1	0.03	75	1790	10	10	< 10	5170	< 0.01	< 10	< 10	51	5	91
5691	205	238	< 1	0.02	70	1880	16	10	< 10	1115	< 0.01	< 10	< 10	47	5	97
5692	205	238	< 1	0.02	71	1880	4	10	< 10	1465	< 0.01	< 10	< 10	31	5	120
5693	205	238	< 1	0.02	77	1800	2	5	< 10	363	< 0.01	< 10	< 10	42	5	114
5694	205	238	< 1	0.04	84	1700	6	5	< 10	428	0.01	< 10	< 10	69	< 5	104
5695	205	238	< 1	0.03	117	1780	16	< 5	< 10	376	0.01	< 10	< 10	79	< 5	109
5696	205	238	1	0.04	11	1890	8	< 5	< 10	374	< 0.01	< 10	< 10	46	< 5	50
5697	205	238	< 1	0.01	54	1990	16	< 5	< 10	417	< 0.01	< 10	< 10	73	< 5	84
5698	205	238	< 1	0.03	60	1780	8	< 5	< 10	444	< 0.01	< 10	< 10	83	< 5	103
5699	205	238	< 1	0.03	100	1540	12	< 5	< 10	369	< 0.01	< 10	< 10	74	5	82
5700	205	238	< 1	0.02	88	1630	12	< 5	< 10	361	< 0.01	< 10	< 10	73	5	95
5701	205	238	3	0.03	21	1510	16	< 5	< 10	349	< 0.01	< 10	< 10	54	< 5	54
5702	205	238	1	0.03	19	1490	12	< 5	< 10	333	< 0.01	< 10	< 10	53	< 5	54
5703	205	238	1	0.03	26	1690	12	< 5	< 10	419	< 0.01	< 10	< 10	68	< 5	71
5704	205	238	3	0.03	15	1500	8	< 5	< 10	348	< 0.01	< 10	< 10	53	< 5	58
5705	205	238	3	0.04	15	1530	14	< 5	< 10	378	0.01	< 10	< 10	59	< 5	61
5706	205	238	3	0.02	14	1460	12	< 5	< 10	298	< 0.01	< 10	< 10	57	< 5	55
5707	205	238	3	0.02	19	1570	20	5	< 10	353	< 0.01	< 10	< 10	64	< 5	62
5708	205	238	3	0.02	14	1360	10	5	< 10	369	< 0.01	< 10	< 10	49	< 5	54
5709	205	238	3	0.02	16	1570	10	5	< 10	338	< 0.01	< 10	< 10	59	< 5	78
5710	205	238	< 1	0.02	53	1790	20	< 5	< 10	398	0.01	< 10	< 10	71	< 5	92

CERTIFICATION :

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4

Project : DMV
Comments: ATTN: G NORDINE

Date 15-OCT-87
Invoice # I-8723915
P.O #

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
5711	205	238	< 5	2.18	0.6	135	70	< 0.5	< 2	3.68	< 0.5	19	82	8	4.01	20	< 1	0.08	< 10	2.11	1235
5752	205	238	35	0.30	4.6	155	50	< 0.5	< 2	0.19	1.0	16	97	21	9.45	< 10	< 1	0.09	< 10	0.09	71
5753	205	238	1150	0.05	5.8	185	100	< 0.5	< 2	0.04	0.5	1	128	15	3.13	< 10	< 1	0.01	< 10	0.02	43
5754	205	238	< 5	0.79	0.4	15	550	0.5	< 2	0.41	< 0.5	11	36	23	2.97	< 10	< 1	0.41	40	0.20	277
5755	205	238	5	0.94	0.4	5	400	0.5	< 2	0.15	< 0.5	6	52	14	3.24	< 10	< 1	0.50	40	0.12	109
5756	205	238	< 5	0.69	0.8	5	500	< 0.5	< 2	0.16	< 0.5	7	34	18	3.32	< 10	< 1	0.37	30	0.14	94
5757	205	238	< 5	0.87	0.6	20	160	0.5	< 2	1.74	0.5	17	33	62	3.91	10	< 1	0.38	30	0.53	297
5758	205	238	< 5	1.77	0.4	40	270	0.5	< 2	0.94	< 0.5	21	33	49	4.07	10	< 1	0.25	30	0.93	581

CERTIFICATION :

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PHONE (604) 984-0221

To : NORMINE RESOURCES LTD.

BOX 9 609 W. HASTINGS ST., 10TH FLOOR
VANCOUVER, B.C.
V6B 4W4
Project : DHV
Comments: ATTN; G. NORDINE

Date : 15-OCT-87
Invoice # : I-8723915
P.O # :

CERTIFICATE OF ANALYSIS A8723915

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Se ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
5711	205	238	< 1	0.03	52	1690	18	5	< 10	306	0.02	10	< 10	94	5	107
5752	205	238	4	0.01	11	310	474	10	< 10	81	< 0.01	< 10	< 10	4	< 5	239
5753	205	238	4	< 0.01	14	90	50	< 5	< 10	11	< 0.01	< 10	< 10	< 1	< 5	234
5754	205	238	2	0.02	12	1750	12	< 5	< 10	64	< 0.01	20	< 10	17	< 5	56
5755	205	238	1	0.02	15	1750	12	< 5	< 10	46	< 0.01	20	< 10	12	< 5	34
5756	205	238	15	0.01	12	1680	18	< 5	< 10	48	< 0.01	20	< 10	22	< 5	27
5757	205	238	1	0.02	33	2270	42	< 5	< 10	93	< 0.01	20	< 10	20	< 5	65
5758	205	238	5	0.05	86	2840	18	< 5	< 10	82	0.10	20	< 10	73	< 5	67

CERTIFICATION :

COMPANY: NORMINE RESOURCES — MIN-EN LABS ICP REPORT — [illegible]
PROJECT NO: DEV — 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 — FILE NO: 7-1530/P1-2
ATTENTION: R.BOEDAN/G.NORDEEN — (604)980-5814 OR (604)988-4524 — * TYPE ROCK GEOCHEM * — DATE:OCT 5, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
5759	1.6	22320	8	6	66	1.5	8	26600	2.1	8	32	40600
5760	1.9	25460	64	11	46	1.6	10	37260	3.3	13	40	43860
5761	1.9	25010	10	10	111	1.5	7	37660	3.2	12	29	41770
5762	2.3	24160	7	11	50	1.5	13	37350	2.0	13	35	40410
5763	1.6	5030	23	1	57	.3	8	8750	.8	2	1	6180
5764	2.1	26610	1	10	75	1.6	15	20930	1.6	16	38	48680
5765	1.4	26630	158	10	179	1.7	3	39620	3.0	14	39	59430
5766	.6	24960	101	8	46	1.6	3	29170	2.9	16	29	45620
5767	.5	26170	115	9	123	1.7	1	32050	3.7	18	39	48400
5768	.5	22340	115	6	85	1.8	3	32600	3.2	22	66	53640
5769	1.9	21980	30	7	47	1.8	9	29290	1.9	15	90	55430
5770	2.0	20220	15	6	48	1.7	13	25280	2.8	14	78	50670
5771	.7	26920	32	9	807	1.5	2	37120	3.1	11	26	41600
5772	.8	20410	23	5	1214	1.3	1	31130	2.8	7	30	35120
5773	1.0	27990	201	12	64	2.0	3	49470	4.3	14	70	57440
5774	1.2	18450	194	6	50	1.5	3	32660	4.0	10	77	42870
5775	1.6	20470	88	8	44	1.6	4	33300	3.5	11	79	46590
5776	1.3	26400	89	12	53	1.8	2	35480	3.9	11	82	50950
5777	.9	22300	129	7	217	1.2	1	29010	3.5	10	38	33190
5778	1.0	22930	1133	9	165	2.3	2	31850	14.7	13	77	73510
5779	1.9	24900	199	10	32	1.6	6	29680	5.4	13	53	48690
5780	1.8	21520	64	5	20	1.3	10	22760	4.0	10	35	37220
5781	1.9	16600	175	4	64	1.5	8	30850	4.4	12	80	44200
5782	1.8	20510	287	4	65	1.6	5	37570	6.0	12	61	47420
5783	2.4	25890	138	10	47	1.6	13	31230	3.5	13	46	47380
5784	2.6	29120	28	15	32	1.6	14	29070	3.9	13	42	43470
5785	2.5	24910	79	10	49	1.6	13	31410	3.7	15	52	46520
5786	2.1	17240	86	4	54	1.7	11	18050	3.7	17	53	53950
5787	1.5	17340	65	2	43	1.6	7	17420	3.1	16	31	50510
5788	1.6	22130	41	6	29	1.4	7	17120	3.4	14	29	43300
5789	1.9	21090	52	9	41	1.3	10	18950	3.3	15	33	39780
5790	2.3	20650	119	7	54	1.6	17	19950	3.8	19	58	50910
5791	2.1	17650	96	5	50	1.4	16	23030	4.2	16	45	46150
5792	2.1	21160	171	7	58	1.6	12	28710	4.9	16	44	50810
5793	.8	25220	166	9	117	1.4	2	39790	3.6	10	32	41230
5794	.7	25690	88	8	134	1.6	1	37020	3.8	10	53	45910
5795	.7	21930	192	5	99	1.6	1	36510	4.4	9	78	46100
5796	.7	24030	885	6	224	1.7	2	46720	10.4	11	62	48710
5797	.4	22490	208	5	224	1.6	2	35790	4.9	11	47	48290
5798	.8	24070	111	8	668	1.6	1	41790	4.0	11	37	45230
5799	1.1	27490	1092	9	550	1.7	1	58250	11.9	10	41	47150
5800	.8	31170	17	13	250	1.5	1	45990	3.6	9	41	42290
5812	.8	29150	1	11	683	1.4	2	47700	2.4	9	24	39920
5813	.8	29000	110	11	362	1.6	1	42710	4.0	11	44	46340
5814	.6	26800	232	10	98	1.6	2	35780	4.8	10	30	45220
5815	1.3	28850	54	14	41	1.5	3	49020	3.4	9	28	42370
5816	.4	18410	13	3	345	1.2	1	28450	1.9	5	28	31760
5817	.4	18260	65	2	595	1.3	1	32060	2.5	5	28	33170
5818	.3	15590	103	1	179	1.1	1	27090	2.6	5	24	30850
5819	.2	14700	153	1	48	1.1	1	25750	2.3	5	21	30540
5820	1.5	22040	579	5	61	1.6	4	24340	8.4	15	47	46790
5821	1.6	23910	45	8	41	1.4	7	13370	3.4	13	41	43520
5822	1.5	19260	15	3	49	1.4	8	12170	2.7	14	42	43000
5823	1.4	15760	13	1	46	1.2	9	14200	2.0	11	31	37720
5824	1.8	16140	5	1	42	1.3	15	14190	1.6	15	40	40450
5825	2.4	17640	32	3	40	1.4	16	16020	2.6	16	43	43030
5826	2.1	18960	69	3	44	1.4	15	15220	2.8	15	45	43530
5827	2.5	20520	73	6	46	1.4	16	15260	3.0	16	50	46090
5828	2.8	24760	121	10	58	1.6	17	22580	3.3	15	72	48140
5829	2.9	28920	18	15	36	1.5	16	29220	2.7	14	31	44440

PROJECT NO: DEV 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1530/P1+2
ATTENTION: R.BOEDAN/G.NORDEEN (604)980-5814 OR (604)988-4524 * TYPE ROCK GEOCHEM * DATE:OCT 5, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
5759	1850	20	14580	687	2	330	3	1680	26	5	227	2
5760	790	30	20190	1149	2	300	50	1620	32	4	206	1
5761	670	26	20430	1067	1	280	47	1520	27	4	234	1
5762	920	21	16910	1148	1	290	46	1610	40	6	227	1
5763	410	6	4320	165	2	60	4	410	16	3	75	1
5764	800	20	14010	508	2	2520	83	1710	28	6	215	1
5765	980	36	21270	922	1	610	84	1540	29	2	197	1
5766	1080	33	19300	754	1	330	147	1510	23	3	151	1
5767	960	39	20160	770	1	350	154	1590	34	7	145	2
5768	780	27	16550	757	1	280	184	1550	31	3	149	1
5769	930	25	13780	554	3	380	49	2770	28	5	198	1
5770	750	24	13120	525	1	430	41	2610	32	5	147	1
5771	1500	47	21400	944	1	210	77	1400	45	6	293	1
5772	1730	32	14570	728	3	220	33	1150	98	1	485	1
5773	850	53	22450	1242	1	430	75	2150	43	3	198	1
5774	1020	29	13690	627	3	310	36	2520	48	3	139	1
5775	1180	30	13940	617	3	480	36	2640	43	3	139	1
5776	1220	41	18670	813	1	320	31	2730	51	6	137	1
5777	1680	40	15290	752	2	520	63	1590	47	1	151	1
5778	1370	38	14400	910	1	210	48	1730	35	13	424	1
5779	370	44	21680	1159	1	370	38	1720	56	1	136	1
5780	220	39	23000	959	1	400	41	1670	60	5	115	1
5781	290	39	18330	960	2	490	38	1790	46	2	101	1
5782	310	46	20390	1170	2	380	45	1520	56	6	109	1
5783	630	45	22110	1066	1	460	58	1860	57	7	127	1
5784	590	46	24570	983	1	290	48	1690	95	2	110	1
5785	360	36	24730	1058	1	290	46	1820	111	3	141	1
5786	560	33	16520	812	2	380	57	1790	62	8	118	1
5787	400	25	13990	772	1	390	68	1790	99	6	114	1
5788	360	25	16920	829	1	400	61	1530	108	3	116	1
5789	460	26	16800	663	1	480	63	1260	58	1	139	1
5790	470	28	16850	701	1	560	79	1760	37	2	135	1
5791	520	26	15180	599	1	460	58	1570	29	4	149	1
5792	540	36	19380	841	1	420	69	1650	36	5	214	1
5793	1050	46	21500	890	2	290	55	1630	34	1	177	1
5794	1470	36	18190	717	2	280	48	2050	30	6	182	1
5795	1250	34	15370	713	1	270	13	2510	28	1	152	1
5796	950	52	19550	1083	1	360	54	1520	42	3	198	1
5797	910	41	17620	756	1	180	28	1690	28	3	217	1
5798	1670	38	17070	683	2	210	21	1690	29	3	270	1
5799	1660	45	19630	1028	2	140	30	1730	27	8	242	1
5800	1540	71	28110	1202	2	200	52	1590	31	6	192	1
5812	1530	64	26110	1151	2	230	51	1520	28	5	231	1
5813	1700	50	22900	1021	1	300	61	1710	25	6	209	1
5814	1540	42	19100	852	2	250	55	1660	30	6	203	1
5815	870	63	26390	1277	1	340	51	1520	37	5	162	1
5816	1840	22	12780	615	1	320	1	1300	22	4	146	1
5817	2040	21	11770	625	3	260	3	1320	26	4	199	1
5818	1240	22	10910	579	2	250	1	1280	26	1	126	1
5819	1100	23	11520	557	4	300	2	1270	31	5	69	1
5820	1020	37	19160	739	1	830	47	1410	42	18	108	1
5821	530	37	20500	579	2	560	44	1420	31	3	81	1
5822	460	26	15950	448	2	740	32	1620	30	2	73	1
5823	470	19	11620	353	1	590	15	1550	24	4	80	1
5824	420	17	13460	318	1	630	30	1660	29	3	78	1
5825	390	21	15010	439	1	610	35	1600	28	5	73	1
5826	410	22	14780	439	1	710	34	1630	36	5	93	1
5827	440	26	16130	446	1	760	33	1590	36	4	87	1
5828	550	28	15950	595	1	830	20	2600	41	5	135	1
5829	800	47	22140	799	1	460	25	1720	20	2	120	1

COMPANY: NORMINE RESOURCES
PROJECT NO: DEV
ATTENTION: R.BOEDAN/G.NORDEEN

MIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 7-1530/P1+2
* TYPE ROCK GEOCHEM * DATE:OCT 5, 1987

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
5759	2	69.1	94	2	1	2	56	5
5760	3	98.3	99	2	1	3	76	5
5761	1	89.1	97	1	1	2	58	10
5762	2	92.9	86	3	1	2	54	5
5763	4	20.2	17	1	1	1	19	5
5764	4	87.0	73	2	1	3	153	5
5765	4	112.0	84	2	1	3	154	5
5766	1	95.5	94	1	1	3	144	15
5767	1	103.7	104	1	1	3	150	5
5768	4	92.1	113	2	1	2	146	10
5769	3	114.5	80	2	1	3	71	5
5770	1	108.9	83	1	1	2	73	5
5771	3	84.0	164	1	1	3	124	5
5772	3	58.5	176	1	1	2	74	5
5773	1	116.2	127	1	1	3	98	10
5774	1	105.2	106	1	1	2	60	5
5775	2	115.0	86	1	1	2	65	5
5776	1	112.5	125	1	1	3	56	5
5777	1	74.9	115	1	1	2	81	10
5778	1	92.1	97	1	1	3	59	15
5779	2	107.5	143	1	1	3	54	5
5780	1	99.5	138	1	1	3	48	5
5781	1	107.0	92	1	1	2	54	5
5782	2	108.6	109	1	1	3	50	5
5783	2	111.8	113	1	1	3	53	5
5784	1	109.8	166	1	1	3	52	5
5785	2	110.1	197	1	1	3	47	5
5786	1	66.6	92	1	1	2	45	5
5787	1	72.7	112	1	1	2	47	10
5788	1	74.5	148	1	1	3	37	5
5789	1	77.3	133	1	1	2	43	10
5790	1	100.9	105	1	1	3	103	10
5791	1	90.2	72	1	1	2	105	5
5792	1	117.8	85	2	1	3	137	10
5793	2	100.5	88	2	1	3	80	5
5794	1	95.6	100	2	2	3	58	5
5795	2	87.5	93	2	1	2	8	5
5796	2	107.4	87	2	1	3	138	5
5797	1	83.1	114	2	1	2	33	5
5798	2	78.2	95	1	1	2	38	5
5799	3	83.8	103	2	3	3	27	25
5800	6	81.0	158	1	3	3	51	5
5812	3	82.8	142	4	1	3	51	5
5813	1	90.0	93	5	1	3	70	5
5814	1	89.1	129	5	1	3	70	5
5815	6	97.9	120	5	2	3	58	10
5816	6	48.6	62	3	2	2	15	5
5817	2	47.1	71	3	2	2	18	5
5818	5	47.1	60	2	2	2	13	5
5819	1	48.2	51	2	2	2	22	5
5820	1	86.4	126	2	2	2	69	20
5821	1	76.0	150	1	3	3	78	5
5822	1	79.1	88	1	1	2	41	5
5823	1	61.9	61	1	1	2	26	10
5824	2	74.4	89	1	1	2	38	5
5825	1	81.2	117	1	1	2	37	5
5826	2	85.5	100	1	1	2	42	5
5827	1	85.3	88	1	1	2	40	10
5828	2	99.8	118	1	1	3	7	5
5829	2	102.5	87	2	1	3	42	5

COMPANY: NORMINE RESOURCES MIN-EN LABS ICP REPORT (ACT:F31) PAGE 1 OF 3
PROJECT NO: DEV 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1530/P3+4
ATTENTION: R.BOEDAN/G.NORDEEN (604)980-5814 OR (604)988-4524 * TYPE ROCK GEOCHEM * DATE:OCT 5, 1997

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
5830	1.2	23530	75	10	38	1.7	4	26460	3.4	12	74	50530
5831	.9	26120	20	9	49	1.6	3	25430	3.0	10	47	49520
5832	.5	23220	9	6	254	1.6	2	34240	2.9	10	57	47470
5833	.9	24340	20	6	971	1.5	1	51690	1.6	11	46	44310
5834	.7	25790	54	7	322	1.7	2	44750	2.1	15	40	50410
5835	.6	25170	25	7	506	1.5	3	36190	1.7	22	38	42460
5836	1.0	25200	12	7	371	1.5	1	49570	2.8	12	37	43990
5837	.6	24110	1	6	272	1.8	1	33380	1.9	13	51	53460
5838	.5	22070	5	5	354	1.6	1	37550	1.5	9	44	47420
5839	.6	22030	27	6	130	1.8	1	33580	1.8	12	42	56170
5840	.9	22150	30	7	95	1.6	3	33280	2.0	14	49	51950
5841	.3	14850	28	1	246	1.4	1	19890	2.4	9	30	40690
5842	.3	18300	18	1	123	1.4	2	24970	2.1	6	17	40690
5843	.5	15750	14	1	74	1.3	1	38650	2.5	8	22	37060
5844	.5	17270	26	1	46	1.4	1	39790	3.1	9	26	40680
5845	.7	17710	83	5	130	1.4	1	45670	4.4	9	18	39670
5846	.4	16620	284	2	314	1.4	1	39200	5.9	11	28	41830
5847	.8	10370	604	1	136	1.8	2	113820	7.3	6	25	53880
5848	.4	17800	394	1	60	1.2	1	38550	6.6	11	21	34250
5849	.6	23350	54	6	94	1.3	3	34210	2.5	10	25	38900
5850	.6	23150	40	5	116	1.3	1	33970	4.0	11	23	37430
5901	.4	21540	43	5	61	1.4	1	34970	3.9	12	34	40950
5902	.4	22100	33	5	273	1.5	1	32490	2.4	11	30	44460
5903	.4	20950	27	3	150	1.3	1	32390	2.5	10	23	36230
5904	.5	20900	45	4	253	1.4	1	36580	3.3	13	30	40220
5905	.5	19830	82	3	237	1.4	1	41950	3.7	12	31	41120
5906	.6	20480	68	4	261	1.4	1	38630	3.3	12	26	39740
5907	.5	20350	6	4	216	1.4	1	38720	2.4	10	28	41260
5908	.7	20800	35	4	285	1.5	2	41770	2.8	8	34	42460
5909	1.1	23840	14	5	100	1.6	1	30000	3.1	12	31	45700
5910	.7	22680	14	12	250	1.5	1	42650	3.1	11	38	43290
5911	.5	20690	20	8	130	1.6	1	45280	2.5	11	41	46550
5912	1.4	27080	9	9	149	1.6	3	35720	2.6	13	30	43880
5913	.5	22520	36	7	317	1.7	2	43700	2.1	12	42	47670
5914	.5	25130	29	8	118	1.5	1	35330	3.4	12	31	43010
5915	.5	22980	25	7	72	1.5	1	41620	2.6	12	36	43520
5916	.5	23180	107	6	567	1.5	1	43850	4.1	13	30	43770
5917	.5	19450	128	3	313	1.3	1	38870	3.7	12	31	36160
5918	.5	20160	117	5	378	1.4	1	40900	4.2	12	32	41920
5919	.5	19540	196	3	636	1.4	2	46070	4.4	11	29	39760
5920	.4	19260	58	4	157	1.4	2	40070	2.5	11	29	40840
5921	.4	19820	27	4	158	1.5	2	43450	2.5	11	34	41990
5922	.5	20440	35	3	172	1.4	2	45010	2.0	11	27	39690
5923	.5	19960	51	5	54	1.4	2	43660	2.7	10	30	39870
5924	.7	18670	44	3	117	1.4	2	47020	2.8	10	29	39340
5925	.9	21500	103	9	369	1.5	1	42030	3.0	10	31	42160
5926	.9	23040	139	9	509	1.7	1	50580	4.0	12	38	47510
5927	.7	21910	91	8	577	1.6	1	50670	3.8	10	54	44350
5928	.7	17770	37	4	159	1.6	1	38530	2.8	9	77	46560
5929	.7	16010	13	2	81	1.6	1	39500	1.9	9	88	43040
5930	.6	16170	31	2	180	1.6	1	38370	1.9	10	96	45670
5931	.5	15540	301	1	175	1.3	2	33250	4.7	9	80	36240
5932	.5	18030	111	4	238	1.4	1	35290	2.0	9	79	40320
5933	.5	22740	1847	7	671	1.3	3	36770	18.7	10	28	32740
5934	.5	18180	1133	4	311	1.2	1	44590	12.1	8	60	34620
5935	.5	23790	733	8	39	1.5	1	29010	8.2	10	56	41800
5936	.6	24090	174	10	46	1.5	1	34720	3.3	11	40	42210
5937	.8	25070	150	9	534	1.8	2	38640	3.4	13	36	52260
5938	.4	19660	235	5	257	1.6	1	38190	2.9	11	35	45520
5939	.3	17530	106	2	81	1.3	1	27720	1.5	4	17	37980

COMPANY: NORAINE RESOURCES MIN-EN LABS ICP REPORT (ACT:F31) PAGE 2 OF 3

PROJECT NO: DEV 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1530/P3+4

ATTENTION: R.BOEDAN/G.NORDEEN (604)980-5814 OR (604)988-4524 * TYPE ROCK GEOCHEM * DATE:OCT 5, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
5830	580	48	19240	845	1	370	21	1890	38	2	122	1
5831	800	46	20660	928	1	210	2	1880	45	4	92	1
5832	1330	29	14660	891	2	220	13	2390	32	5	163	1
5833	1820	36	14990	1086	1	180	12	2210	22	1	266	1
5834	1750	38	15510	937	2	180	28	2240	32	1	155	1
5835	1860	41	16440	820	2	210	66	2360	43	3	207	1
5836	1740	40	16050	881	1	200	60	2430	39	1	216	1
5837	1540	28	14620	694	1	200	12	1640	40	6	150	1
5838	1760	26	12620	651	1	250	3	1990	38	5	170	1
5839	1690	23	11750	653	1	230	7	1920	35	2	140	1
5840	1220	27	11860	674	1	300	16	1960	33	3	142	1
5841	1220	11	13690	535	2	270	17	1580	24	2	139	1
5842	1220	14	15670	685	2	250	22	1660	31	1	147	1
5843	1040	12	15920	959	1	220	52	1440	32	5	215	1
5844	690	14	19080	1018	1	200	56	1400	29	2	229	1
5845	670	17	19390	1035	1	170	51	1340	36	1	257	1
5846	1180	14	18050	856	1	170	51	1330	31	4	230	1
5847	1300	15	14210	850	1	70	12	1040	33	20	500	1
5848	1060	15	18800	662	1	250	71	1340	22	21	198	1
5849	850	25	23620	672	1	480	74	1310	23	1	208	1
5850	630	30	24610	757	2	530	72	1370	25	4	236	1
5901	1110	18	20910	739	1	260	83	1400	25	1	184	1
5902	790	24	22540	799	1	340	74	1340	35	1	243	1
5903	670	17	21990	784	1	250	72	1190	36	5	190	1
5904	920	15	20340	776	1	280	99	1360	37	3	204	1
5905	900	15	21040	804	1	280	91	1380	31	3	278	1
5906	1050	15	20280	795	1	250	83	1300	36	2	281	1
5907	920	15	20250	830	2	250	65	1440	33	5	254	1
5908	710	16	21360	858	1	260	67	1450	31	2	262	1
5909	580	30	23400	726	2	990	100	1510	28	1	330	1
5910	1400	19	22920	850	1	240	96	1390	36	1	266	1
5911	1500	16	19490	785	1	270	82	1490	38	1	300	1
5912	710	33	27000	756	2	1120	95	1370	35	6	383	1
5913	1310	18	23150	850	2	330	87	1570	37	1	303	1
5914	990	22	25780	922	2	330	82	1400	31	5	288	1
5915	1200	17	24340	906	1	250	89	1420	31	4	267	1
5916	1350	19	22650	914	1	240	106	1460	38	2	273	1
5917	1410	20	18570	801	1	210	92	1360	35	5	299	1
5918	1470	21	20660	928	1	240	93	1320	36	4	386	1
5919	1290	18	19600	839	2	190	85	1320	41	5	323	1
5920	1430	15	17860	790	1	240	69	1500	40	1	247	1
5921	1360	16	19740	758	2	260	78	1460	47	5	260	1
5922	1520	18	20570	713	1	240	71	1380	53	1	269	1
5923	1480	20	19550	748	1	240	66	1370	85	1	259	1
5924	1300	18	21490	871	1	230	63	1350	59	2	302	1
5925	1400	23	20390	976	1	280	74	1460	98	4	296	1
5926	1580	25	21500	1074	1	310	83	1570	45	3	297	1
5927	1820	21	20960	1102	1	300	59	1430	37	2	293	1
5928	1860	14	14910	855	7	340	38	2470	34	3	320	1
5929	1750	13	12470	783	6	380	30	2790	40	3	356	1
5930	1720	14	12620	724	6	350	37	2810	38	3	325	1
5931	2110	13	10610	654	7	320	31	2540	34	3	338	1
5932	2200	17	12960	606	7	310	37	2660	33	5	309	1
5933	2000	28	18480	680	1	240	62	1480	41	5	225	1
5934	2350	17	13080	593	7	320	36	2360	33	56	368	1
5935	2260	26	18240	923	2	450	68	1520	34	48	287	1
5936	2060	26	20230	1016	2	390	77	1400	35	11	314	1
5937	1970	32	21960	1099	1	370	92	1360	39	21	346	1
5938	2360	20	14770	570	2	270	65	1470	31	16	280	1
5939	1600	19	13250	482	2	400	1	1420	30	10	201	1

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
5830	1	84.8	107	1	2	2	21	5
5831	1	95.8	133	1	1	3	3	5
5832	1	77.5	97	1	1	2	2	5
5833	1	73.1	84	1	1	2	3	10
5834	1	84.5	128	1	1	2	1	15
5835	1	79.4	115	1	1	2	1	5
5836	1	84.1	152	1	1	3	69	5
5837	1	75.9	148	1	1	2	2	10
5838	1	81.2	92	1	2	2	1	5
5839	1	85.6	85	1	1	2	1	5
5840	1	86.1	79	1	1	2	2	5
5841	1	60.2	54	1	1	2	17	5
5842	1	73.8	74	1	1	2	40	5
5843	1	75.1	58	1	1	2	79	5
5844	1	80.6	198	1	1	2	70	10
5845	1	74.2	188	1	2	2	64	5
5846	1	73.3	80	1	1	2	60	5
5847	5	34.7	42	1	1	2	2	5
5848	1	75.8	55	1	2	2	66	10
5849	3	87.1	60	1	1	2	73	5
5850	1	95.2	58	1	1	2	77	5
5901	1	87.0	58	3	2	2	75	5
5902	1	93.8	69	3	1	2	97	10
5903	4	85.4	73	1	1	2	94	10
5904	3	86.9	76	1	1	2	96	5
5905	5	83.6	62	3	2	2	87	5
5906	3	83.7	63	4	2	2	83	5
5907	1	98.7	65	3	2	2	89	5
5908	2	83.4	88	4	1	2	107	5
5909	5	101.9	74	5	1	3	119	5
5910	4	87.2	93	3	2	2	97	5
5911	3	90.3	84	1	1	2	106	10
5912	2	102.6	95	1	4	3	110	10
5913	5	99.2	90	3	1	2	109	5
5914	1	93.8	98	1	1	3	95	5
5915	1	91.4	92	1	2	2	96	5
5916	5	88.4	108	3	1	3	97	5
5917	3	75.5	101	1	1	2	84	5
5918	4	76.9	96	2	1	2	85	5
5919	6	79.7	98	2	1	2	85	10
5920	2	84.7	94	1	1	2	103	5
5921	3	89.6	111	3	1	2	104	5
5922	4	80.7	115	3	1	2	87	5
5923	4	81.8	164	1	1	2	84	5
5924	1	74.2	156	3	1	2	79	5
5925	3	86.8	214	1	1	3	93	5
5926	5	94.1	164	1	1	3	106	5
5927	1	84.8	171	3	1	3	77	10
5928	4	77.2	130	1	1	2	31	5
5929	2	76.8	174	2	1	2	24	5
5930	1	80.5	127	1	1	2	35	5
5931	3	70.7	203	1	1	2	27	5
5932	4	72.7	156	1	1	2	30	5
5933	1	73.6	167	1	1	2	70	20
5934	3	72.6	82	1	1	2	33	15
5935	2	89.4	125	1	1	2	89	10
5936	1	87.6	103	1	2	3	78	5
5937	2	86.7	158	1	1	3	77	10
5938	1	77.8	80	1	1	2	79	5
5939	2	53.7	77	1	1	2	3	5

COMPANY: NORMINE RESOURCES MIN-EN LABS ICP REPORT (ACT:F31) PAGE 1 OF 3

PROJECT NO: DEV 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1530/P5+6

ATTENTION: R.BOEDAN/G.NORDEEN (604)980-5814 OR (604)988-4524 * TYPE ROCK GEOCHEM * DATE:OCT 5, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
5940	.2	16770	183	1	520	1.4	1	33800	3.2	4	16	37270
5941	.3	16710	913	1	431	1.5	2	42090	9.7	4	19	42320
5942	.4	19910	388	3	316	1.8	2	39630	4.5	4	19	50450
5943	.2	17410	108	1	91	1.6	1	28110	2.4	4	16	45980
5944	.5	20510	337	3	111	1.7	2	34640	5.2	[illegible]	36	49740
5945	.4	29190	84	10	48	1.9	1	28810	3.2	14	44	54520
5946	.5	19690	306	2	1771	1.4	2	43990	5.8	10	19	36790
5947	.1	21110	68	5	219	1.6	2	11490	2.5	8	22	45490
5948	.3	20450	27	2	64	1.6	1	24630	2.5	8	24	43640
5949	.5	25550	35	8	112	2.0	1	26380	2.8	7	23	53460
5950	.3	23300	61	4	46	1.7	2	27750	3.0	9	20	48290
5951	.2	22460	98	5	50	1.7	1	25770	3.3	11	33	49090
5952	.5	18740	27	1	77	1.4	2	27600	1.8	9	19	39010
5953	1.4	18220	9	2	90	1.2	7	22410	2.8	10	18	37160
5954	1.3	19390	13	1	72	1.4	5	26420	2.3	11	22	36800
5955	.7	19390	55	7	44	1.6	2	33020	3.4	10	45	44100
5956	.5	17900	451	4	79	1.6	1	41770	6.2	9	34	42180
5957	.6	21000	26	5	63	1.8	2	39520	2.6	10	52	51520
5958	.4	20860	16	4	53	1.9	1	34150	2.1	12	65	55310
5959	.7	28670	115	11	49	1.9	2	45420	4.0	11	39	53420
5960	.6	23440	47	6	45	1.6	1	34360	2.1	10	25	46300
5961	1.0	25990	55	8	47	1.9	1	42400	2.2	11	31	53670
5962	1.2	23880	26	7	46	1.7	3	36680	3.2	12	32	50600
5963	1.5	27580	15	9	51	1.8	4	30640	2.9	13	29	51700
5964	1.8	23600	3	6	51	1.8	9	37440	2.0	14	33	51840
5965	2.1	24090	15	6	52	1.7	11	33300	2.9	13	24	48630
5966	.9	23840	5	7	51	1.7	2	38200	2.9	11	27	47890
5967	.7	27610	38	10	47	1.7	1	40500	2.2	11	23	48440
5968	.5	29580	1279	11	39	1.7	1	32910	13.4	10	17	49300
5969	.5	23850	154	5	46	1.4	1	30170	3.4	11	15	37610
5970	1.0	27330	55	16	54	2.1	3	44330	3.2	13	27	59070
5971	.8	26970	343	12	52	1.9	3	43670	5.3	12	21	53560
5972	1.0	26850	22	9	72	1.8	3	41220	2.3	12	22	52870
5973	.9	27820	26	10	92	1.6	2	34140	2.6	8	22	46400
5974	1.1	29100	14	14	72	2.1	1	39660	2.6	10	43	60460
5975	1.2	24980	2	7	74	2.0	3	36260	3.1	13	29	61580
5976	.6	24530	68	6	427	1.4	1	32370	3.3	5	15	38090
5977	.3	10420	34	1	1456	.5	1	29860	1.1	4	5	11610
5978	1.1	23070	944	4	414	1.6	1	32660	11.6	10	40	47190

PROJECT NO: DEV 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 7-1530/P5+6
ATTENTION: R.BOEDAN/G.NORDEEN (604)980-5814 OR (604)988-4524 * TYPE ROCK GEOCHEM * DATE:OCT 5, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
40	2010	16	12030	418	3	380	1	1680	28	3	242	1
5941	1850	16	11490	496	6	360	2	1630	30	38	230	1
5942	1980	19	14260	617	5	460	3	1820	39	7	266	1
43	1530	16	12440	558	4	440	1	1710	29	3	176	1
5944	1400	23	16020	679	11	510	3	1810	32	1	237	1
5945	2350	36	23070	782	2	440	89	1710	38	2	248	1
46	1710	22	20370	694	3	460	35	1640	38	1	320	1
47	1600	25	17200	915	1	370	35	1670	30	3	44	1
5948	1580	34	19550	883	1	520	35	1620	28	1	128	1
5949	2920	42	23060	1179	2	500	31	1810	31	1	120	1
50	1260	44	23660	1026	1	410	40	1530	29	5	144	1
5951	970	36	20830	979	1	470	49	1480	31	3	110	1
5952	2150	26	15700	740	1	540	35	1280	28	2	107	1
53	2040	28	16770	670	1	800	33	1390	30	1	90	1
54	1490	22	17700	696	1	670	37	1430	27	1	91	1
5955	1390	28	19430	990	1	400	41	1300	41	5	100	1
5956	2820	15	17060	1134	3	320	46	1540	34	71	91	1
57	1460	19	18840	1199	7	380	47	1620	34	7	94	1
5958	910	26	19330	1073	1	520	60	1600	32	2	70	1
5959	1500	35	23160	1328	2	260	42	1720	38	5	138	1
60	1050	31	19540	1012	1	440	35	1650	44	3	98	1
61	1390	30	22160	1193	1	400	39	1800	45	3	139	1
5962	1320	33	20140	1034	1	460	43	1630	38	1	134	1
5963	1450	44	23560	966	1	450	43	1650	33	2	111	1
964	720	37	22720	1079	1	480	49	1740	37	1	130	1
5965	730	38	22670	967	2	510	32	1670	33	1	128	1
5966	1420	36	19870	1042	1	370	34	1670	30	2	145	1
967	2050	37	20840	1113	1	310	39	1690	33	7	157	1
968	1900	44	22610	1085	2	220	42	1740	30	15	141	1
5969	1790	29	18960	883	1	350	39	1560	25	4	119	1
970	1510	39	24240	1407	2	330	51	1860	35	1	195	1
971	1320	44	23930	1369	1	300	39	1820	39	6	191	1
5972	890	48	25750	1456	1	520	41	1870	36	1	178	1
5973	1750	36	24910	1412	1	380	30	1430	31	3	174	1
974	1820	34	24030	1779	1	540	48	1920	46	5	194	1
975	990	39	21030	1651	1	590	67	2240	43	9	187	1
5976	2500	35	18840	1176	2	400	24	1240	58	2	186	1
977	2520	9	6300	613	6	300	26	990	37	1	203	1
978	1510	38	19670	1368	2	480	45	1840	48	5	136	1

COMPANY: NORMINE RESOURCES　　MIN-EN LABS ICP REPORT　　(ACT:F31) PAGE 3 OF 3

PROJECT NO: DEV　　705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2　　FILE NO: 7-1530/F5+6

ATTENTION: R.BOEDAN/G.NORDEEN　　(604)980-5814 OR (604)988-4524　　* TYPE ROCK GEOCHEM *　DATE:OCT 3, 1987

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
5940	4	53.2	59	3	1	2	10	5
5941	1	52.7	54	3	1	2	15	5
5942	1	63.2	78	1	3	2	17	10
5943	5	59.1	66	2	1	2	18	5
5944	4	73.1	70	1	1	2	16	5
5945	5	109.8	136	1	1	3	134	5
5946	1	72.1	77	1	1	2	37	10
5947	2	74.3	64	3	1	2	59	5
5948	1	71.2	79	2	1	2	42	5
5949	3	86.0	101	1	1	3	38	10
5950	4	74.6	92	1	1	3	18	5
5951	3	66.0	117	1	1	3	73	5
5952	2	78.3	57	2	1	2	28	5
5953	2	95.6	63	2	1	2	38	5
5954	1	90.4	68	2	1	2	34	10
5955	2	73.8	113	1	1	2	35	5
5956	2	65.8	100	1	1	2	42	5
5957	2	96.2	100	1	1	3	76	5
5958	2	109.2	112	1	1	3	97	5
5959	1	106.2	111	3	1	3	48	10
5960	2	111.6	94	2	1	3	65	5
5961	2	117.8	94	1	1	3	72	5
5962	1	112.6	85	1	1	3	64	5
5963	3	121.2	81	1	1	3	69	5
5964	1	128.9	81	1	1	3	77	10
5965	3	128.3	83	1	1	3	80	5
5966	1	105.6	69	1	1	3	69	5
5967	2	99.8	89	1	1	3	62	5
5968	3	95.5	84	1	1	3	57	15
5969	1	89.3	57	1	1	2	56	5
5970	1	113.7	131	1	3	3	80	5
5971	1	108.2	138	2	3	3	66	5
5972	6	122.9	146	2	3	3	83	5
5973	1	87.9	144	3	3	3	45	5
5974	2	101.4	191	3	3	3	62	5
5975	4	138.1	148	4	1	3	79	10
5976	5	38.9	168	3	3	3	34	5
5977	6	25.7	41	1	1	1	74	5
5978	2	102.1	134	3	3	3	57	5

COMPANY: NORMINE RESOURCES | MIN-EN LABS ICP REPORT | (ACT:F31) PAGE 1 OF 3

PROJECT NO: DEV | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 7-1534/P1+2

ATTENTION: R.BOEDAN/G.NORDEEN | (604)980-5814 OR (604)988-4524 | * TYPE ROCK GEOCHEM * | DATE:OCT 5, 1987

(VALUES IN PPM)	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
5979	.8	21690	473	9	338	1.4	1	26840	7.3	5	20	37950
5980	.7	23080	151	7	200	1.5	1	29420	3.9	5	20	40090
5981	.5	20380	131	4	297	1.3	1	27050	4.4	5	24	37380
5982	2.1	27280	6236	10	226	1.9	1	48680	63.2	11	36	52970
5983	.8	22910	308	5	499	1.6	1	41120	4.8	8	36	43440
5984	1.6	24230	47	6	76	1.8	1	42470	3.8	11	31	49300
5985	1.0	23360	142	5	61	1.7	1	30390	3.9	11	35	47620
5986	1.6	20270	188	3	59	1.6	5	27570	4.1	14	42	46650
5987	2.2	24290	18	6	64	1.7	10	27720	3.2	14	41	48750
5988	3.1	22760	21	6	60	1.7	17	30360	2.9	16	50	49090
5989	2.7	18540	11	2	71	1.5	18	22100	2.5	16	42	44470
5990	3.2	18880	4	2	89	1.6	22	20930	2.5	17	46	49450
5991	3.0	18820	6	2	66	1.7	22	19880	3.4	19	54	52110
5992	2.6	14120	19	1	36	1.3	20	22510	2.6	16	46	39410
5993	2.8	17110	11	1	56	1.4	21	19290	3.0	17	53	42430
5994	3.4	23360	32	11	58	1.6	19	32470	4.4	16	43	45320
5995	2.6	24900	59	9	103	1.7	12	44590	3.7	14	42	46110
5996	1.2	21180	883	6	311	1.5	1	65110	9.6	10	25	42350
5997	2.7	23250	27	12	154	2.0	15	31830	3.0	18	48	60060
5998	2.9	19890	19	10	101	1.6	17	30120	2.7	16	41	47400
5999	2.5	15180	23	1	60	1.3	18	25390	2.3	16	41	39540
6000	1.0	21700	443	6	162	1.3	1	87020	5.6	10	27	37090
5851	2.5	17560	31	5	157	1.4	17	31860	3.4	16	37	39980
5852	2.2	15030	17	1	65	1.3	15	20420	2.7	15	40	36830
5853	.9	25440	57	9	74	1.4	1	39430	2.3	9	17	35960
5854	2.1	13610	15	2	57	1.3	16	22850	2.6	15	43	38950
5855	1.9	13780	20	1	54	1.3	13	21720	2.6	15	40	37310
5856	1.0	22380	71	6	56	1.5	1	41700	2.4	10	35	42950
5857	1.7	25290	43	8	169	1.7	6	31460	2.8	14	37	48690
5858	.9	25040	616	10	57	1.6	38	41860	7.0	12	43	48810
5859	2.0	15390	26	3	63	1.4	15	24910	2.9	17	36	40390

COMPANY: NORMINE RESOURCES | MIN-EN LABS ICP REPORT | (ACT:F31) PAGE 2 OF 3

PROJECT NO: DEV | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 7-1534/P1+2

ATTENTION: R.BOEDAN/G.NORDEEN | (604)980-5814 OR (604)988-4524 | * TYPE ROCK GEOCHEM * | DATE:OCT 5, 1987

(VALUES IN PPM)	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
5979	1550	38	18240	1246	5	510	16	1320	39	2	121	1
5980	2420	32	17150	1170	2	530	15	1360	42	2	133	1
5981	2110	27	15310	1002	3	450	17	1190	54	6	122	1
5982	2790	34	19200	1720	3	420	38	1530	70	106	276	1
5983	2460	27	17350	1369	1	440	26	1320	52	4	172	1
5984	1250	45	25390	1774	1	570	39	1530	78	5	158	1
5985	1400	29	20960	1420	1	580	43	1500	50	2	108	1
5986	1290	29	18080	1263	2	590	48	1520	41	4	104	1
5987	960	36	23250	1650	1	550	54	1620	46	4	99	1
5988	540	32	23800	1560	1	680	70	1780	54	4	100	1
5989	850	25	19900	1141	1	670	73	1690	41	3	86	1
5990	1320	27	17060	914	1	890	64	2180	36	6	87	1
5991	950	27	17170	767	1	950	82	2070	40	3	92	1
5992	510	16	16300	637	1	700	87	1700	45	4	91	1
5993	830	23	18290	734	1	780	83	1630	53	1	91	1
5994	610	39	26350	1240	1	570	78	1750	70	5	113	1
5995	1910	46	24540	1350	1	490	71	1550	51	4	148	1
5996	3500	29	15570	1241	4	170	69	1460	34	17	164	1
5997	3320	43	24260	1197	1	700	106	1670	44	7	103	1
5998	2120	37	20740	1002	1	750	80	1660	58	5	106	1
5999	1280	18	17720	555	1	900	93	1640	42	1	95	1
6000	2790	26	15450	898	1	230	59	1280	33	26	387	1
5851	3550	23	22240	684	1	1080	62	1720	39	5	107	1
5852	1200	17	17470	570	1	910	82	1650	40	5	91	1
5853	3680	28	19820	770	1	420	61	1530	46	2	140	1
5854	1130	16	14940	512	1	940	78	1790	42	4	88	1
5855	990	16	14630	523	1	890	88	1680	30	1	87	1
5856	1610	36	20500	953	1	420	66	1630	30	1	115	1
5857	4080	35	24370	1084	1	920	67	1690	31	3	135	1
5858	2040	26	17890	966	1	460	64	1690	45	20	140	1
5859	1070	18	16020	597	1	840	104	1630	40	1	98	1

(VALUES IN PPM)	U	V	ZN	GA	SN	W	CR	AU-PPB
5979	2	38.3	149	1	2	2	37	15
5980	4	36.9	138	3	2	2	33	5
5981	4	30.1	154	2	2	2	33	10
5982	2	86.5	138	2	2	3	31	25
5983	2	64.3	94	2	2	2	29	5
5984	1	121.1	128	1	1	3	21	5
5985	1	102.0	141	2	3	3	36	5
5986	1	109.2	109	2	2	2	37	5
5987	2	125.9	141	3	3	3	86	10
5988	2	123.3	134	3	1	3	109	5
5989	2	106.4	116	1	2	2	93	5
5990	1	142.4	100	1	4	2	51	5
5991	1	118.9	109	3	2	2	60	5
5992	1	89.0	107	1	1	2	89	5
5993	2	102.0	105	3	3	2	99	10
5994	3	104.5	132	2	2	3	105	5
5995	2	107.1	156	2	3	3	101	5
5996	4	55.7	132	3	2	2	62	5
5997	3	115.6	109	1	1	3	127	5
5998	1	121.5	119	3	2	3	119	5
5999	1	91.5	75	2	2	2	107	5
6000	3	58.4	59	2	1	2	61	15
5851	2	92.7	73	1	2	2	119	5
5852	2	80.4	71	3	1	2	102	10
5853	3	79.7	100	3	1	3	101	5
5854	1	79.7	66	3	2	2	113	5
5855	1	74.2	64	2	2	2	106	5
5856	2	89.1	78	1	2	3	91	5
5857	2	96.0	105	1	2	3	95	5
5858	3	97.3	79	2	2	3	63	5
5859	4	83.9	80	2	2	2	95	5

APPENDIX C

THIN SECTION REPORT

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Summary:

1) General

The samples are from a moderately to strongly altered zone in a volcanic terrain dominated by andesite flows and lesser latite and dacite flows, flow breccias, and tuffs. Plagioclase phenocrysts commonly are partly altered to sericite and calcite. Hornblende phenocrysts are altered completely, mainly to chlorite-calcite-sericite. Biotite phenocrysts are sparse, and altered to muscovite, chlorite, and calcite. The rocks commonly contain replacement patches of one or more of the following: calcite, quartz, chlorite, pyrite, pyrrhotite, marcasite. Veins are dominated by calcite, quartz, marcasite, pyrite, chlorite, and minor base-metal sulfides. K-feldspar alteration is widespread, mainly of groundmass plagioclase; textures in thin section are obscured by dusty opaque to semiopaque inclusions, possibly of iron and Ti-oxides, such that generally, K-feldspar cannot be recognized optically. Its identification and distribution is interpreted from the stained offcut blocks. Some carbonate has moderate to high relief, and may be dolomite or ankerite. Dolomite is described in a few sections. However, even some of the high-relief carbonate reacts with cold dilute HCl, indicating that it is calcite. Thus, optical distinction of dolomite may be erroneous, and it would be best to consider all the carbonate alteration as being of one type.

2) Sample Descriptions

A brief description of samples is listed in the following table, including rock type, main alteration minerals, and main vein types. Alteration minerals are those in discrete replacement patches and not those altering plagioclase and hornblende phenocrysts.

Sample No.		Rock Type	Replacement Minerals	Vein Minerals
Dev 87-01	26.9m	D,A	Ca,Marc,Chl,Qz	Ca,Qz
	113.4m	DiØ	K	
	135.2m	L	K, Ca,Chl,Marc,Qz,Sphe	= Repl Min
	156.8m	A	Ca(Dol?),Se,Qz	Qz
	165 m	D/A(?)	Qz	Qz,Marc/Py,Ca
	176.0m	A	Qz	Ca
Dev 87-02	32.3m	L/A	K,Py,Ca	
	39.6m	A	Ca,Chl,Marc,K	= Repl. Min
	47.0m	Rd	Ca,Py,Qz,Marc,Chl,K	
	144.5m	A	Ca,Py,Chl,Qz,K	
	155.5m	A	Qz,K	Q,Py,(Epid)

(continued)

Sample No.		Rock Type	Replacement Minerals	Vein Minerals
Dev 87-03	38.0m	L	Ca(Dol),K, Qz,Chl,Ca	
	59.7m	A	K,Ca,Chl,Qz,(Py/Marc,Ba)	Py/Marc,Ca
	69.7m	L	K,Ca(Dol)	Ca(Dol)
	72.2m	A	K,Ca,Po,Qz,(Chl)	
	88.3m	AD Lt	K,Ca,Qz,Chl	
	93.5m	A	Ca,Chl,Qz,Py/Marc,(Ba)	= Repl. Min.
	95.2m	A	Ca,Chl,Po,Qz,K	
	102.25m	D t	Q,Apy,Chl,Apat,Ca	
	112.1m	A fx	Qz,Chl,Ser,Ca,Marc	
	141.7m	A	K,Marc,Kaol	Qz,Marc,Ca,Chl, Kaol
Dev 87-04	14.7m	A fx	Ca,Py,Chl,(Qz,K,Fluor)	
	26.3m	A	Ca,Qz,Py/Marc,Chl,K	= Repl. Min.(-K)
	50.3m	A	Ca,Po/Marc,Qz,Chl	= Repl. Min.
	78.3m	A	Act,Ca,Qz	Ca,Py,Sphe
	107.8m	A	Ca	Ca
Dev L-10 Allan Cr.		A Lt		
Allan Ck. Trib.		?	Qz,Py	
Dev Sump (22N,9W)		D	Po,Chl,Qz,K	
1st Creek,50m E		D t		Q
Equity Pit 1		D(?)x	Qz,Sl,(Cpy,Py,Gal,Tet)	= Repl. Min.
Equity S Tail Pit		D(?)	Qz	Qz,Py,Apy,Min X, Min Y
Equity S Tail FW		D	Py,Ser	Chl,Qz

Rock Types		Suffixes (if no suffix = flow)	
A	andesite	t	tuff
D	dacite	Lt	lapilli tuff
L	latite	x	breccia
Di	diorite	fx	flow breccia
Rd	rhyodacite	Ø	porphyry (over 35% phenocrysts)

Minerals

Act	actinolite
Apy	arsenopyrite
Ca	carbonate, dominantly calcite
Chl	chlorite
Dol	dolomite(?)
Fluor	fluorite
K	K-feldspar
Marc	marcasite
Po	pyrrhotite
Py	pyrite
Qz	quartz
Sl	sphalerite
Sphe	sphene
Ser	sericite
Tet	tetrahedrite
Ba	barite
Gal	galena

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Dev 87-01 26.9m — Contact: Dacite/Andesite with replacement patches of Calcite-Marcasite-Chlorite-Quartz, and veinlets of Calcite and of Quartz

The sample is partly a porphyritic dacite and partly a porphyritic andesite. Along their contact is a large replacement patch dominated by marcasite-chlorite. Other replacement patches are dominated by calcite or quartz. Late veinlets are oc quartz and of calcite.

dacite (20-25% of sample)

phenocrysts	
plagioclase	17-20%
groundmass	
plagioclase	45-50
quartz	20-25
chlorite	5- 7
Ti-oxide	1- 1½
pyrrhotite	0.5

Plagioclase forms anhedral, commonly ragged phenocrysts averaging 0.2-0.7 mm in length, with a few up to 1 mm long. Alteration is moderate to dusty semiopaque and slight to patches of calcite and flakes of sericite.

The groundmass is dominated by equant, anhedral grains of plagioclase and quartz averaging 0.02-0.05 mm in size. Quartz commonly is concentrated in patches, which grade into coarser grained replacement quartz. Chlorite forms interstitial, extremely fine grained patches. Ti-oxide forms disseminated, irregular patches up to 0.1 mm in size.

andesite (40% of sample)

phenocrysts	
plagioclase	30-35%
groundmass	
plagioclase	55-60
chlorite	5- 7
quartz	1½-2
Ti-oxide	1- 1½

Plagioclase forms subhedral, prismatic phenocrysts averaging 0.7-1 mm in size, with a few up to 3 mm long. Alteration is similar to that in the dacite, except that calcite is more abundant, especially in larger phenocrysts, and sericite commonly is more abundant.

Groundmass plagioclase forms equant grains averaging 0.01-0.03 mm in size; they are altered moderately to sericite and calcite. Chlorite forms interstitial patches of extremely fine grain size. Ti-oxide forms irregular patches as in the dacite. Quartz occurs in interstitial patches of very fine grain size, which locally grade into coarser grained replacement patches.

Adjacent to the marcasite-chlorite replacement patch, the groundmass is altered completely to marcasite, leaving relic plagioclase phenocrysts surrounded by irregular aggregates of very fine grained marcasite.

replacement (35% of sample)

marcasite	40-45%	sericite	0.3%
calcite	20-25	pyrrhotite	trace
chlorite	15-17	chalcopyrite	trace
quartz	15-17		
sphene	1		

(continued)

Marcasite forms anhedral to submosaic aggregates of fine grain size, mainly in a large patch in the center of the section. Most of these grains have slight anisotropism. Intergrown with these are patches of similar size as the grains, in which marcasite forms extremely fine grained aggregates of high anisotropism. These patches contain extremely fine grained inclusions of non-reflective material; they are interpreted as having formed by replacement of pyrrhotite. A few patches of marcasite-pyrrhotite exist away from the main patch. The main patch is gradational into the zone of andesite strongly altered in the groundmass to marcasite (possibly original pyrrhotite) with low anisotropism.

Interstitial to marcasite in the large patch is very fine grained chlorite with minor sericite. Chlorite also forms similar intergrowths nearby with calcite.

Ti-oxide occurs as clusters of extremely to very fine grains within the main marcasite patch, and it is possible that they represent relics around which marcasite replaced the rest of the rock.

Calcite forms fine to medium grained patches, in part alone, and in part intergrown with chlorite and lesser sericite.

Quartz commonly occurs alone or with minor calcite, chlorite, and Ti-oxide in patches up to a few mm across (average less than 1 mm), with grain size locally up to 1.5 mm, and averaging 0.05-0.1 mm.

Sphene occurs in one calcite-rich patch as a few elongate, subhedral grains up to 0.5 mm long. It is slightly altered to Ti-oxide.

Pyrrhotite forms a very few inclusions up to 0.03 mm in size in marcasite.

Chalcopyrite forms a very few grains up to 0.03 mm across.

The rock is cut by a veinlet up to 0.5 mm wide of very fine grained quartz with minor sericite-chlorite, and by a few veinlets up to 0.1 mm in size of calcite. The latter appear to be truncated at the edge of the large marcasite-chlorite patch.

Dev 87-01 113.4m   Diorite Porphyry (Hypabyssal) Altered

The rock contains phenocrysts of plagioclase and hornblende in a groundmass of plagioclase/K-feldspar with lesser biotite, quartz, apatite, calcite, Ti-oxide, and pyrite.

phenocrysts		veinlet	
plagioclase	40-45%	quartz-calcite	minor
hornblende	10-12		
apatite	minor		
groundmass			
plagioclase/K-feldspar	30-35		
biotite	4- 5		
quartz	1½-2		
Ti-oxide/ilmenite	1½-2		
calcite	2- 3		
apatite	0.3		
pyrite	0.3		

Plagioclase forms anhedral to euhedral prismatic phenocrysts averaging 1-1.5 mm in size. Some grains are slightly compositionally zoned. One grain gave a composition of An_{50} by the Carlsbad-albite-twin method. Alteration of plagioclase is slight to calcite and minor sericite.

Hornblende forms equant to prismatic grains up to 2 mm in length. They are altered completely, mainly to pseudomorphic tremolite. Some grains contain patches of calcite or chlorite.

Apatite forms a few prismatic grains up to 1 mm in length.

The groundmass is dominated by equant, anhedral plagioclase/K-feldspar grains averaging 0.05-0.15 mm in size. K-feldspar and dusty hematite probably are secondary after plagioclase. K-feldspar was not seen in thin section; in the stained offcut block it is seen to be abundant throughout the groundmass.

Biotite forms disseminated grains and clusters of grains up to 0.5 mm in size (of clusters); individual grains are extremely fine, unoriented, and medium orange in color.

Quartz forms interstitial patches and single grains averaging 0.05-0.2 mm in grain size. Extinction commonly is slightly wavy.

Ti-oxide and ilmenite occur in patches up to 0.3 mm in size. Ilmenite forms cores surrounded by Ti-oxide. Ti-oxide (probably after sphene) forms skeletal patches up to 0.7 mm in size, intergrown with much less silicates.

Apatite forms subhedral to euhedral prismatic grains averaging 0.15-0.3 mm in length.

Calcite forms irregular replacement patches up to 1 mm in size. Some contain moderately abundant, anhedral grains of pyrite from 0.02-0.05 mm in size.

Pyrite forms disseminated grains averaging 0.03-0.15 mm in size; it is moderately concentrated with calcite and with Ti-oxide.

The rock is cut by a discontinuous veinlet up to 0.02 mm wide of quartz-calcite.

Dev 87-01 135.2m   Latite replaced by Calcite-Chlorite-Marcasite-(Quartz)

The rock is a slightly porphyritic latite with plagiolcase phenocrysts in a groundmass dominated by plagioclase, K-feldspar and chlorite. It is replaced by patches and veins of calcite-chlorite-marcasite-(quartz-sphene).

phenocrysts		replacement patches, veins	
plagioclase	4- 5%	calcite	20-25%
groundmass		chlorite	7- 8
plagioclase/K-feldspar	40-45	marcasite	7- 8
chlorite	8-10	quartz	1½-2
quartz	1½-2	sphalerite	minor
Ti-oxide	1- 1½	chalcopyrite	trace
		sphene	1- 1½

The rock contains a few plagioclase phenocrysts from 0.5-1 mm in length, and one cluster of anhedral grains 1.8 mm across. Alteration is slight to locally moderate to patches of calcite with minor chlorite.

The groundmass is dominated by irregular, prismatic grains of plagioclase averaging 0.05-0.15 mm in length, with a few up to 0.5 mm long. K-feldspar occurs with plagioclase, either as very fine, interstitial grains or as replacement of plagioclase. Feldspars are altered to dusty opaque such that distinction of K-feldspar is impossible in thin section. In the stained offcut block, K-feldspar is seen to be most abundant away from the replacement veins and patches.

Intergrown with feldspars in the groundmass are extremely fine grains and patches of grains of chlorite.

Quartz forms very fine to extremely fine grained patches, commonly associated with chlorite interstitial to feldspars.

Ti-oxide forms extremely fine grained patches and disseminations, in part probably after sphene. Patches are up to 0.3 mm in size. Some of the sphene in the rock may be primary, although much of it is spatially associated with calcite.

The replacement patches and veins are up to a few mm across and consist of very fine to locally medium grained aggregates of calcite/aragonite(?), with lesser patches of extremely fine to very fine grained chlorite, irregular patches of marcasite and a few concentrations of quartz and of sphene.

Calcite patches range from less than 0.1 mm in the groundmass to up to a few mm across. In some patches, carbonate has an elongate, prismatic habit of grains up to 0.5 mm in length; these may be aragonite.

Chlorite forms a few large patches up to a few mm across, mainly very fine grained, and mainly surrounded by calcite.

Marcasite is concentrated in patches up to a few mm across, mainly as submosaic aggregates averaging 0.1-0.2 mm in grain size. Some patches contain abundant, extremely fine grained inclusions of silicates.

Quartz occurs in one large patch up to 1.5 mm across of anhedral, slightly interlocking grains from 0.05-0.3 mm in size. In this same replacement patch, moderately abundant sphene grains from 0.1-0.2 mm in size are intergrown with calcite and chlorite. Elsewhere, sphene forms clusters of grains and single grains of similar size; some of the clusters are moderately altered to Ti-oxide. Quartz also occurs as scattered grains averaging 0.07-0.15 mm in size in some calcite-rich replacement patches.

Apatite forms a few anhedral to subhedral grains up to 0.1 mm in size, mainly associated with quartz.

One cluster of marcasite contains interstitial patches of sphalerite up to 0.25 mm in grain size. Sphalerite contains abundant exsolution blebs of chalcopyrite. Chalcopyrite also forms a few grains up to 0.05 mm in size associated with pyrrhotite in another part of the section.

(continued)

Sphalerite is dark orange in color and semiopaque.

The rock is cut by a late vein up to 0.2 mm in width of very fine to fine grained calcite, along whose margins are abundant patches of very fine grained marcasite. The vein contains a few grains of quartz up to 0.1 mm in size.

Dev 87-01 156.8m   Strongly Replaced Andesite(?)

The rock contains patches dominated by dolomite-sericite, which were later replaced partly by quartz, and which are cut by an irregular vein of quartz replacement. Ti-oxide, apatite, and pyrite are prominent minor minerals. The original nature of the rock is uncertain, but it probably was dominated by plagioclase.

dolomite	20-25
sericite	20-25
quartz	35-40
Ti-oxide	2- 2½
pyrite	1½-2
apatite	1½-2
pyrrhotite	trace
chalcopyrite	trace

Relic patches of altered host rock are dominated by extremely fine grained sericite patches, which appear to have been replaced by irregular patches and grains up to 1.5 mm in size of dolomite. Dolomite grains are equant in outline and commonly porphyroblastic in nature.

Quartz occurs in two main modes. An early(?) quartz replacement event pervasively altered the rock, producing a texture of very fine grained quartz patches with minor to moderately abundant interstitial patches dominated by sericite and lesser dolomite. More intense quartz replacement produced coarser grained quartz aggregates averaging 0.05-0.35 mm in grain size, and a few quartz grains up to 1 mm in size, with minor interstitial calcite and sericite.

Ti-oxide is concentrated in patches up to 1 mm in size, in which it forms extremely fine grained aggregates intergrown with sericite-dolomite; these patches may be secondary after sphene.

Pyrite forms clusters of subhedral grains up to 0.6 mm in size. A few grains contain an inclusion up to 0.02 mm in size of pyrrhotite. Chalcopyrite occurs along the border of one pyrite grain as a grain 0.03 mm across.

Apatite is abundant as clusters of irregular, commonly ragged equant to prismatic grains averaging 0.02-0.05 mm in size, with a few up to 0.15 mm across. It occurs most commonly in quartz-rich patches.

A few elongate sulfide patches up to 0.15 mm in length appear to be of very fine grained pyrite, which may be secondary after pyrrhotite.

Dev 87-01 165m   Altered Dacite/Andesite cut by veins of Quartz-Marcasite/Pyrite-Calcite and late Calcite Veinlets

The rock is strongly altered and dominated by extremely fine grained sericite. It appears to have contained scattered plagioclase phenocrysts. It is partly replaced by very fine grained quartz in irregular patches. Early veins are dominated by quartz with lesser marcasite/pyrite and calcite. Late veinlets are of calcite.

phenocrysts				
plagioclase	3- 5%			
groundmass				
sericite/kaolinite	65-70			
quartz	7- 8 (replacement patches)			
pyrite	0.5			
Ti-oxide	0.3			
veins				
quartz	12-15		chalcopyrite	0.1
marcasite/pyrite	3- 4		sphalerite	minor
calcite	½- 1		galena	minor
late calcite veinlets	2- 3			

The rock contains a few prismatic plagioclase phenocrysts up to 0.7 mm in size. These are replaced completely by sericite showing a slightly preferred orientation.

The groundmass is dominated by extremely fine grained sericite/kaolinite, with minor interstitial, extremely fine grained quartz, and minor to moderately abundant dusty Ti-oxide. Sericite forms irregular patches of slightly coarser grain size intergrown with minor to moderately abundant, very fine grained quartz.

Quartz is concentrated moderately in irregular, very fine grained patches, associated with much less sericite and pyrite; these patches probably are of replacement origin.

Pyrite forms disseminated grains from 0.02-0.2 mm in size, with coarser grains commonly subhedral to euhedral in outline.

Ti-oxide is variably distributed through the rock as dusty grains; it is concentrated in some quartz-rich patches and in some zones with minor relic plagioclase.

The rock contains veins up to a few mm wide of very fine to fine grained quartz, with lesser Fe-sulfides and calcite. Pyrite/marcasite forms clusters of equant, subhedral grains averaging 0.1-0.2 mm in size, and also forms larger patches up to 1.5 mm in size of very fine grained anhedral aggregates. Associated with the latter are minor to moderately abundant patches of extremely fine grained marcasite, distinguished by having strong anisotropism, whereas pyrite/marcasite in coarser aggregates is only slightly anisotropic.

Calcite forms interstitial grains up to 0.3 mm in size between subhedral quartz grains in the core of one large vein.

Late veinlets averaging 0.05-0.1 mm in width consist of very fine to fine grained calcite.

In the main veins, chalcopyrite forms scattered grains and clusters of grains associated with pyrite/marcasite. Grain size of chalcopyrite is up to 0.1 mm. One patch of base-metal sulfide 0.2 mm across adjacent to a pyrite-marcasite patch is dominated by galena(?) with a thin rim (0.02 mm wide) of chalcopyrite. Another patch of pyrite/marcasite contains a grain of colorless sphalerite 0.15 mm across.

Dev 87-01 176.0m Porphyritic Andesite; Quartz Patches, Calcite Vein

A few phenocrysts of plagioclase are set in a groundmass dominated by plagioclase with lesser K-feldspar, chlorite, and calcite. Pyrite forms disseminated grains. Quartz forms patches of uncertain origin. The rock is cut by a late calcite vein.

phenocrysts			
plagioclase	7- 8%		
groundmass			
plagioclase	60-65		
K-feldspar	7- 8		
chlorite	7- 8	sphene	0.3%
calcite	7- 8	chalcopyrite	trace
pyrite	1½-2	sphalerite	trace
Ti-oxide	1- 1½	apatite	trace
patches			
quartz	4- 5 (± chlorite, calcite)		
vein			
calcite	0.3		

Plagioclase forms equant to prismatic, euhedral phenocrysts from 1-2 mm in size. Alteration is complete to very fine grained calcite and much less disseminated to patchy sericite and/or chlorite.

The groundmass is dominated by prismatic, slightly interlocking plagioclase grains averaging 0.1-0.3 mm in length, and finer grained interstitial patches of feldspars and of chlorite. Alteration of plagioclase is moderate to calcite-sericite, and possibly to epidote. The distribution of K-feldspar is see best in the stained offcut block; it could not be distinguished from plagioclase in thin section because of the alteration. It is possible that K-feldspar was formed by replacement of plagioclase.

Chlorite forms interstitial patches of extremely fine to very fine grain size. It is mainly pale green in color, with a few patches being medium green.

Calcite forms irregular replacement patches up to 0.6 mm in size, either alone or locally with quartz and/or sphene.

Pyrite forms disseminated grains averaging 0.07-0.12 mm in size; they are subhedral to anhedral in outline, and many are intergrown with very fine grained plagioclase, Ti-oxide, quartz, and chlorite.

Ti-oxide forms extremely fine grained patches up to 0.07 mm in size.

Sphene occurs in a few patches, mainly with calcite as subhedral to anhedral grains averaging 0.05-0.1 mm in length.

Chalcopyrite forms a very few grains up to 0.03 mm in size.

Sphalerite forms fewer grains averaging 0.01 mm in size, mainly associated with chalcopyrite or pyrite.

Apatite forms a very few prismatic grains up to 0.07 mm across in quartz.

The rock contains moderately abundant patches up to 1 mm in size of very fine to fine grained quartz, and locally minor chlorite and calcite. One patch appears to be recrystallized to an aggregate of anhedral, slightly interlocking grains from 0.01-0.03 mm in grain size.

The rock is cut by a tension-fracture-filling veinlet of very fine to fine grained calcite; the vein is up to 0.2 mm wide.

The groundmass of the rock is slightly flow banded; this is produced by subparallel orientation of groundmass plagioclase.

Dev 87-02 32.3m Altered Porphyritic Latite/Andesite

The rock contains minor plagioclase phenocrysts in a variable groundmass containing plagioclase, K-feldspar, and patches rich in quartz and/or calcite. Pyrite forms disseminated grains and clusters.

phenocrysts		fragments(?)	
plagioclase	4- 5%	quartzite	minor
groundmass			
plagioclase			
K-feldspar	8-10		
quartz	7- 8		
calcite	7- 8		
pyrite	3- 4		
Ti-oxide	0.3		
pyrrhotite	trace		
apatite	minor		

Plagioclase forms subhedral prismatic phenocrysts averaging 0.5-1.2 mm in length. These are altered slightly to moderately to patches of calcite and disseminated sericite. A few coarser patches (up to 2 mm in size) consist of intimate aggregates of extremely fine to very fine grained calcite and lesser sericite; these may be after plagioclase phenocrysts. Some phenocrysts contain minor patches of K-feldspar.

The groundmass in the freshest part of the sample is dominated by prismatic grains of plagioclase averaging 0.05-0.1 mm in size, with anhedral interstitial feldspar averaging 0.01-0.03 mm in size. Groundmass plagioclase grains are slightly interlocking and irregular in outline. K-feldpar is intergrown with plagioclase, but cannot be identified in thin section except as mentioned above.

Quartz occurs in two main modes which are somewhat gradational. It forms interstitial grains averaging 0.02-0.05 mm in size, commonly concentrated in patches up to 2 mm across, and commonly associated with sericite after feldspars. Other smaller patches averaging 0.2-0.5 mm in size are dominated by very fine grained quartz with minor chlorite/sericite and Ti-oxide. A few of these have subhedral outlines, suggesting that the patches may be secondary after original hornblende phenocrysts. An alternate interpretation would be that the patches were formed by replacement. Several larger patches of very fine to fine grained aggregates of quartz, with lesser sericite, calcite, and opaque, also may have been formed by replacement.

Calcite forms disseminated patches averaging 0.05-0.1 mm in size; these were formed by replacement of plagioclase. A few larger patches (up to 1.5 mm) consist of very irregular medium to coarse grains of calcite.

Pyrite forms disseminated grains and clusters of grains averaging 0.1-0.3 mm in size. Most are very irregular in outline and intergrown with groundmass. Inclusions of groundmass are common. Pyrite was formed by replacement of the rock.

Ti-oxide forms disseminated grains in the groundmass averaging 0.01-0.02 mm in size.

Pyrrhotite occurs in a few pyrite grains as subrounded inclusions from 0.02-0.05 mm in size; pyrite grains contain up to 3 inclusions of pyrrhotite.

Apatite forms irregular grains up to 0.3 mm in size in the cores of a few quartz-rich patches.

Much of the groundmass is slightly to moderately altered to sericite, and in places is obscured by semiopaque sericite-carbonate-Ti-oxide.

The rock contains a few fragments(?) up to 1 mm in size of fine grained quartz aggregates showing moderately strained extinction.

Dev 87-02 39.6 m — Porphyritic Andesite with Replacement Veins and Patches of Calcite-Chlorite-Marcasite

The rock contains plagioclase and lesser hornblende phenocrysts in a groundmass dominated by plagioclase. Replacement veins and patches are dominated by calcite with lesser chlorite and marcasite. Phenocrysts are altered strongly to completely, plagioclase being replaced by calcite-sericite and hornblende by chlorite-calcite-(Ti-oxide).

phenocrysts	
plagioclase	25-30%
hornblende	4- 5
groundmass	
plagioclase	25-30
calcite	4- 5
chlorite	4- 5
sericite	3- 4
quartz	1- 1½
Ti-oxide	1- 1½
apatite	0.2
chalcopyrite	trace

replacement patches, veins		
calcite	17-20	
marcasite	3- 4	
chlorite	3- 4	
quartz	0.2	
K-feldspar	3- 4	(in halos)
pyrrhotite	trace	
chalcopyrite	trace	

Plagioclase forms subhedral to euhedral phenocrysts up to 3 mm in size. They are strongly to completely altered to fine grained calcite and extremely fine grained sericite.

Hornblende phenocrysts are up to 1.2 mm in size. They are altered completely to very fine grained chlorite and calcite. Many also contain moderately abundant Ti-oxide concentrated along cleavage directions in the original hornblende.

The groundmass is dominated by irregular, slightly interlocking plagioclase grains with dominantly prismatic outlines, averaging 0.1-0.2 mm in length. Grains are altered to dusty semiopaque. Interstitial to these are anhedral grains of somewhat smaller size.

Intergrown with groundmass plagioclase are very fine grained patches of chlorite and of quartz, and extremely fine grained patches of Ti-oxide. Ti-oxide also is concentrated in a few patches up to 0.5 mm across, in part associated with hornblende; in these it is intergrown with extremely fine grained chlorite and lesser quartz. Calcite forms irregular replacement patches ranging widely in size and grain size.

Apatite forms one anhedral, prismatic grain 0.5 mm across, at one end of which is an aggregate of extremely fine (0.01-0.03 mm), equant apatite grains up to 0.5 mm across. Intergrown with apatite is dusty semiopaque of unknown composition.

Chalcopyrite forms a very few anhedral grains up to 0.03 mm in size.

Replacement patches and veins up to 2 mm in width are dominated by fine to medium grained calcite, with clusters up to 1 mm in size of very fine to fine grained, subhedral marcasite, and patches of very fine grained chlorite. Quartz forms scattered subhedral grains up to 0.1 mm in size enclosed in calcite. Pyrrhotite forms a very few subrounded inclusions up to 0.03 mm in size in marcasite. Chalcopyrite forms one equant grain 0.1 mm across in a calcite replacement patch in a plagioclase phenocryst. K-feldspar occurs as very fine grained aggregates in halos about many of the veins; halos are up to about 0.5 mm in width. K-feldspar was not recognized in thin section; its presence in indicated by the stained offcut block.

Dev 87-02 47.0m Porphyritic Rhyodacite with Replacement Patches of Calcite-Pyrite-Chlorite-Quartz-(Marcasite)

Phenocrysts of plagioclase and lesser ones of biotite, hornblende, apatite and Ti-oxide/chlorite occur in a very fine grained groundmass dominated by K-feldspar and plagioclase. Replacement patches up to 2 mm across contain calcite, pyrite, chlorite, quartz, and marcasite.

phenocrysts		replacement patches	
plagioclase	17-20%	calcite	2- 3%
biotite	3- 4	pyrite	1
hornblende	½- 1	quartz	1
Ti-oxide/chlorite	1½-2	chlorite	0.5
apatite	0.2	chalcopyrite	trace
groundmass			
K-feldspar	35-40		
plagioclase	25-30		
chlorite	4- 5		
quartz	2- 3		
Ti-oxide	0.3		
pyrite	minor	zircon	trace

Plagioclase forms subhedral to euhedral, prismatic phenocrysts from one to several mm long. Alteration is variable from slight to almost complete to patches of calcite and disseminations of sericite and dusty opaque.

Biotite forms slender flakes up to 1.7 mm in length. It is altered completely to pseudomorphic muscovite or chlorite, with minor to abundant lenses of calcite parallel to cleavage of original biotite, and with moderately abundant Ti-oxide along cleavage planes.

Hornblende (?) forms a few clusters of equant, subhedral to euhedral grains averaging 0.2-0.3 mm in size. These are replaced completely by pseudomorphic chlorite and patches of calcite. Other patches, which may represent original hornblende or sphene phenocrysts, are replaced completely by intergrowths of about equal amounts of Ti-oxide and chlorite. These are up to 0.7 mm in size.

Apatite forms a few subhedral prismatic phenocrysts up to 0.5 mm in size. Smaller grains commonly are associated with hornblende.

The groundmass is dominated by a very fine grained aggregate of equant K-feldspar grains and equant to prismatic plagioclase grains averaging 0.03-0.07 mm in size, with prismatic plagioclase up to 0.12 mm long. Chlorite forms very fine grained interstitial patches and grains. Quartz forms very fine grained patches up to 0.15 mm across and single grains intergrown with feldspars. Ti-oxide forms extremely fine grained patches. Zircon forms a few subhedral to subrounded grains from 0.02-0.1 mm in size. Pyrite forms scattered anhedral to subhedral grains averaging 0.02-0.03 mm in size.

The rock contains a few replacement patches up to 2 mm across. Many patches consist of calcite with lesser quartz, and a few consist of chlorite and quartz. One large patch is dominated by a coarse grain of pyrite with lesser calcite and minor chlorite surrounding it. Marcasite occurs in a few patches up to 0.5 mm in size. It forms extremely fine grained aggregates intergrown with minor non-reflective material, probably secondary after pyrrhotite. Chalcopyrite forms a very few grains up to 0.03 mm in size near the border of the pyrite megacryst (chalcopyrite is in calcite).

Dev 87-02 144.5m Porphyritic Andesite with Replacement Patches of Calcite-Pyrite-Chlorite-Quartz

The rock contains abundant phenocrysts of plagioclase and minor ones of hornblende and apatite in a very fine grained groundmass dominated by plagioclase with much less K-feldspar and chlorite. Replacement patches are of calcite-quartz-(chlorite), with one large patch of pyrite surrounded by calcite and chlorite.

phenocrysts		replacement patches	
plagioclase	20-25%	calcite	3- 4%
hornblende	1- 1½	pyrite	1- 1½
apatite	0.1	chlorite	0.7
groundmass		quartz	0.7
plagioclase	40-45	Ti-oxide	0.1
K-feldspar	10-12		
chlorite	5- 7		
quartz	1½-2		
Ti-oxide	1½-2		
pyrite	0.3		
chalcopyrite	trace		

Plagioclase forms euhedral to subhedral prismatic phenocrysts up to 3.5 mm long. It is altered moderately to strongly to calcite-sericite-(chlorite), with prominent dusty opaque. Calcite is very fine to fine grained, and commonly forms interlocking grains. Sericite is extremely fine grained. Chlorite is concentrated in subrounded to irregular patches of very fine grain size; subrounded patches commonly have a radiating texture. Chlorite is pleochroic from pale to light or medium green.

Hornblende forms a few subhedral grains up to 1.5 mm in size. It is altered completely to aggregates of very fine grained chlorite with lesser calcite, and much less quartz and Ti-oxide.

Apatite forms a few subhedral prismatic grains up to 0.4 mm long. These have abundant fluid(?) inclusions averaging 0.01-0.02 mm in size.

The groundmass is dominated by plagioclase, with prominent prismatic grains from 0.1-0.25 mm in length surrounded by and intergrown with anhedral grains of moderately smaller grain size. K-feldspar occurs with groundmass plagioclase, probably mainly in the interstitial material. Grains contain moderately abundant dusty opaque. K-feldspar was not identified in thin section; its presence is indicated by the stained offcut block.

Chlorite forms extremely fine grained patches scattered through the groundmass.

Quartz forms very fine grains and clusters of a few grains in interstitial patches up to 0.15 mm in size.

Ti-oxide forms a few patches up to 0.7 mm in size in which it is intimately intergrown with chlorite and plagioclase. It also forms abundant disseminated patches of extremely fine grain size up to 0.04 mm across.

Pyrite forms subhedral to euhedral grains up to 0.3 mm in size. Some larger ones contain abundant tiny silicate inclusions.

Chalcopyrite forms a few grains from 0.03-0.07 mm in size.

The replacement patches average 1-1.5 mm in size, and consist of very fine to fine grained aggregates of calcite and quartz with minor chlorite and Ti-oxide. One large patch contains several pyrite grains up to 1.5 mm in size surrounded by calcite with lesser patches of chlorite and minor quartz, the last mainly within pyrite. Pyrrhotite forms two grains 0.03 mm in size in one large pyrite grain.

Dev 87-02 155.5m   Porphyritic Andesite cut by Vein of Quartz-Pyrite

The rock contains plagioclase phenocrysts and lesser ones of hornblende in a very fine grained groundmass dominated by plagioclase with lesser tremolite/actinolite and chlorite. The rock contains patches up to a few mm across of replacement quartz. It is cut by a vein of quartz-pyrite. K-feldspar forms replacement patches in plagioclase phenocrysts and is moderately abundant in the groundmass; it appears to be depleted along the vein in a zone up to a few mm wide.

phenocrysts	
plagioclase	25-30%
hornblende	3- 4
apatite	0.3
Ti-oxide	0.5
groundmass	
plagioclase	35-40
K-feldspar	7- 8
chlorite	4- 5
tremolite/actinolite	2- 3
Ti-oxide	½- 1
sphene	trace
pyrrhotite	0.3
pyrite	0.3
chalcopyrite	trace

replacement patches	
quartz	4- 5%
vein	
quartz	3- 4
pyrite	2- 3
epidote	0.1

Plagioclase forms subhedral to euhedral phenocrysts averaging 1-2 mm in length, with a few up to 3 mm long. Composition from the Carlsbad-albite twin method is An_{47}. Plagioclase is altered slightly to K-feldspar and calcite patches, and commonly contains dusty semiopaque inclusions and clusters of pyrrhotite.

Hornblende forms subhedral phenocrysts up to 1.3 mm in size. It is altered completely to ragged pseudomorphs of tremolite/actinolite of very pale green color.

Apatite forms euhedral to subhedral prismatic grains up to 0.35 mm long, in part associated with hornblende phenocrysts. Apatite commonly contains dusty semiopaque/opaque inclusions.

Ti-oxide forms subhedral patches up to 0.5 mm in size, possibly after sphene.

The groundmass is dominated by plagioclase ranging from prismatic grains up to 0.15 mm long to anhedral, interstitial grains less than 0.05 mm across. Dusty semiopaque/opaque inclusions are common. K-feldspar was not identified in the groundmass, but the stained offcut block indicates that it is moderately abundant. It probably occurs in the interstitial grains and to a lesser extent replacing coarser groundmass plagioclase.

Chlorite forms patches up to 0.1 mm in size of extremely fine grains, mainly interstitial to plagioclase, and partly associated with tremolite/actinolite.

Tremolite/actinolite forms disseminated grains averaging 0.05-0.1 mm in length. Both it and chlorite are moderately concentrated in a diffuse halo about the vein.

Ti-oxide forms extremely fine grained, disseminated patches averaging less than 0.03 mm in size. Sphene forms a very few grains up to 0.05 mm across with hornblende.

Pyrrhotite forms irregular patches of grains up to 0.3 mm in size.

Pyrite forms scattered cubic grains from 0.05-0.10 mm in size.

Chalcopyrite forms a very few grains up to 0.02 mm in size with pyrite.

(continued)

The rock contains subrounded to irregular patches up to a few mm across of quartz. These consist of aggregates of very fine to fine grains, and some show moderately wavy extinction. Along the borders of a few are concentrations of tremolite/actinolite and pyrite. Textures suggest that the patches are of replacement origin; however, an alternate interpretation is that they are recrystallized quartz phenocrysts. This latter interpretation is not favored because of the overall composition of the rock, and because of the similarity in texture of this quartz to that in the vein.

The vein averages 1-1.5 mm in width. Its center is dominated by very fine to fine grained quartz. Pyrite is concentrated towards and along the margin as subhedral grains up to 0.4 mm in size. Grains commonly contain minor to abundant silicate inclusions. Epidote forms a few subhedral prismatic grains up to 0.2 mm long associated with quartz. Outwards from the vein are patches of quartz-pyrite, and a few patches in which pyrite forms extremely fine grained aggregates intergrown irregularly with the host rock. Calcite forms a very few grains up to 0.05 mm in size with quartz in the vein.

Dev 87-03 38.0m   Porphyritic Latite

The rock contains plagioclase phenocrysts in a groundmass dominated by plagioclase and K-feldspar, with moderately abundant replacement patches of dolomite, and scattered amygdules of quartz-chlorite-(calcite). A few large patches dominated by sericite with minor Ti-oxide and quartz may be secondary after mafic phenocrysts. Pyrite is disseminated thruout.

phenocrysts		
plagioclase	20-25%	
groundmass		
plagioclase	25-30	
K-feldspar	12-15	
dolomite	8-10	
quartz	2- 3	
pyrite	4- 5	(+ trace of pyrrhotite)
Ti-oxide	0.1	
amygdules		
quartz	1- 1½	
chlorite	0.5	
calcite	trace	
Ti-oxide	trace	

Plagioclase forms prismatic phenocrysts from 0.2-1 mm in length. They appear to be oligoclase-andesine in composition. Alteration is moderate to dusty sericite and scattered patches of dolonite.

The groundmass is dominated by an extremely fine grained aggregate of plagioclase and lesser K-feldspar. Plagiolcase is similar to that in the phenocrysts, and ranges in habit from lathy to anhedral. K-feldspar was identified from the stained offcut block; it forms extremely fine grained aggregates intergrown with groundmass plagioclase.

Dolomite forms disseminated patches averaging 0.03-0.07 mm in size, and is concentrated around some patches of sericite-quartz-(Ti-oxide) as irregular grains up to 0.6 mm across.

Quartz occurs as interstitial grains and patches averaging 0.02-0.05 mm in size.

Pyrite forms irregular, in part skeletal grains averaging 0.1-0.2 mm in size, with a few up to 1 mm across. Grain borders are very irregular and commonly subrounded. Many grains contain moderately abundant inclusions of host rock, and one grain contains an inclusion 0.02 mm across of pyrrhotite.

Ti-oxide forms disseminated grains averaging 0.01 mm in size.

Several patches in the groundmass contain more abundant and slightly coarser grained sericite than normal. Some of these patches also contain quartz and calcite/dolomite. Patches commonly are surrounded by irregular grains of dolomite up to 0.6 mm across. These patches commonly contain moderately abundant Ti-oxide as disseminated, extremely fine grained patches. They may be secondary after hornblende phenocrysts.

Amygdules up to 0.7 mm in size have sharp, curved smmothly to irregular outlines. They are dominated by an outer zone of very fine grained, submosaic quartz, with a core of extremely fine grained chlorite with lesser sericite and local patches of dolomite. Quartz commonly has grown perpendicular to walls of the patch. Sheet silicates and minor Ti-oxide form extremely fine grained patches in the cores.

Dev 87-03 59.7m   Andesite Flow; Replacement Patches of Calcite-Chlorite-(Quartz); Veins of Marcasite/Pyrite-(Calcite)

The rock contains scattered plagioclase phenocrysts in a groundmass dominated by plagioclase and K-feldspar, which commonly shows flow-banding defined by parallel orientation of plagioclase laths. Replacement patches up to a few mm across are dominated by chlorite and calcite, with a few dominated by quartz. Veins consist mainly of pyrite/marcasite, with irregular halos in which the sulfide is intimately intergrown with the host rock in braided textures.

phenocrysts	
plagioclase	3- 4%
groundmass	
plagioclase	30-35
K-feldspar	15-17
chlorite	4- 5
quartz	1- 1½
Ti-oxide	1- 1½
pyrite/marcasite	0.5
pyrrhotite	minor
replacement patches	
chlorite	12-15%
calcite	15-17
quartz	1½-2
pyrite/marcasite	0.5
barite(?)	0.1
veins & alteration halos	
pyrite/marcasite	7- 8
calcite	0.5

Plagioclase forms scattered phenocrysts from 0.7-1.2 mm in average length. These are altered moderately to strongly to sericite and calcite, with minor patches of quartz and pyrite/marcasite.

The groundmass is dominated by lathy plagioclase grains averaging 0.05-0.1 mm in length. These commonly show a moderate foliation caused by flow-banding during cooling of the magma. Interstitial to these is an extremely fine grained aggregate of K-feldspar, plagioclase, and lesser chlorite, with moderately abundant, extremely fine grained Ti-oxide interstitial to plagioclase laths. Pyrite/marcasite forms disseminated, irregular patches up to 0.1 mm in size. Pyrrhotite locally forms a few grains up to 0.1 mm in size.

The rock contains irregular replacement patches dominated by extremely fine grained chlorite and fine to very fine grained calcite. Some of these contain patches of very fine grained quartz and fine to very fine grained pyrite/marcasite. Barite(?) occurs as clusters of grains in cores of a few patches; grains are up to 0.25 mm in size. Optical and physical properties are: moderate relief (about that of apatite), low birefringence (slightly greater than that of quartz), parallel extinction, weak cleavage, soft).

A few veins up to 1 mm in width consist of pyrite/marcasite, generally with weak anisotropism. A few patches also consist of very fine grained aggregates of pyrite/marcasite. Bordering the veins and in places comprising the entire vein are extremely fine grained lenses and fracture filling seams of pyrite/marcasite intimately intergrown with groundmass plagioclase or with calcite. Calcite also occurs as lenses up to 0.5 mm wide and 2 mm long in the core of the sulfide veins.

Chlorite forms a few lenses up to 1.2 mm long and 0.2 mm wide; these are extremely fine grained, and some contain clusters of Ti-oxide grains of extremely fine grain size.

Dev 87-03 69.7m Porphyritic Latite

The rock contains phenocrysts of plagioclase and minor ones of biotite in a groundmass dominated by plagioclase with interstitial patches of chlorite. K-feldspar and dolomite occur in irregular patches the former may be in part primary and in part secondary, and the latter is secondary. Sulfides are dominated by pyrrhotite with lesser pyrite. Late veinlets are of dolomite.

phenocrysts		veinlets	
plagioclase	20-25%	dolomite	minor
biotite	1- 1½		
apatite	minor		
groundmass			
plagioclase/K-feldspar	35-40%		
chlorite	10-12		
dolomite	17-20		
quartz	3- 4		
pyrrhotite	3- 4		
pyrite	1- 1½		
Ti-oxide	0.3		
sphalerite	trace		
chalcopyrite	trace		

Plagioclase forms prismatic phenocrysts averaging 0.3-0.8 mm in size, with a few between 1.0 and 2.5 mm long. Many larger phenocrysts are altered strongly to completely to fine grained dolomite with much less extremely fine grained sericite. Some phenocrysts contain patches of secondary chlorite.

Biotite forms slender phenocrysts up to 1.7 mm long. These are altered completely to either pseudomorphic muscovite or to dolomite, each with moderately abundant intergrown Ti-oxide.

Apatite forms a few prismatic phenocrysts up to 0.4 mm long, in part associated with biotite pheoncrysts. It also forms unusual patches up to 0.3 mm long of very fine grained aggregates of equant, anhedral grains.

The groundmass is dominated by very fine grained feldspars in equant to slightly prismatic grains averaging 0.02-0.04 mm in size. Chlorite forms interstitial patches of extremely fine grain size. Dolomite occurs in part of the section as irregular patches up to 1 mm in size, replacing both groundmass and plagioclase phenocrysts. It is uncertain whether K-feldspar is associated with dolomite as a replacement of plagioclase, or if it is primary. Probably much of the K-feldspar is secondary.

Quartz occurs in patches up to 0.3 mm in size, mainly as very fine grained aggregates. It also occurs as irregular grains and aggregates scattered through the groundmass, with grain size from 0.02-0.05 mm. Some quartz may be of secondary origin.

Sulfides commonly are associated with dolomite and minor quartz. Pyrrhotite forms irregular patches up to 1 mm in size of very fine to fine grains moderately intergrown with dolomite and groundmass silicates. Pyrite forms euhedral to subhedral grains averaging 0.1 mm in size, with one large composite grain 0.8 mm across. Sphalerite occurs in one patch as grains up to 0.2 mm in size intergrown with quartz and minor chalcopyrite. Chalcopyrite also forms a few grains up to 0.05 mm in size with pyrrhotite.

Ti-oxide is concentrated in several patches up to 0.7 mm in size where it forms 20-30% of the patch, intergrown with chlorite and plagioclase.

The rock contains minor dolomite veinlets averaging 0.02-0.05 mm in width.

Dev 87-03 72.2m   Slightly Porphyritic Andesite with Replacement Patches of Calcite-Pyrrhotite-Quartz-(Chlorite)

Plagioclase and hornblende form a few phenocrysts in a very fine grained groundmass dominated by plagioclase and K-feldspar, the latter of replacement origin. The rock contains coarser grained replacement patches dominated by calcite and pyrrhotite with lesser quartz and minor chlorite.

phenocrysts		replacement patches	
plagioclase	7- 8%	calcite	7- 8%
hornblende	2- 3	pyrrhotite	3- 4
groundmass		quartz	3- 4
feldspars	65-70	chlorite	1- 1½
quartz	1- 1½	sphalerite	minor
Ti-oxide	½- 1	chalcopyrite	trace
pyrrhotite	1- 1½		

Plagioclase forms subhedral pheoncrysts averaging 0.4-0.7 mm in length, with a few from 1 to 2 mm long. Alteration is slight to moderate to dusty opaque and patches of calcite and sericite.

Several patches up to 1.5 mm in size consist of extremely fine grained aggregates of quartz with or without chlorite and/or calcite. Some of these have subhedral outlines, suggesting that they are replacements of hornblende phenocrysts.

The groundmass is dominated by lathy to prismatic plagioclase grains from 0.05-0.1 mm in length, intergrown with anhedral, finer grained K-feldspar and plagioclase. K-feldspar was not identified in thin section, but its abundant presence is indicated in the stained offcut block. The texture of the groundmass suggests that the rock is an andesite; hence, the K-feldspar must represent replacement of plagioclase.

Quartz forms scattered interstitial grains and patches averaging 0.03-0.05 mm in grain size.

Ti-oxide forms disseminated, extremely fine grained patches up to 0.03 mm in size.

Pyrrhotite forms disseminated grains averaging 0.02-0.1 mm in size.

The rock contains replacement patches up to a few mm across. Many of these are dominated by fine grained calcite, with abundant pyrrhotite in coarser grained patches in the cores of the replacement zones, and as abundant, very fine grains intergrown irregularly with calcite and groundmass feldspars along the borders of the patches. Chlorite occurs mainly outwards from the zones of calcite-opaque as very fine grained aggregates. Quartz occurs in a few patches with calcite and pyrrhotite, especially the large patch in one corner of the section, in which quartz forms a patch up to 1.5 mm across of grains averaging 0.03-0.07 mm in size. Quartz also occurs in patches up to 1.7 mm in size of very fine to fine grained aggregates, without or with only minor other replacement minerals.

Sphalerite forms one irregular patch 0.3 mm across intergrown with groundmass feldspars. Associated with sphalerite and locally elsewhere are a few grains of chalcopyrite averaging 0.02 mm in size. Sphalerite is deep red brown in color, indicating a high iron content.

Dev 87-03 88.3m Andesitic Dacite Lapilli Tuff

The rock contains fragments up to 2 cm in size of andesite and dacite in an extremely fine grained groundmass dominated by plagioclase and K-feldspar. Replacement patches are dominated by one or more of calcite, chlorite, and quartz. Because of the difficulty of distinction of some fragments from groundmass, the fragments and groundmass between them are described together.

phenocrysts		replacement patches	
plagioclase	7- 8%	calcite	15-17%
groundmass		quartz	4- 5
plagioclase	35-40	chlorite	3- 4
K-feldspar	20-25	pyrrhotite	minor
quartz	4- 5	sphalerite	minor
chlorite	0.5		
pyrrhotite	1- 1½		
Ti-oxide	0.3		

Plagioclase forms phenocrysts averaging 0.5-1.2 mm in length, with a few up to 3 mm long. Most are subhedral to euhedral, prismatic grains. Alteration is moderate to locally strong to extremely fine grained, disseminated sericite, and to patches of very fine grained calcite.

The groundmass is variable in texture. In a few andesite fragments the groundmass contains prominent prismatic grains of plagioclase up to 0.12 mm in length enclosed in and intergrown slightly with finer grained, irregular grains of plagioclase and K-feldspar. Elsewhere, the groundmass is very fine to extremely fine grained, and dominated by slighly interlocking aggregates of feldspars and much less quartz. Quartz commonly is concentrated in patches up to 0.1 mm in size. Chlorite forms scattered extremely fine grained patches. Ti-oxide forms disseminated, extremely fine grained patches up to 0.03 mm across. Pyrrhotite forms disseminated, anhedral grains and aggregates from 0.02-0.15 mm in size.

Replacement patches are up to a few mm across. Calcite forms anhedral, porphyroblastic grains up to 1.5 mm in size. Quartz commonly is concentrated in patches up to 0.7 mm across of grains from 0.05-0.15 mm in size. Chlorite is concentrated in patches up to 2 mm across of extremely fine grained aggregates, in part intergrown alohg borders of patches with calcite.

Pyrrhotite and sphalerite form a few concentrations of grains in the replacement patches, with grain size up to 0.15 mm.

Dev 87-03 93.5m Porphyritic Andesite strongly replaced and veined by Calcite-Chlorite-Quartz-Pyrite/Marcasite-(Barite)

The original rock contains plagioclase phenocrysts in a groundmass of plagioclase and lesser chlorite. Early replacement consist of quartz and chlorite. Later replacement and veins are dominated by calcite, with lesser patches of chlorite and pyrite/marcasite, with minor barite and quartz.

phenocrysts			
plagioclase	4- 5%		
groundmass			
plagioclase	15-20		
chlorite	5- 7		
Ti-oxide	0.5		
replacement			
quartz	10-12	chalcopyrite	trace
chlorite	8-10	pyrrhotite	minor
calcite	35-40	barite (?)	1- 1½
pyrite/marcasite	7- 8		

Plagioclase forms subhedral to euhedral, elongate prismatic phenocrysts up to 1.5 mm long. They are altered strongly to sericite, with or without calcite.

The groundmass is dominated by prismatic plagioclase grains up to 0.12 mm in length, and by anhedral plagioclase and chlorite grains from 0.02-0.05 mm in size. Ti-oxide forms disseminated patches averaging 0.02-0.05 mm in size, with a few up to 0.1 mm across. *

Quartz forms early, pervasive replacement as grains averaging 0.03-0.1 mm in size. Some patches of quartz are up to 1.5 mm in size. Interstitial to quartz is minor to moderately abundant chlorite. Chlorite forms very fine grained replacement patches up to 1 mm in size, in part associated with quartz and in part associated with calcite.

Calcite forms irregular to subhedral prismatic grains up to 1.5 mm in size replacing the rock. The presence of abundant prismatic grains suggests that some of the carbonate may be aragonite.

The rock is cut by a diffuse vein zone up to a few mm wide, which is very similar in texture to some of the replacement patches. Calcite is dominant as fine to coarse grained aggregates. Pyrite/marcasite is concentrated along the axis of the vein as extremely fine to medium grained aggregates. The sulfide grains occur in two main modes. Submosaic aggregates of equant grains average 0.1-0.2 mm in grain size; these have very weak to no anisotropism. Some extremely fine grained aggregates, intergrown with minor non-reflective material have slight to moderate anisotropism.

Barite(?) forms patches of grains up to 0.8 mm in size in the core of the vein, associated with calcite and sulfides. Grains are up to 0.5 mm in size, and have moderate relief and low birefringence. Cleavages at 90° locally are present.

Chalcopyrite forms scattered, anhedral grains up to 0.12 mm in size.

Pyrrhotite forms a few patches of grains up to 0.2 mm in size, and forms a very few inclusions up to 0.03 mm in size in pyrite.

* Groundmass plagioclase is altered slightly to moderately to sericite of extremely fine grain size.

Dev 87-03 95.2m

Porphyritic Andesite with Replacement Patches of Calcite-Chlorite-Pyrrhotite and lesser ones with Quartz; K-feldspar replacement of groundmass plagioclase

The rock contains very coarse phenocrysts of plagioclase and moderately abundant ones of apatite in a very fine grained groundmass dominated by plagioclase and K-feldspar, the latter of replacement origin. Replacement patches are dominated by calcite with lesser chlorite and pyrrhotite, with fewer patches also containing quartz.

phenocrysts		replacement patches	
plagioclase	20-25%	calcite	8-10%
apatite	1- 1½	chlorite	2- 3
groundmass		pyrrhotite	2- 3
plagioclase	30-35	quartz	2- 3
K-feldspar	17-20	sphalerite	trace
chlorite	3- 4	chalcopyrite	trace
Ti-oxide	2- 3		
quartz	0.3		

Plagioclase forms phenocrysts up to 15 mm in length; they are altered moderately to strongly to calcite and sericite.

Apatite forms subhedral to euhedral prismatic grains up to 0.75 mm in length.

The groundmass contains lathy plagioclase grains up to 0.15 mm in length in a much finer grained groundmass of plagioclase, K-feldspar, and minor chlorite. K-feldspar was not identified in thin section; its presence is indicated by the stained offcut block. Ti-oxide forms abundant disseminated patches up to 0.03 mm in size and a few patches up to 0.6 mm across in which it is intergrown with about the same amount of chlorite. Quartz forms interstitial grains up to 0.07 mm across.

Replacement patches up to several mm across are dominated by fine to medium grained calcite with lesser chlorite and pyrrhotite. Chlorite commonly is concentrated near borders of patches as very fine grained aggregates. Pyrrhotite forms patches up to 1.5 mm in size of very fine to fine grains, and is more common as disseminated grains averaging 0.03-0.1 mm in size. In some patches, chlorite and calcite are intimately intergrown. Sphalerite forms a few patches up to 0.1 mm in size. Chalcopyrite forms scattered grains up to 0.03 mm across.

Other replacement patches up to 0.7 mm in size are dominated by very fine to fine grained quartz. Patches up to 1.5 mm in size have an outer zone of quartz enclosing very fine grained cores of calcite and/or chlorite. Some of these contain minor pyrrhotite grains up to 0.1 mm in size.

Dev 87-03 102.25m   Dacite Tuff with Replacement Patches of Quartz-Arsenopyrite-Chlorite-Apatite-Calcite

The rock contains fragments up to 1.7 mm in size dominated by plagioclase phenocrysts, hornblende phenocrysts, and extremely fine grained altered rocks of uncertain origin. Replacement patches are of two main types: quartz-rich, and quartz with variable amounts of arsenopyrite, chlorite, and lesser calcite and apatite.

fragments		
plagioclase	5- 7%	
hornblende	2- 2½	
rock	1- 2	(probably up to 5-10%, but cannot be distinguished in thin section)
groundmass		
plagioclase/sericite	55-60%	
calcite	15-17	
chlorite	4- 5	
quartz	2- 3	
Ti-oxide	0.5	
patches		
a) quartz	5- 7	
b) quartz-arsenopyrite-chlorite-(calcite-apatite-sphalerite-pyrrhotite-chalcopyrite)	7- 8	

Plagioclase forms phenocrysts up to 1.5 mm in size; alteration is strong to patches of calcite and disseminated flakes of sericite.

Hornblende forms prismatic pheoncrysts up to 1.7 mm in length. It is altered completely to extremely fine grained chlorite with lesser sericite, calcite, and Ti-oxide.

A few fragments of rock consist of aggregates of very fine grained quartz intergrown with lesser pale brown chlorite. Other fragments contain more abundant chlorite with minor Ti-oxide and quartz.

The groundmass (and some rock fragments consist of extremely fine grained plagioclase, partly altered to sericite, and partly replaced by very fine to medium grained, porphyroblastic patches of calcite. Pale brown chlorite forms irregular patches and disseminations of extremely fine grain size. Quartz forms patches of very fine grains. Ti-oxide forms disseminated, extremely fine grained patches up to 0.03 mm in size.

One type of replacement(?) patch is dominated by quartz; patches are up to 1.2 mm across. Quartz forms very fine to fine grained aggregates, commonly with wavy extinction. Most patches contain abundant dusty opaque inclusions in a thick core zone, and minor ones in a thin rim; the zone of inclusions is superimposed on quartz grains which extend from the core to the interior of the patch.

Other patches up to 1.8 mm in size are dominated by very fine to fine grained quartz, and contain locally abundant arsenopyrite and chlorite, and minor calcite. Arsenopyrite forms grains up to 0.5 mm in size; a few larger ones contain an inclusion up to 0.08 mm in size of pyrrhotite. Some arsenopyrite are skeletal outlines rimming patches of chlorite or calcite near coarse patches of arsenopyrite. Chlorite generally is interstitial to quartz. Calcite forms a few patches of grains associated with arsenopyrite. A few patches consist of arsenopyrite and chlorite. Apatite occurs as extremely fine grained aggregates in a few patches, mainly associated only with quartz. Sphalerite forms a few grains up to 0.1 mm in size in a patch which contains the largest arsenopyrite grain; sphalerite contains minor exsolution blebs of chalcopyrite. Chalcopyrite forms disseminated grains up to 0.03 mm in size.

Dev 87-03 112.1m — Andesite with Fragments of Diabase; Replacement Patches of Quartz-Chlorite-Sericite and of Calcite-Chlorite-Marcasite/Pyrite-(Sphalerite)

The rock is a slightly porphyritic andesite dominated by plagioclase. It contains fragments up to several mm across of fine grained diabase(?) with minor plagioclase and hornblende phenocrysts in a groundmass of lathy plagioclase and interstitial chlorite. Replacement patches in andesite are mainly quartz-chlorite-(sericite-calcite), and in diabase are mainly calcite-marcasite/pyrite-chlorite.

andesite (75% of total)		diabase (10% of total)	
phenocrysts		phenocrysts	
plagioclase	4- 5%	plagioclase	1-1½%
groundmass		hornblende	½-1
plagioclase	60-65	groundmass	
chlorite	5- 7	plagioclase	4-6
Ti-oxide	1- 1½	chlorite	2-3
quartz	½- 1	Ti-oxide	0.2
apatite	minor		

replacement patches

1) 3% of total		2) 12% of total	
quartz	2- 2½%	calcite	4- 5%
chlorite	0.5	marcasite	2- 3
sericite	0.3	chlorite	2- 3
calcite	minor	pyrite	minor
marcasite/pyrite	trace	quartz	minor
		sphalerite	minor
		chalcopyrite	trace

In the andesite, plagioclase forms euhedral prismatic phenocrysts up to 1 mm in length. Alteration is strong to sericite. The groundmass contains prismatic plagioclase grains from 0.05-0.2 mm in length in a extremely fine grained aggregate of equant plagioclase, with patches of chlorite. Groundmass plagioclase is altered moderately to sericite. Ti-oxide forms disseminated spots up to 0.03 mm in size. Quartz forms scattered, commonly subrounded grains averaging 0.05-0.1 mm in size. Apatite forms a few ragged prismatic grains up to 0.2 mm in length; dusty inclusions are common.

In the diabase, plagioclase and hornblende each form minor prismatic phenocrysts up to 1.3 mm in length. Plagioclase is altered completely to sericite and hornblende is altered completely to chlorite-calcite. The groundmass is dominated by prismatic plagioclase averaging 0.1-0.2 mm in length with 20-25% interstitial chlorite patches, and dissemianted spots of Ti-oxide.

Quartz-rich replacement patches, mainly in the andesite, are up to 1 mm in size. They are dominated by very fine to fine grained quartz, with scattered patches of very fine grained chlorite. Sericite is concentrated along the borders of some patches as extremely fine to very fine grained aggregates. Calcite forms a few patches up to 0.05 mm in size. Marcasite/pyrite forms equant grains up to 0.05 mm in size.

Calcite-rich replacement patches occur in the diabase; they are up to a few mm across and are dominated by fine to medium grained calcite, with patches of very fine grained chlorite and fo very fine to fine grained quartz. Sulfides occur in cores of patches. Marcasite forms patches up to 0.5 mm across of extremely fine grained aggregates after pyrrhotite, and also forms one large patch 1.5 mm across of grains averaging 0.05-0.2 mm in size. The former have moderate to high anisotropism and the latter have slight anisotropism.

(continued)

Pyrite forms a few subhedral to euhedral grains from 0.03-0.1 mm in size intergrown with marcasite patches formed by replacement of pyrrhotite. Sphalerite occurs along borders of marcasite and away from iron sulfides as anhedral grains up to 0.18 mm across. It commonly contains minor, tiny exsolution blebs of chalcopyrite. Chalcopyrite also forms scattered anhedral grains from 0.01-0.02 mm in size, mainly associated with marcasite.

The calcite-rich replacement patches commonly occur in the centers of the diabase fragments; this and the slightly zoned nature of the patches themselves give the patches in hand sample a strongly zoned appearance.

Dev 87-03 141.7m Porphyritic Andesite, Altered to K-feldspar; cut by veins of Quartz-Marcasite-(Chlorite-Kaolinite) and of Calcite-Siderite(?)-Marcasite-Chlorite

The rock contains phenocrysts of plagioclase, hornblende, and minor apatite in a very fine grained groundmass dominated by plagioclase with much less chlorite. Plagioclase is moderately altered to K-feldspar, and moderately to strongly replaced by sericite and calcite. Hornblende is replaced completely by chlorite-(calcite- Ti-oxide). Veins up to 0.5 mm wide are dominated by quartz-marcasite or calcite-marcasite.

phenocrysts	
plagioclase	20-25%
hornblende	8-10
apatite	1- 1½
groundmass	
plagioclase	25-30?
K-feldspar	20-25?
chlorite	7- 8
calcite	1½-2
Ti-oxide	1- 1½
quartz	0.5
marcasite	0.3
pyrite	trace

veins and replacement patches

1) quartz-marcasite-(chlorite-kaolinite) 3- 4%
2) calcite-marcasite-(chlorite-quartz) 1- 1½
3) marcasite-kaolinite-(chlorite) 0.5%

chalcopyrite	trace
sphalerite	trace

Plagioclase forms euhedral prismatic phenocrysts up to 4 mm in length. Alteration is moderate to dusty opaque patches, and moderate to strong to sericite and/or calcite.

Hornblende forms subhedral to euhedral pheoncrysts from 0.3-2.5 mm in size. It is altered completely to aggregates of very fine to extremely fine grained chlorite, with scattered concentrations of Ti-oxide. Some grains contain abundant Ti-oxide along cleavage of original hornblende. Some large grains contain abundant patches of very fine to fine grained calcite intergrown with chlorite; calcite commonly contains abundant dusty opaque inclusions.

Apatite forms subhedral to euhedral prismatic grains up to 0.5 mm in length. Dusty inclusions are common, giving grains a color zonation from colorless to light brown or greyish brown.

Groundmass feldspar forms prismatic to irregular grains from 0.03-0.1 mm in length, with grain size coarser towards one side of the section. Locally, grains are moderately oriented to produce a flow foliation. Plagioclase is altered moderately to K-feldspar; the latter was not recognized in thin section, but is abundant as indicated by the stained offcut block.

Chlorite forms interstitial patches of extremely fine grain size. Calcite forms irregular replacement patches, mainly near the carbonate-rich vein. Ti-oxide forms disseminated patches averaging 0.01-0.02 mm in size, and a few coarser aggregates up to 0.1 mm across. Quartz forms scattered grains and patches of grains averaging 0.05-0.1 mm in grain size. Marcasite forms disseminated, irregular patches up to 0.1 mm across. Pyrite forms a few euhedral to subhedral grains up to 0.07 mm across.

A few veins are dominated by patchy aggregates of quartz and maracsite of very fine grain size. Marcasite occurs in two modes, as extremely fine grained replacements of pyrrhotite, and as very fine grained, subhedral to submosaic aggregates. Anisotropism is slight to moderate. Chlorite forms a few patches of very fine grains. Kaolinite forms patches up to 0.15 mm in size of aggregates of equant grains averaging 0.002 mm in size. A replacement patch 1.7 mm across is dominated by marcasite with interstitial kaolinite and minor chlorite; textures are as in the veins.

(continued)

One vein is dominated by carbonate with lesser marcasite and minor chlorite and quartz. Calcite is concentrated along the centerline of the vein as discontinuous lenses. Bordering this is a zone dominated by extremely fine grained carbonate with high relief (possibly siderite). Marcasite forms lenses along the vein, in part on one side of the carbonate vein, and in part occupying the entire width of the vein. Textures are as in the quartz-rich veins. Chlorite and quartz each form scattered patches of very fine to extremely fine grains (chlorite). Adjacent to the vein, the groundmass is replaced by irregular patches of calcite. Also sericite is more abundant than further away from the vein.

Associated with patches of marcasite are scattered grains of chalcopyrite and sphalerite averaging 0.02 mm in size.

One replacement patch 0.5 mm long consists of chlorite and sericite in very fine grained aggregates, with each mineral occupying one side of the patch.

Dev 87-04 14.7m   Andesite Flow Breccia: Replacement patches of Carbonate and of Quartz-Pyrite-Chlorite-(Fluorite).

The rock contains fragments up to 1 cm in size of one type of andesite flow enclosed in a second type of andesite flow. Replacement patches of carbonate are mainly restricted to the second type of andesite, whereas those dominated by quartz, pyrite and/or chlorite occur in both rock types.

fragment	17-20%	
main rock		
phenocrysts		
plagioclase		8- 10%
hornblende		1- 2
groundmass		
plagioclase		35-40
K-feldspar		3- 4
chlorite		12-15
Ti-oxide		1
replacement patches		
carbonate		10-12
quartz		½- 1
pyrite		1½-2
chlorite		1½-2
fluorite		minor

The fragment contains phenocrysts of plagioclase up to 1.7 mm in length and of hornblende up to 2.5 mm long. Plagioclase is altered slightly to patches of very fine grained quartz and calcite. Phenocrysts and groundmass contain abundant dusty semiopaque. Hornblende phenocrysts are replaced completely by extremely to very fine grained aggregates of sericite, chlorite, quartz, and Ti-oxide, with a few coarser grains of quartz, or to irregular intergrowths of carbonate and chlorite. The groundmass is dominated by equant plagioclase and much less chlorite and quartz grains averaging 0.01-0.03 mm in size. Pyrite occurs as replacement grains up to 0.5 mm in size in both types of phenocrysts and in the groundmass.

The main rock contains phenocrysts of plagioclase up to 1.2 mm in length. Alteration is moderate to strong to irregular patches of calcite, chlorite, quartz, pyrite, and fluorite. Hornblende phenocrysts up to 1 mm across are replaced by intimate intergrowths of extremely fine grained chlorite and very fine grained carbonate.

The groundmass is dominated by lathy to equant plagioclase grains averaging 0.03-0.07 mm in size, with moderately abundant interstitial chlorite and disseminated spots of Ti-oxide. K-feldspar is concentrated near one corner of the section (as seen in the stained offcut block).

Replacement patches up to a few mm across are dominated by irregular, fine to medium grained carbonate grains, commonly with porphyroblastic textures. The mineral is calcite and/or dolomite; relief is higher than normal for calcite, yet the grains react moderately with dilute, cold HCl.

Other replacement patches up to 1 mm in size are of very fine to fine grains and aggregates of one or more of quartz, pyrite, chlorite, and fluorite. Pyrite commonly forms subhedral to euhedral cubic grains and a few patches up to 0.7 mm across. Locally associated with pyrite is minor marcasite, distinguished by slight to moderate anisotropism and whiter color than adjacent pyrite. Fluorite forms anhedral, equant grains up to 0.3 mm across.

Dev 87-04 26.3m Porphyritic Andesite with Replacement Patches and Veins of Calcite-Quartz-Pyrite/Marcasite

The rock contains phenocrysts of plagioclase in a groundmass dominated by plagioclase with lesser K-feldspar. Replacement patches and veins are of very fine to fine grained calcite, quartz, and pyrite/marcasite. Chlorite is concentrated moderately in a diffuse halo bordering a large vein zone.

phenocrysts		replacement patches, veins	
plagioclase	10-12%	calcite	10-12
groundmass		quartz	4- 5
plagioclase	40-45	pyrite/marcasite	4- 5
chlorite	5- 7	chalcopyrite	trace
K-feldspar	10-12(?)	chlorite	1- 1½ (in halo)
Ti-oxide	½- 1		

Plagioclase forms anhedral to locally subhedral prismatic to equant grains averaging 0.1-0.7 mm in size. Alteration is slight to locally moderate to patches of calcite and of K-feldspar.

The groundmass contains scattered prismatic grains of plagioclase up to 0.15 mm in size in a variable intergrowth of equant plagioclase averaging 0.01-0.03 mm in size (locally 0.03-0.05 mm), with much less interstitial grains and patches of chlorite. K-feldspar was not identified in thin section except in plagioclase phenocrysts; the stained offcut block indicates that it is moderately abundant except near the main vein zone. Ti-oxide forms a few patches up to 0.2 mm across and abundant disseminated patches averaging 0.01-0.02 mm in size.

The rock contains replacement patches up to 1.5 mm in size dominated by very fine grained quartz with lesser pyrite/marcasite and calcite. Quartz patches are common with plagioclase phenocrysts. Calcite forms irregular replacement patches of grains averaging 0.03-0.08 mm in size. Pyrite/marcasite forms anhedral to subhedral patches of grains up to 0.2 mm in size, mainly associated with quartz. The sulfide has slight anisotropism. Locally anhedral sulfide grains surround euhedral quartz grains. Chalcopyrite forms a few patches up to 0.03 mm in size.

The main vein zone is up to 3 mm wide and dominated by very fine to fine grained calcite, with patches of pyrite/marcasite up to 1 mm in size, and minor quartz, mainly associated with pyrite/marcasite. The vein is of replacement origin, and contains relic patches of groundmass plagioclase. Chalcopyrite forms a few grains up to 0.05 mm in size, mainly associated with pyrite/marcasite. In a halo up to 0.5 mm wide bordering the vein, chlorite is moderately concentrated in lensy patches in the groundmass as very fine to extremely fine grained aggregates.

Pyrite/marcasite forms a very few wispy seams of extremely fine grains. These are up to 1.5 mm long and 0.02 mm wide.

Dev 87-04 50.3m   Andesite Flow with Replacement Patches and Veins of Calcite-Pyrrhotite/Marcasite-(Quartz)

The rock contains phenocrysts of plagioclase and much less hornblende in a variable groundmass dominated by plagioclase and chlorite. Replacement patches and veinlets are dominated by calcite with lesser pyrrhotite/marcasite and much less quartz and chlorite.

phenocrysts		replacement patches, veinlets	
plagioclase	15-17%	calcite	17-20%
hornblende	1½-2	pyrrhotite/marcasite	4- 5
groundmass		quartz	2- 2½
plagioclase	40-45	chlorite	½- 1
chlorite	10-12	sphalerite	trace
Ti-oxide	1- 1½	sericite	minor
pyrrhotite	1- 1½		
chalcopyrite	trace		

Plagioclase forms subhedral to euhedral prismatic phenocrysts up to 2.5 mm in length, and anhedral, ragged phenocrysts up to 0.8 mm in size. Alteration is variable, with larger phenocrysts strongly altered to calcite and minor quartz and pyrrhotite, and smaller ones slightly altered to calcite and containing abundant dusty semiopaque.

Hornblende forms a few subhedral prismatic phenocrysts up to 1 mm in size. It is altered completely to extremely fine grained aggregates of sericite and chlorite with lesser quartz-rich patches. Chlorite is pale brown in color.

The groundmass is variable, suggesting that two types of andesite are present. Much of the sample has a groundmass of very variable grain size, with abundant coarser grains ranging from 0.05-0.5 mm in length in an extremely fine grained groundmass. Elsewhere in the sample, the groundmass is dominated by extremely fine grained aggregates of plagioclase and chlorite; chlorite appears to be more abundant in this zone than in the one with coarser plagioclase.

Ti-oxide forms disseminated patches up to 0.03 mm in size.

Pyrrhotite forms disseminated, anhedral grains and patches from 0.03-0.1 mm in average size. Chalcopyrite forms a very few grains up to 0.05 mm across.

The replacement patches are irregular in outline and up to several mm across. Calcite forms very fine to fine grained aggregates. Pyrrhotite occurs in patches up to 1 mm across of very fine grained aggregates. Some of these are fresh; others are moderately to completely replaced by secondary Fe-sulfides (marcasite + pyrite). These are extremely fine grained and dusty in appearance, with lower reflectivity than pyrrhotite. In a few patches, well developed botryoidal replacement textures were developed on the scale of 0.1-0.15 mm in size. Marcasite forms a few patches of subhedral to submosaic grains; patches are up to 0.6 mm in size, with grains averaging 0.05-0.2 mm. Marcasite also forms a few aggregates of extremely fine grains with non-reflective material intergrown along subparallel seams. Most marcasite probably is secondary after pyrrhotite; the exception might be the subhedral to submosaic aggregates.

Quartz is concentrated in a few patches, mainly with marcasite, as anhedral grains averaging 0.03-0.07 mm in size.

Chlorite forms extremely fine grained patches of pale brown flakes.

Sphalerite occurs in a few patches of subhedral marcasite as grains up to 0.2 mm in length. It is deep red-brown in color.

The rock is cut by a late vein up to 0.3 mm wide of very fine to fine grained calcite; unlike most calcite in the rock, this vein is free of dusty hematite(?) inclusions. A late veinlet up to 0.05 mm in width consists of extremely fine grained sericite.

Dev 87-04 78.3m Slightly Porphyritic Andesite with Replacement Patches of Actinolite-Calcite-Quartz and veins of Calcite-Pyrite-Sphene-(Actinolite), Pyrite-Calcite, and Calcite.

The rock contains plagioclase and much lesser hornblende phenocrysts in a groundmass dominated by plagioclase and actinolite. It contains replacement patches of actinolite-calcite-quartz up to 1 mm across. A large vein and related patches is dominated by pyrite and calcite with lesser actinolite and sphene. Smaller veinlets are dominated by calcite and/or pyrite.

phenocrysts	
plagioclase	7- 8%
hornblende	minor
groundmass	
plagioclase	60-65
actinolite	15-17
K-feldspar	4- 5
Ti-oxide	1- 1½
pyrite	minor
chlorite	minor
chalcopyrite	trace

replacement patches	
actinolite	2- 3%
calcite	2- 3
quartz	0.5
pyrite	0.5
veins	
calcite-opaque-(actinolite-sphene)	4- 5%
opaque-calcite	0.2
calcite	minor

Plagioclase forms prismatic, subhedral phenocrysts averaging 0.7-1.2 mm in size. Alteration is moderate to very fine grained calcite and extremely fine grained actinolite, with moderately abundant dusty semiopaque. Some grains are replaced almost entirely by calcite.

Hornblende forms a very few, subhedral, equant phenocrysts up to 0.5 mm across. They are altered completely to calcite-chlorite with minor Ti-oxide.

The groundmass is dominated by plagioclase grains averaging 0.03-0.1 mm in size. Habit ranges from anhedral, slightly interlocking grains to minor prismatic grains. Alteration is similar to that in the phenocrysts Actinolite forms ragged, stubby prismatic grains averaging 0.05-0.07 mm in length. K-feldspar was not recognized in thin section; it is distributed in patches in the rock as a replacement of plagioclase (see stained offcut block). Ti-oxide forms disseminated patches averaging 0.02-0.07 mm in size, with a few up to 0.15 mm long. Pyrite forms scattered, euhedral to subhedral grains averaging 0.07-0.1 mm in size. Chlorite occurs in one lens 1 mm long as extremely fine grains. Chalcopyrite forms a very few, equant, irregular grains up to 0.1 mm in size.

The rock contains several replacement patches up to 1.5 mm in size dominated by fine grained (0.07-0.15 mm) actinolite with lesser calcite and quartz. Some patches are dominated by calcite; these are mainly near the main vein. Pyrite forms irregular replacement patches near the main vein.

The main vein ranges from 0.3-2 mm in width. Much of it is dominated by a very fine grained aggregate of pyrite, with moderately abundant interstitial grains of quartz and of actinolite/tremolite. In parts of the vein and in patches along its border, pyrite forms extremely fine grained, braided aggregates intergrown intimately with the groundmass. Calcite is abundant in patches in the vein, and forms replacement patches along its borders. Actinolite forms scattered ragged prismatic grains up to 0.2 mm in length. Sphene is concentrated in patches with pyrite as anhedral to euhedral grains from 0.1-0.3 mm in average size.

A sharply defined vein 0.06-0.1 mm in width is dominated by extremely fine grained pyrite and by calcite. In places they occupy separate parts of the vein, and elsewhere, calcite cores are rimmed by wispy selvages of pyrite. Late calcite veinlets are from 0.01-0.03 mm in width.

Dev 87-04 107.8m — Porphyritic Andesite with Calcite Replacement and Veinlets; Disseminated Pyrite, Pyrrhotite

The rock contains phenocrysts of plagioclase and lesser ones of hornblende in a groundmass dominated by plagioclase. Calcite forms replacement patches in the groundmass, and a few veinlets up to 0.1 mm in width. Disseminated sulfides include pyrite and pyrrhotite. Hornblende phenocrysts are replaced by orange biotite.

phenocrysts	
plagioclase	7- 8%
hornblende	3- 4
groundmass	
plagioclase	75-80
chlorite	2- 3
calcite	8-10
pyrite	1½-2
pyrrhotite	½- 1
quartz	0.5
Ti-oxide/ilmenite	0.1
chalcopyrite	trace

veinlets	
calcite-(pyrrhotite-pyrite)	1%

Plagioclase forms subhedral prismatic phenocrysts up to 1.7 mm in size. Alteration is slight to moderate to patches of very fine grained calcite and minor sericite.

Hornblende forms anhedral to euhedral phenocrysts up to 1 mm across. Most are equant in outline, with borders ranging from diffuse to sharp. Hornblende is replaced completely by extremely fine to very fine grained aggregates of unoriented, pale to medium orange biotite flakes, in part intergrown with plagioclase and/or calcite of the groundmass.

The groundmass is dominated by plagioclase, ranging from lathy grains from 0.05-0.15 mm in length to anhedral grains from 0.01-0.05 mm in size. It is replaced slightly by sericite flakes. Chlorite forms extremely fine grained, interstitial patches.

Calcite forms irregular replacement patches up to 1 mm in size. Coarser grains commonly are porphyroblastic; most grains average 0.05-0.1 mm in size.

Pyrite forms euhedral to subhedral cubic grains averaging 0.2-0.4 mm in size. Some contain abundant tiny silicate inclusions. Finer grained pyrite (0.02-0.05 mm) commonly is anhedral.

Pyrrhotite forms irregular patches averaging 0.02-0.1 mm in size, with a few grains up to 0.15 mm long.

Quartz forms interstitial grains averaging 0.02-0.04 mm in size, and is concentrated in a few replacement patches up to 1 mm in size, in which it is intergrown with sulfides and sericite.

Ilmenite forms a few grains up to 0.1 mm in size, commonly surrounded by rims of Ti-oxide. Clusters of ilmenite may have been loci for sulfide replacement, as ilmenite patches commonly are associated with sulfides. Ti-oxide also forms disseminated grains averaging 0.01 mm in size.

Chalcopyrite forms a very few grains up to 0.03 mm in size. These are disseminated in the rock and not associated with other sulfides.

The rock is cut by veinlets up to 0.1 mm in width of very fine grained calcite with scattered patches of pyrrhotite or pyrite of similar grain size. One vein has a diffuse core of extremely fine grain size containing calcite and moderately abundant dusty to extremely fine grained opaque of uncertain composition.

Dev L-10 Allan Ck.   Andesite Lapilli Tuff

The rock contains fragments up to 1 cm in size dominated by two varieties of andesite in a groundmass of plagioclase-quartz-sericite. Pyrite forms disseminated grains and patches.

fragments (35-40%)		
andesite A	major	
andesite B	major	
plagioclase grains	major	
andesite C	minor	one fragment
quartz aggregates	minor	
opaque-quartz-sericite-apatite	minor	two fragments
quartz grain	trace	
groundmass		
plagioclase	50-55%	
sericite	5- 7	
Ti-oxide	0.5	
pyrite	2- 3	
quartz replacement	0.3	
chalcopyrite	minor	

Andesite A contains scattered plagioclase phenocrysts up to 0.7 mm in size in a groundmass dominated by lathy plagioclase from 0.05-0.1 mm in length, with 5-10% sericite and minor pyrite and Ti-oxide. Quartz forms a few replacement(?) patches up to 0.5 mm across of very fine grains, with minor associated sericite and pyrite.

Andesite B contains abundant plagioclase phenocrysts from 0.5-2.5 mm in length in a groundmass dominated by sericite. Pyrite and Ti-oxide form scattered grains up to 0.2 mm in size, and quartz forms a few replacement patches.

Andesite C consists of lathy plagioclase from 0.05-0.1 mm in grain size with abundant interstitial Ti-oxide, and with amoeboidal patches up to 0.2 mm across of quartz and sericite intergrowths.

Smaller fragments from Andesite A and Andesite B consist of plagioclase grains, and patches of sericite-rich groundmass.

Several fragments up to 0.5 mm in size consist of very fine grained aggregates of quartz.

One unusual fragment 1.5 mm across contains a core with abundant carbonaceous(?) opaque surrounded by irregular patches of sericite and of very fine grained apatite. Outwards from these are spheroidal partial rims of quartz up to 0.07 mm wide. Another patch consists of a cluster of apatite up to 0.2 mm in grain size adjacent to patches of sericite.

Several fragments(?) up to 1 mm in size are dominated by cryptocrystalline aggregates of unknown composition and light to medium brown color; these are intergrown with lesser sericite.

A very few fragments up to 0.25 mm in size are of quartz grains.

The fragments are set in an extremely fine grained groundmass dominated by plagioclase with lesser sericite (possibly of replacement origin). Pyrite forms disseminated grains and concentrations of grains averaging 0.02-0.07 mm in size, with a few up to 0.4 mm across. Some larger grains contain moderately abundant inclusions of Ti-oxide and/or silicates. Ti-oxide forms disseminated, extremely fine grains.

Quartz forms a few patches up to 1 mm long of very fine grain size; these appear to be of replacement origin.

Chalcopyrite occurs in one patch as an aggregate 0.25 mm long of very fine grains adjacent to a grain of Ti-oxide of similar size.

The rock is cut by a discontinuous pyrite veinlet up to 0.03 mm in width.

Dev L-10 Allan Ck. Trib.   Quartz-(Pyrite) Replacement

The rock is strongly replaced in various stages by quartz and much less pyrite, with relic Ti-oxide clusters in the least altered rock. Abundant cavities are lined by euhedrally terminated quartz grains.

quartz	
extremely fine grained	10-15%
very fine grained	30-35
fine to medium grained	40-45
pyrite	3- 4
Ti-oxide	0.2
sphalerite	trace
calcite	trace
cavities	5- 7

The least altered rock consists of extremely fine grained (0.01-0.03 mm) aggregates of quartz, with moderately abundant Ti-oxide as clusters of subhedral grains averaging 0.01-0.02 mm in size. No original textures are preserved to indicate the nature of the parent rock.

These zones grade into coarser grained zones (0.03-0.07 mm) of anhedral quartz, with minor to locally abundant euhedral to subhedral grains of pyrite averaging 0.05-0.2 mm in size. Ti-oxide forms disseminated grains and concentrations, generally in lesser abundance than in the extremely fine grained quartz. Calcite occurs as wispy, extremely fine grained intergrowths in some quartz grains.

Most strongly replaced rock consists of fine to medium grained quartz with minor pyrite and no Ti-oxide. These zones have euhedral terminations against cavities. The cavities are up to several mm across.

Pyrite grains are up to 0.4 mm in size (averaging 0.05-0.2 mm). Associated with one patch of pyrite grains is an interstitial grain of sphalerite 0.15 mm across. Sphalerite is pale orangish grey in color, indicating a low iron content.

Associated with pyrite in one cluster is a grain of Ti-oxide 0.05 mm across.

Dev Sump (22N, 9W) — Dacite with replacement patches of Pyrrhotite-Chlorite-Quartz.

The rock contains minor phenocrysts of plagioclase in an extremely fine grained groundmass dominated by plagioclase, with lesser quartz and minor K-feldspar and chlorite. Replacement patches and veinlets consist of pyrrhotite, chlorite, and quartz.

phenocrysts			
plagioclase	½- 1%		
groundmass			
plagioclase	70-75	K-feldspar	4- 5%
quartz	12-15		
chlorite	3- 4		
Ti-oxide	1		
pyrrhotite	2- 3		
pyrite	minor		
chalcopyrite	trace		
apatite	trace		

Plagioclase forms a few prismatic to anhedral phenocrysts from 0.5-1.5 mm in length. They are irregularly replaced by groundmass and quartz.

The groundmass is very variable in texture, suggesting that the rock may be tuffaceous in origin. Some patches up to 1.5 mm in size are dominated by equant plagioclase grains averaging 0.05 mm in size. Much of the groundmass consists of plagioclase aggregates averaging 0.01-0.03 mm in grain size. Quartz occurs in a variety of textures. It forms a few patches up to 0.5 mm in size of extremely fine grained aggregates. More commonly it is intergrown with plagioclase as grains averaging 0.02-0.03 mm in size; quartz is moderately concentrated in patches up to 1.5 mm in size. Locally, quartz forms quartz-rich patches with grain size from 0.03-0.05 mm. A few patches up to 1.5 mm in size are most probably of replacement origin; these consist of grains from 0.05-0.15 mm in size.

Chlorite forms extremely fine, disseminated grains and patches in the groundmass, and is concentrated in replacement patches up to 1 mm in size, in which it is intergrown with quartz and pyrrhotite.

Ti-oxide forms disseminated grains averaging 0.01-0.02 mm in size, and is concentrated in a few patches from 0.1-0.7 mm in size. In some of these patches it is associated with pyrrhotite.

Pyrrhotite forms disseminated grains, patches and a few veinlets with grain size averaging 0.03-0.15 mm. Patches are up to 0.6 mm across. Pyrrhotite veinlets are discontinuous and up to 0.05 mm wide.

Pyrite forms minor disseminated euhedral cubic grains from 0.03-0.06 mm in size.

Chalcopyrite forms a very few anhedral grains from 0.01-0.03 mm in size.

Apatite forms a very few ragged, prismatic grains up to 0.1 mm long.

K-feldspar is concentrated in irregular patches (see stained offcut block). It was not identified in thin section, but is suspected to occur in some quartz-bearing patches. It probably is a replacement of plagioclase in plagioclase-rich patches.

1st Creek, 50m East   Dacite Tuff

The rock contains fragments of plagioclase and biotite phenocrysts, and patches of dacite and of quartz aggregates in an extremely fine grained groundmass dominated by plagioclase and sericite, with moderately abundant disseminated pyrite and minor sphalerite. Veinlets are of very fine grained quartz.

fragments		veinlets	
plagioclase	20-25%	quartz	1½-2%
dacite(?)	5- 7		
biotite	0.5		
quartz aggregates	0.5		
Ti-oxide	minor		
groundmass			
plagioclase/sericite	60-65		
pyrite	3- 4		
Ti-oxide	0.2		
zircon	trace		
replacement patches			
sphalerite	0.1		

Plagioclase forms anhedral to subhedral phenocrysts from 0.3-1.2 mm in average size, with a few up to 3.5 mm across. Alteration is slight to moderate to patches and disseminated grains of sericite.

Dacite(?) forms equant fragments averaging 0.1-0.3 mm in size. These are altered completely to extremely fine grained,equant sericite with moderate limonite giving the fragments a pale to light brown color. Many fragments are rimmed by slightly coarser grained flakes of sericite.

Biotite forms ragged flakes from 0.3-1 mm in size. Alteration is complete to pseudomorphic muscovite and minor to moderately abundant Ti-oxide. A few fragments consist of subparallel aggregates of extremely fine grained sericite; these may be secondary after biotite or hornblende.

A few fragments up to 1 mm in length are dominated by quartz grains averaging 0.05-0.08 mm in size, with minor interstitial sericite and scattered opaque.

Ti-oxide forms a few prismatic grains and clusters of grains from 0.2-0.6 mm in length. These probably are pseudomorphic after sphene, and consist of aggregates of extremely fine grains.

The groundmass is dominated by extremely fine grained (0.01-0.02 mm) plagioclase, moderately replaced by sericite.

Pyrite forms disseminated patches and single grains, mainly anhedral to subhedral in outline, and averaging 0.05-0.1 mm in size. Larger patches up to 0.5 mm across commonly have rounded outlines, and some are C-shaped.

Ti-oxide forms disseminated grains averaging 0.01-0.02 mm in size.

Zircon forms a few anhedral to subhedral equant to prismatic grains from 0.03-0.1 mm in size.

One plagioclase phenocryst is replaced in part by an irregular patch up to 1 mm across of very fine grained sphalerite, with minor exsolution blebs of chalcopyrite averaging 2 microns in diameter.

The rock is cut by a few veinlets up to 0.15 mm in width of quartz grains averaging 0.05-0.08 mm in size.

A few fragments consist of aggregates of a few plagioclase grains and smaller biotite grains. The former are from 0.5-1.2 mm in average size, and the latter are equant, averaging 0.2 mm in size. Some of these also contain patches of extremely fine grained sericite, similar to those fragments described as dacite(?). An alternate interpretation of the dacite(?) fragments is that they are altered hornblende.

Equity Pit 1 Brecciated Dacite(?) in Kaolinite-rich Groundmass; Veins and Replacement Patches of Quartz-Sphalerite-(Chalcopyrite-Pyrite-Galena-Tetrahedrite)

The rock contains fragments from 0.1-20 mm in size dominated by sericite, and probably originally an aphanitic dacite flow. They are set in a groundmass of kaolinite with disseminated pyrite. Veins and a few replacement patches are dominated by quartz and sphalerite, with local concentrations of chalcopyrite, galena, tetrahedrite, and pyrite. One vein contains an unusual patch dominated by Ti-oxide.

fragments (40-45% of section)		replacement patches, veins	
sericite	40-43%	quartz	4- 5%
quartz	1- 1½	sphalerite	4- 5
chlorite	0.2	chalcopyrite	1
pyrite	0.3	galena	0.3
Ti-oxide	0.1	pyrite	0.3
groundmass		tetrahedrite	0.1
kaolinite-(sericite)	35-40	chlorite	0.5
pyrite	2- 3	Ti-oxide	0.5
Ti-oxide	0.3		

Fragments are dominated by extremely fine grained sericite, with scattered coarser grained patches, commonly associated with replacement patches of quartz. Some coarser grained sericite patches (averaging 0.03-0.05 mm in grain size) contain a few randomly oriented grains up to 0.15 mm in length of acicular amphibole(?), now replaced completely by extremyky fine grained sericite. Pyrite and Ti-oxide form scattered grains and patches from 0.02-0.07 mm in average size.

The groundmass is dominated by equant grains of kaolinite averaging 0.005-0.01 mm in size. These are stained pale to light brown by limonite. Sericite may be present as intimate intergrowths with kaolinite. Pyrite forms disseminated, anhedral to euhedral grains averaging 0.02-0.07 mm in size, with a few up to 0.15 mm across. Pyrite is concentrated locally in patches up to a few mm across, in which it forms disseminated grains in kaolinite. Ti-oxide forms disseminated grains averaging 0.01-0.03 mm in size, with a few up to 0.07 mm across. Base-metal sulfides are very rare in the groundmass proper, and are mainoy restricted to replacement patches and veins.

The rock contains a few veins up to 1 mm in width dominated by quartz and sphalerite. Quartz mainly forms very fine grained aggregates, commonly oriented perpendicualr to vein walls, and occurring along the border of the vein. Sphalerite is concentrated in the core of the veins as anhedral grains averaging 0.05-0.25 mm in size. These contain minor to abundant exsolution blebs and trains of blebs of chalcopyrite. Possibly two stages of exsolution occurred, with much finer grained blebs occurring between the coarser trains of chalcopyrite.

In some patches in the veins, intimate intergrowths of sphalerite, chalcopyrite, galena, and tetrahedrite form aggregates averaging 0.03-0.1 mm in grain size. Chalcopyrite, galena, and tetrahedrite are particularly intimately intergrown. Pyrite forms scattered subhedral grains up to 0.7 mm in size associated with some of the base-metal patches. Chlorite occurs surrounding and locally intergrown with patches of base metal sulfides in one vein; chlorite forms flakes averaging 0.03-0.05 mm in size.

Ti-oxide occurs in a patch up to 0.8 mm wide and 2.5 mm long associated with one vein of sphalerite-quartz. Ti-oxide forms extremely fine equant grains intergrown with much less sericite. The patch grades rapidly out into the host rock (sericite) with moderately abundant Ti-oxide at one end, and at the other end ends abruptly at a quartz-sphalerite vein. The relative ages of the two is uncertain. One quartz-sphalerite vein contains moderately abundant groundmass sericite associated with sphalerite in the core of the vein.

Equity South Tail Pit — Altered Volcanic Rock cut by Breccia Veins of Quartz-Pyrite-Arsenopyrite-Mineral X-Mineral Y

The rock is an extremely fine grained, mottled dacite(?) altered completely to sericite with minor quartz, Ti-oxide, and opaque. Quartz forms replacement patches. The rock is brecciated, and the fragments are healed by aggregates of quartz-sulfides. Pyrite and arsenopyrite both appear to be brecciated further, and healed by Mineral X, probably a sulfo-salt. Mineral Y is associated with Mineral X, and is of unknown composition.

sericite	35-40%
quartz	1½-2
Ti-oxide	½- 1
opaque	0.5
veins	
quartz	17-20
pyrite	20-25
arsenopyrite	7- 8
Mineral X	4- 5
Mineral Y	2- 3
tremolite	0.3
sericite	0.3

The rock fragments are slightly mottled, with patches of extremely fine grained sericite-plagioclase(?) surrounded by slightly coarser grained sericite. Possibly the rock is similar to the footwall dacite flow, but is more strongly altered. Alteration is somewhat coarser grained along the border of the veins.

Quartz forms disseminated grains averaging 0.01-0.03 mm in size. It also forms a few very fine grained patches of probable replacement origin; these probably are related in origin to the veins.

Ti-oxide forms disseminated spots averaging 0.01-0.02 mm in size.

Pyrite forms disseminated grains from 0.02-0.03 mm in average size, with a few coarser patches up to 0.4 mm across.

The veins contain patches of very fine to fine grained quartz. In some of these, tremolite forms moderately abundant acicular grains up to 0.1 mm in size. In others, quartz is free of inclusions. Sericite forms irregular patches associated with some quartz patches.

Pyrite forms anhedral grains and aggregates up to a few mm in grain size. In places, pyrite is granulated along irregular breccia veinlets to very fine to extremely fine grained fragments

Arsenopyrite forms aggregates of very fine to fine grains of subhedral to euhedral outlines. They commonl occur along borders of pyrite aggregates, and are intergrown moderately with Mineral X on the other side of the patches. Arsenopyrite locally is brecciated and granulated.

Mineral X forms aggregates associated with arsenopyrite, and commonly is interstitial to arsenopyrite and less commonly to pyrite. It was not affected by the brecciation (indicating that it was later than the sulfide brecciation) <u>or</u> it flowed and recrystallized during brecciation. Patches are up to a few mm across, and commonly contain euhedral grains of quartz from 0.05-0.2 mm in size. The mineral is medium grey in color, moderately hard, and isotropic. It may be tetrahedrite.

Mineral Y is commonly intergrown coarsely with Mineral X. It is slightly lighter grey in color, moderately soft, and slightly anisotropic. It probably is a sulfosalt.

Equity South Tail Footwall   Dacite Flow

The rock contains subrounded grains and aggregates of very fine grained plagioclase, possibly formed by devitrification, in an extremely fine grained groundmass of sericite/plagioclase. Pyrite and lesser sericite form replacement patches in cores of larger plagioclase aggregates. Veinlets of chlorite-(quartz) are discontinuous and have prominent chlorite-rich halos.

plagioclase grains, aggregates	35-40%
groundmass	
plagioclase/sericite	60-65
Ti-oxide	0.5
quartz	0.1
replacement patches	
pyrite	0.3
sericite	0.1
veinlets	
chlorite-(quartz)	0.1

Plagioclase forms subrounded grains averaging 0.05-0.1 mm in size. These are evenly distributed through the rock. Associated with them are aggregates of similar grains and patches up to 1.5 mm long of slightly finer grained aggregates of submosaic to irregular texture. These patches may have formed by devitrification of the groundmass. In some of the larger patches, pyrite and lesser sericite form very irregular replacement patches up to 0.7 mm in size of grains averaging 0.02-0.05 mm. Sericite commonly occurs along borders of pyrite patches as unoriented, extremely fine grained flakes.

The groundmass is dominated by extremely fine grained plagioclase, moderately replaced by sericite flakes. Quartz forms scattered grains up to 0.05 mm in size. Ti-oxide forms uniformly disseminated grains averaging 0.01-0.02 mm in size, and a few patches up to 0.05 mm across.

The rock is cut by a few discontinuous veinlets up to 0.05 mm wide of extremely fine to very fine grained chlorite with lesser patches of quartz. Bordering the veins in a zone up to 0.1 mm wide, the wallrock is moderately replaced by extremely fine grained chlorite.

APPENDIX D

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, THOMAS GARAGAN, hereby certify that:

1. I am a geologist with Aurum Geological Consultants Inc. of 604-675 West Hastings Street, Vancouver, B.C. and I supervised the work described in this report.

2. I obtained a Bachelor of Science degree with Honours in Geology from the University of Ottawa, Ontario, in 1980.

3. I am a fellow of the Geological Association of Canada (F3819) and a member of the Mineralogical Association of Canada and the Yukon Professional Geoscientists Society.

4. I have been engaged in mineral exploration and geological survey mapping on a full and part time basis for 10 years, of which 7 have been spent on mineral exploration programs in the Canadian Cordillera.

5. I have no interest in the claims or securities of Westview Resources Ltd. and Normine Resources Ltd. nor do I expect to obtain any.

6. I consent to the use of this report in a company report or statement, provided that no portion is used out of context in such a manner as to convey a meaning differing materially from that set out in the whole.

DATED at Calgary, Alta., this 15th day of February 1988.

Thomas Garagan, B.Sc., FGAC

APPENDIX E

ROCK SAMPLE DESCRIPTIONS

AURUM GEOLOGICAL CONSULTANTS INC.   ROCK SAMPLE LOCATION AND DESCRIPTION RECORD

Date: November, 1987   Project: DEV & GO Claims   Area: Stewart, B.C. - 93L/1E   Page 1 of 1

Sample No.	Location	Description	Attitude	Width	Analytical Results Au ppb	Ag ppm
5752	Allin Creek West Fork	Limonite stained boulder in creek; sericitized tuff with 40% pyrite cubes.		boulder 35 x 10cm	35	4.6
5753	Allin Creek West Fork	Limonite stained boulder in creek; drusy quartz with 25% fine grained pyrite cubes; several boulders all along creek.		boulder 30 x 30cm	1150	5.8
5754	Allin Creek West Fork	Several boulders; sericitized lithic lapilli tuff to block tuff with 50% angular clasts of dacite; locally brecciated and pyritized.		boulders 20 x 20cm	<5	0.4
5755	Allin Creek West Fork at L10+50W	Rusty grey weathering; strongly sericitized lithic lapilli tuff with 15% disseminated pyrite.		composite chip over 5 meters	5	0.4
5756	Allin Creek at approx. L12+50W	Sericitized lapilli tuff.			<5	0.8
5757	Old Kennecott trench approx. L23N/12W	Sericitized and clay altered pyritic lapilli tuff.			<5	0.6
5758	Drill sump outcrop L22N/9W	Silicified light grey tuff with 15% fine grained disseminated pyrite.			<5	0.4

APPENDIX F

STATEMENT OF COSTS

STATEMENT OF COSTS

1. Labour:

Project Supervision, Data Compilation; Normine Resources & Bernie Kahlert.

Bernie Kahlert, P. Eng.: 7 days @ $300/day	$ 2,100.00
Gary Nordin, B.Sc.: 14.75 days @ $300/day	4,425.00
Subtotal	$ 6,525.00

Project Supervision, Geological Mapping and Report Writing; Aurum Geological Consultants Inc.

Tom Garagan, B.Sc., FGAC: 28 days @ $225/day	$ 6,300.00
Pat Garagan, B.Sc.: 0.5 days @ $180/day	90.00
Harmen Keyser, B.Sc., FGAC: 0.5 days @ $225/day	112.50
Doug Rawsthorn, B.Sc., P.Geol.: 3 days @ $200/day	600.00
Subtotal	$ 7,102.50

Soil Sampling, Prospecting, Surveying, Expediting, etc; CJL Enterprises.

L.B. Warren (Supervisor): 16.5 days @ $200/day	$ 3,330.00	
E. Shaede (Supervisor): 11 days @ $200/day	2,200.00	
D. Anderson (Sampler,Prospector,Cook): 27 days @ $125/day	3,375.00	
A. Cardinal (Sampler,Prospector): 12 days @ $125/day	1,500.00	
D. Stroet (Geophysical Helper,Sampler, Core Splitter):14 days @ $125/day	1,750.00	
K. Stroet (Geophysical Helper,Sampler, Core Splitter):6 days @ $125/day	750.00	
C. Anderson (Sampler) 2 days @ $125/day	250.00	
Subtotal	$13,125.00	
Total Labour		$26,752.50

2. Drilling:

Tonto Drilling of Burnaby, B.C.

Footage: 2,141 ft NQ,NW @ $22.75 to $23.50/ft	$48,956.00	
Hourly Charges:Move,Set Casing,Water supply Survey	7,175.00	
Materials:	3,271.00	
Mob/Demob:	4,000.00	
Total Drilling Charges		$63,402.00

3. <u>Bulldozer:</u>

D-6 cat rental from Larry Palmer of Burns Lake,B.C.		
23 days @ $200/day		$ 4,600.00

4. <u>Tree Snipper & Removal & Truck for Cat Mob:</u> Road Building

Smokey Logging Ltd.:	$ 2,884.05	
Monolith Holding Ltd:	4,200.00	
Tweedsmuir Trucking:	2,392.30	
Total Road Work		$ 9,476.35

4. <u>Geochemistry:</u>

Min-En Laboratories Ltd.		
252 soil samples for 31 element ICP @ $6.50/sample	$ 1,638.00	
252 soil samples for Au wet @ $4.50/sample	1,134.00	
252 soil sample preps @ $0.90/sample	226.80	
190 rock & core samples for 31 element ICP @ $6.50/sample	1,235.00	
190 rock & core samples for Au wet @ $4.50/sample	855.00	
252 rock & core preps @ $0.90/sample	171.00	
Rush Charges:	1,152.75	
Shipping Charges:	309.42	
Subtotal	$ 6,721.97	
Chemex Labs Ltd.		
171 rock/core samples:Au FA/AA+32 element ICP @ $13.50/sample	$ 2,308.50	
171 rock/core sample preps @ $3.00/sample	513.00	
- 6% client discount	- 169.29	
Shipping Charges	228.72	
Subtotal	$ 2,880.93	
Total Geochemical Costs		$ 9,602.90

5. <u>Truck Rental & Fuel</u>

Aurum Geological Consultants Inc.:		
4x4 Nissan:22 days @ $50/day	$ 1,110.00	
Fuel:	256.44	
Subtotal	$ 1,356.44	
CJL Enterprises Ltd.		
33 vehicle days @ $65/day	$ 2,145.00	

Bernie Kahlert:	$ 238.09	
Total Truck Rental		$ 3,739.53

6. Geophysics: Geotronics - IP survey

2 man crew + instruments Sept 14-17, 1987		
6 days @ $1200/day	$ 7,200.00	
Mob/Demob fixed charge	2,000.00	
Total Geophysical Costs		$ 9,200.00

7. Field and Camp Expenses: food,flagging tape,maps,radios, survey equipment rental,etc.

Aurum Geological Consultants Inc:	$ 46.46	
CJL Enterprises Ltd.:	3,334.98	
Total Field Expense		$ 3,381.44

8. Travel Expenses:

Aurum Geological Consultants Inc:	$ 377.17	
Normine Resources Inc:	2,037.74	
Bernie Kahlert:	239.70	
Total Travel Expenses		$ 2,654.61

9. Shipping Expenses: Reports,Gear,Parts

Aurum Geological Consultants Inc:	$ 148.50	
Canadian Airlines:	110.65	
Direct Express:	52.30	
Regal Express:	11.90	
Total Shipping Expenses		$ 323.35

10. Report Preparation Costs: Photocopying,Reproductions,binding,drafting

Aurum Geological Consultants Inc:	$ 1,181.11	
Linda G. Connor Drafting:	488.75	
Vancal Reproductions:	138.36	
Western Reproductions:	405.34	
DES O'Shannessy:	267.50	
Bernie Kalhert:	6.50	
Total Report Preparation Costs		$ 2,487.56

11. Thin Section Study:

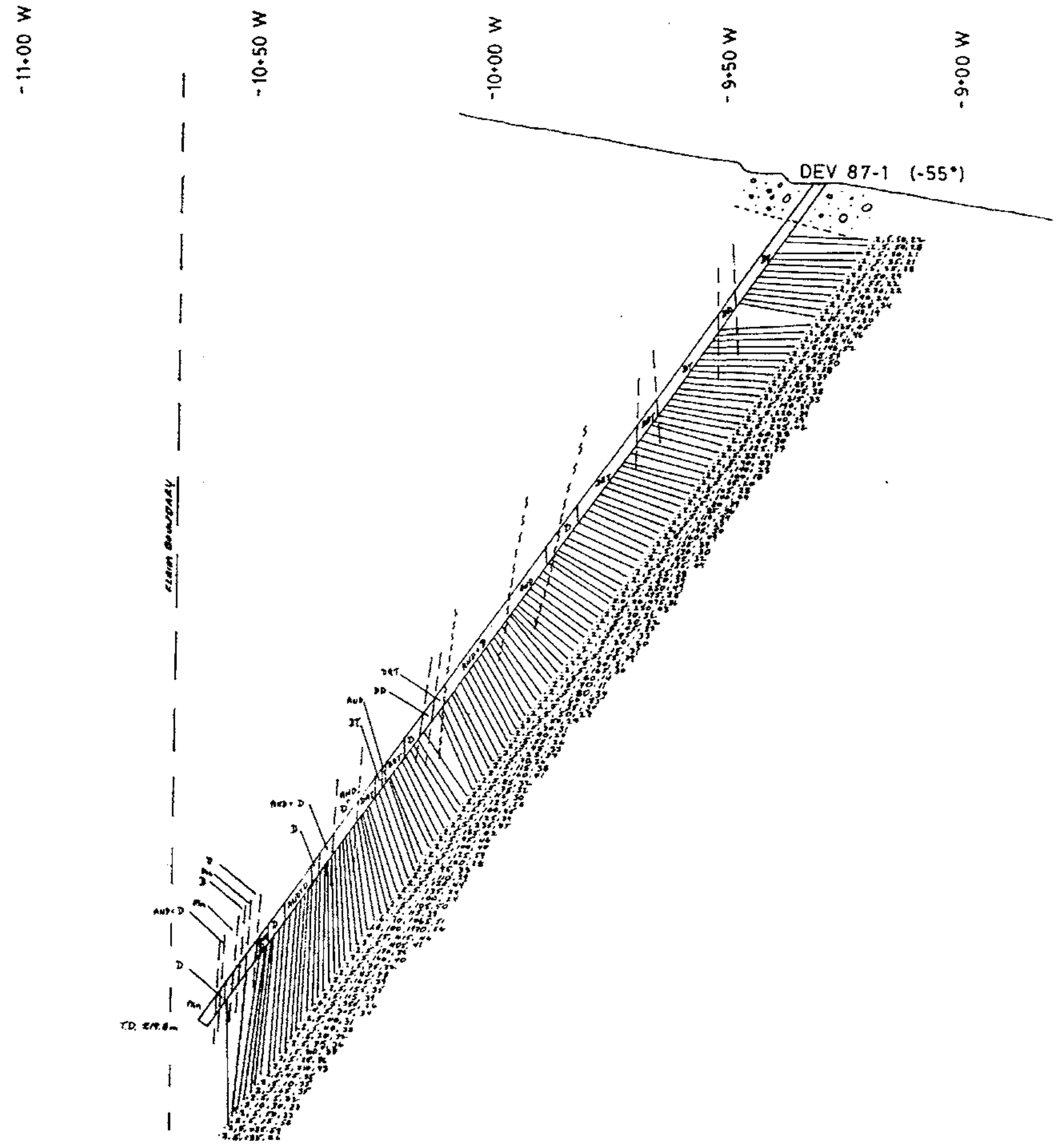
Vancouver Petrographics:		$ 2,332.00

12. Telephone:

Aurum Geological Consultants Inc:	$ 28.07	
B.C. Tel	455.38	
Total Telephone Costs		$ 483.45
Total Costs for Assessment Purposes:		**$138,435.69**
Total Costs Actually Filed		**$135,425.86**

GEOLOGICAL BRANCH ASSESSMENT REPORT

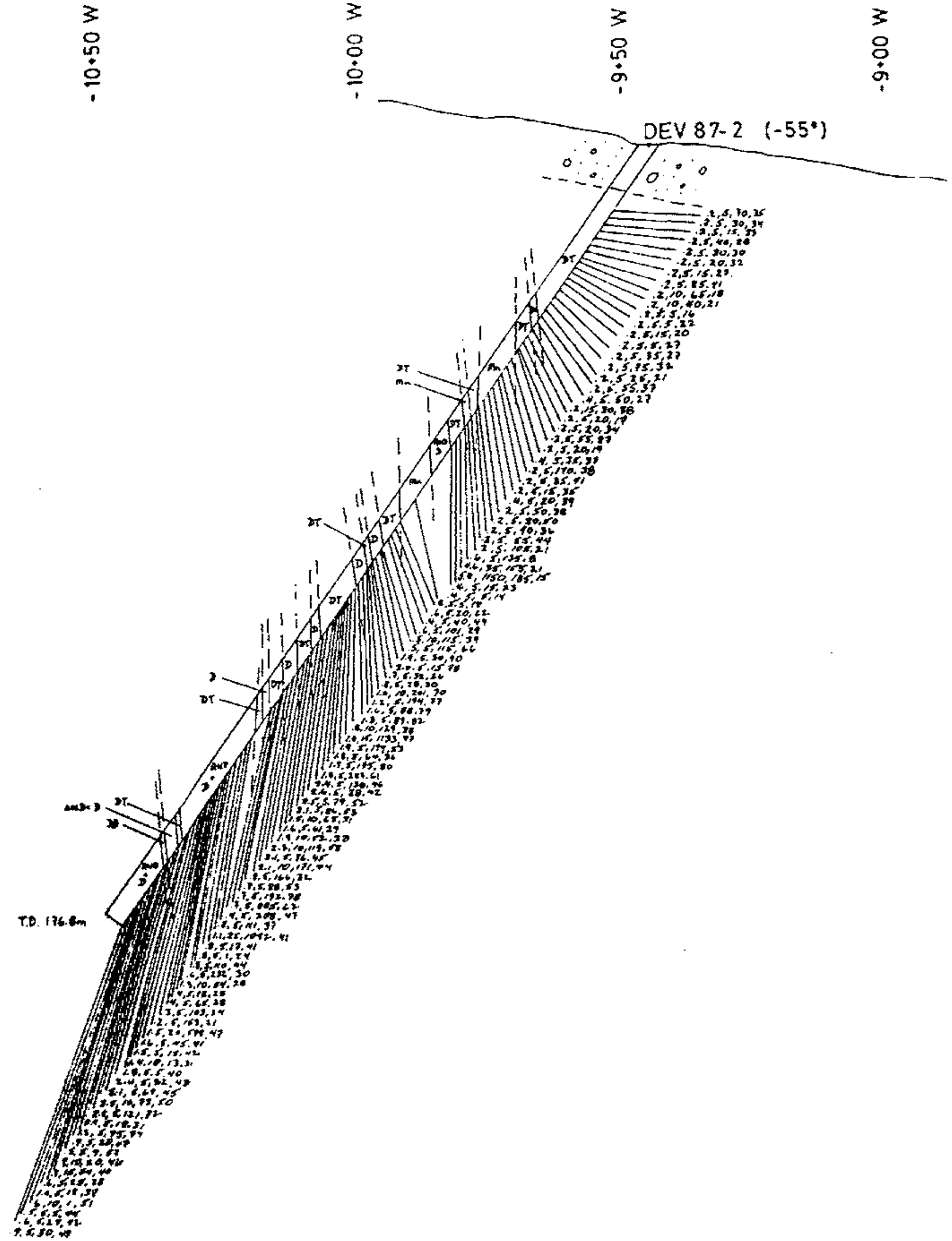
17,680



LEGEND

D	dacite flows + dykes
DT	dacite tuff
DAT	dacite ash tuff
DD	dacite dyke
AND	andesite flows + dykes
Mn	monzonite
– – –	geological contact
(dot symbol)	overburden
·2,5,75,23	assay ag,au,as,cu

Normine Resources Ltd.
DEV PROPERTY GO 2 CLAIM
DRILL SECTION DEV 87-1
L 20 N, 9+30 W AZM 270° SCALE 1:1000
Aurum Geological Cons. Inc. Fig 5



LEGEND

D	dacite flows+dykes
DT	dacite tuff
DAT	dacite ash tuff
DD	dacite dyke
AND	andesite flows+dykes
Mn	monzonite
— — -	geological contact
:o:°o:	overburden
·2,5,75,23	assay ag,au,as,cu

Normine Resources Ltd

DEV PROPERTY
GO 2 CLAIM

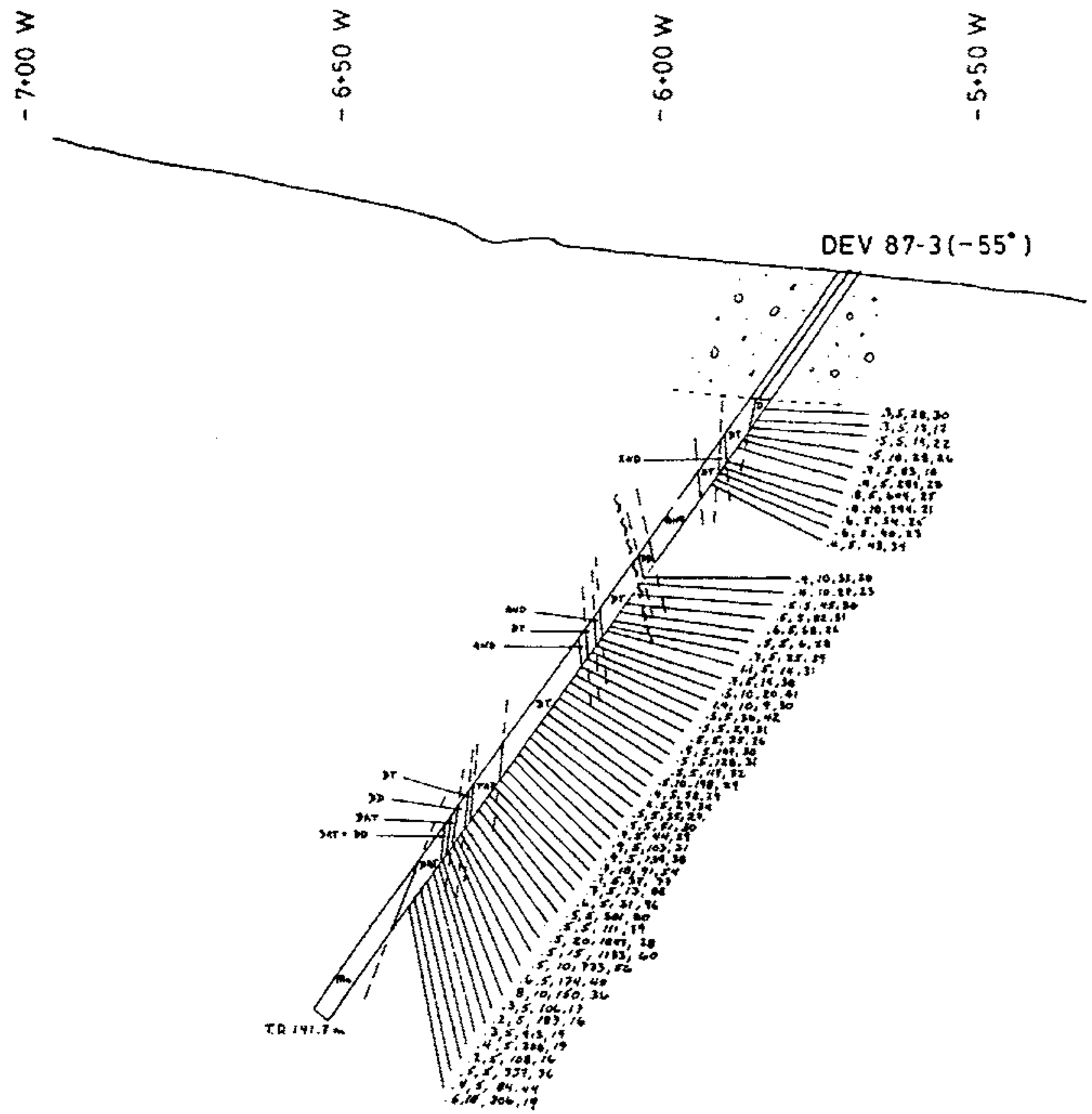
DRILL SECTION
DEV 87-2

L 17+50N, 9+45W
AZM 270°
SCALE 1:1000

Aurum Geological Cons. Inc. Fig 6

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,680



LEGEND

D	dacite flows + dykes
DT	dacite tuff
DAT	dacite ash tuff
DD	dacite dyke
AND	andesite flows + dykes
TAD	trachytic-andesite dacite
Mn	monzonite
~~	fault
— - -	geological contact
(overburden symbol)	overburden
.5,5,22,21	assay - ag, au, as, cu

Normine Resources Ltd.

DEV PROPERTY
GO 2 CLAIM

DRILL SECTION
DEV 87-3

L18 N, 5+70 W

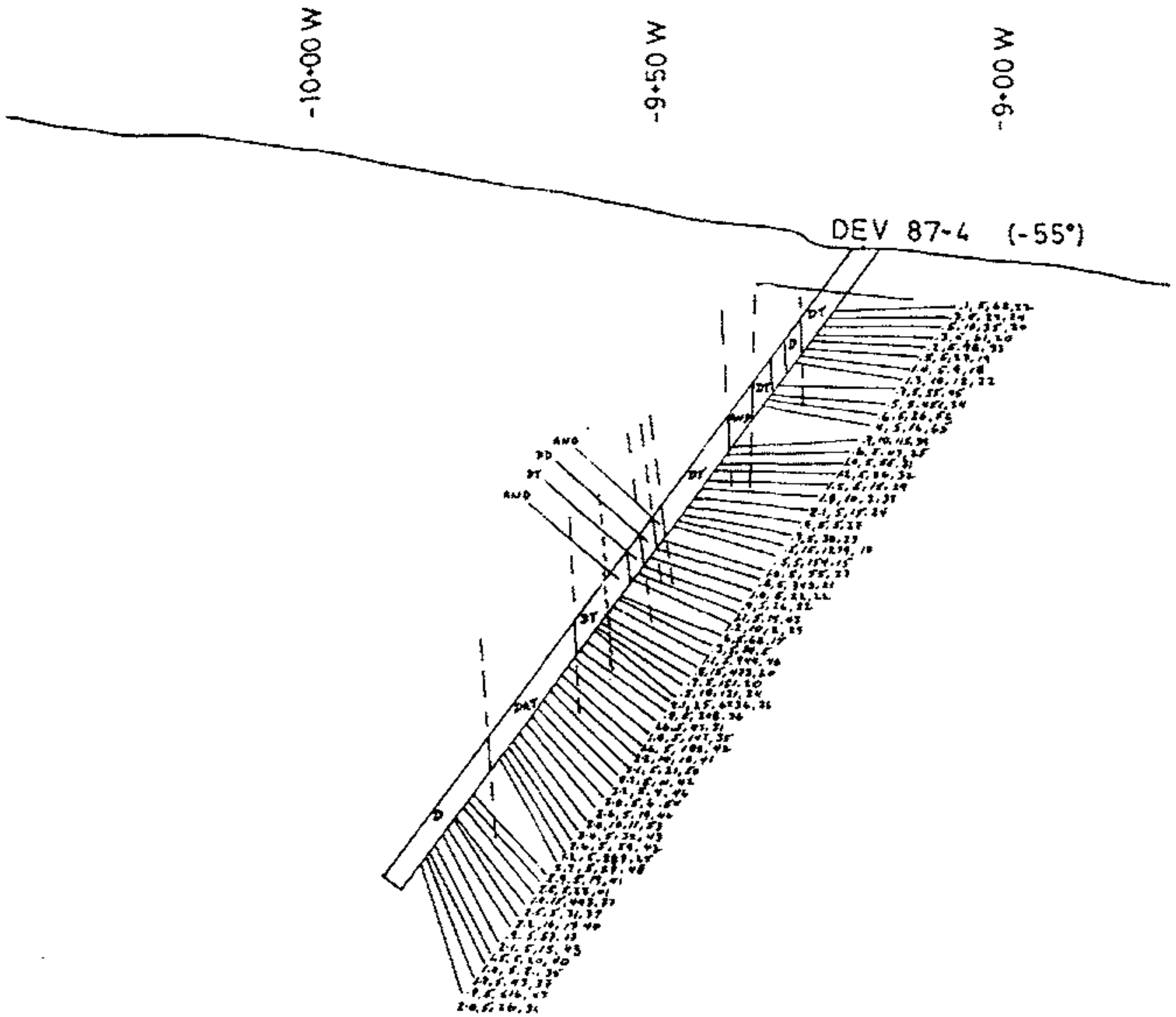
AZM 270°

SCALE 1:1000

Aurum Geological Cons. Inc. Fig. 7

GEOLOGICAL BRANCH
ASSESSMENT REPORT

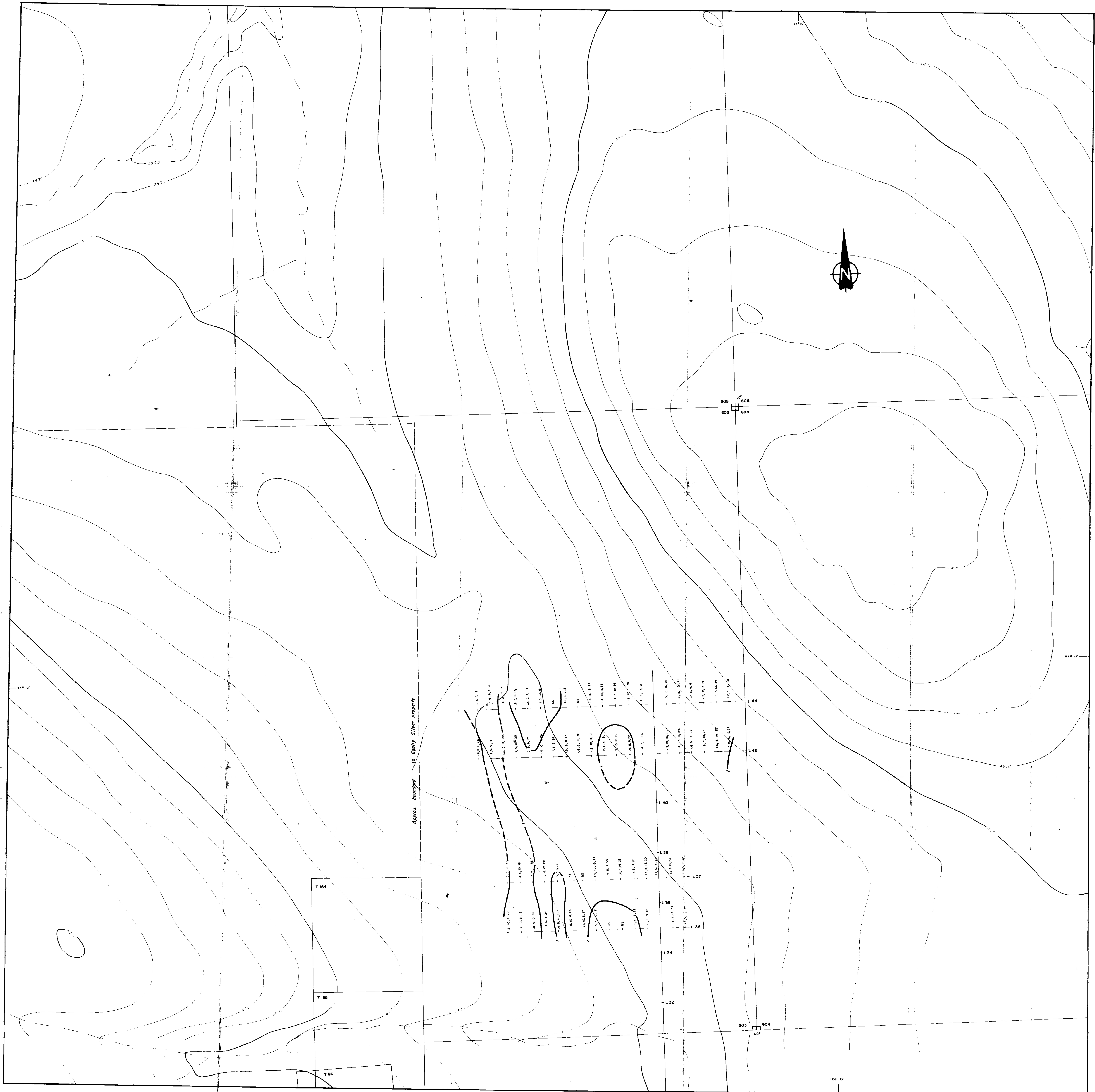
17,680



LEGEND

D	dacite flows + dykes
DT	dacite tuffs
DAT	dacite ash tuff
DD	dacite dyke
AND	andesite flows + dykes
	geological contact
	overburden
·2,5,75,23	assay ag,au,as,cu

Normine Resources Ltd.
DEV PROPERTY GO 2 CLAIM
DRILL SECTION DEV 87-4
L 22 N, 9+20 W AZM 270° SCALE 1:1000
Aurum Geological Cons. Inc. Fig. 8



SYMBOLS

Baseline

42 Grid (flagged)

LCP Legal corner post, approximate claim location

1.5, 5, 10, 34 Soil sample location. Ag, Au, As, Cu (All ppm except Au – ppb)

GEOCHEMICAL CONTOURS

1 ppm Ag

2 ppm Ag

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,680

0 100 200 300 400

NORMINE RESOURCES LTD.

DEV CLAIMS
NORTH HALF

17,680

DATE	JOB NO 8715 FIG NO 4
DRAWN BY TOM GARAGAN	
REVISED BY	SCALE 1: 5000

BEMA INDUSTRIES LTD.