Tam O'Shanter
1991 Drilling

825558

MINNOVA

MEMORANDUM

DATE: September 30, 1991

A
TO: D. Heberlein

COPIES A
COPIES TO: A. Davidson, I. Pirie, Ross Weeks

C.J. Clayton

DE
FROM:

SUJET
SUBJECT: Fall 1991 Drill Proposal - Tam O'Shanter/Wildrose Properties - Update

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INTRODUCTION

A 19 hole, 2500 metre drill program is proposed to test a number of targets on the Tam O'Shanter and Wildrose properties. Drilling is planned to commence on the property on October 1, 1991, to test for Cu-Au porphyry, disseminated, and replacement mineralization.

SUMMARY

A large diorite porphyry system is present on the Tam O'Shanter area in the north-east corner of the Rainbow-Tam O'Shanter property. This system has been known for some time and was explored fairly extensively during the seventies and eighties as a Cu-Mo system with little or no analysis for Au. As well a number of high grade veins occur within the porphyry and these have been worked in the past. Work in 1991 began with extension of the old BP grid to the north-east and south-east to cover a portion of this system with mapping, rock sampling and soil sampling, and limited geophysical (I.P.) work. As mapping and sampling proceeded both rock and soil analyses returned strongly encouraging Au and Cu results, not only from the veins but from the diorite itself. These results as well as reconnaissance work prompted the extension of the grid further to the east to the property claim boundary. As mapping continued a roughly concentric, mineralization and alteration pattern became evident. When placed in a more regional context, further patterns typical of porphyry systems emerged. The geometric relationship of the Motherlode, Greyhound, and Buckhorn skarn deposits to the Tam porphyry system is such that these form a roughly arcuate trend, occurring as proximal deposits to the Tam

system. To the south-east, alteration and mineralization, and I.P. anomalies trend onto the Wildrose property. Still further south is the Wildrose vein system, consisting of a number of auriferous massive pyrite, arsenopyrite, magnetite, and chalcopyrite veins. These are considered distal deposits related to the Tam porphyry system, and occur topographically and stratigraphically higher than the porphyry.

The acquisition of the Wildrose property postponed drilling on the Tam O'Shanter property to allow grid line extensions, grid mapping and rock and soil sampling, and I.P. geophysics and magnetometery to be completed over the new area and over areas on Tam not covered by the original survey.

The Tam porphyry system consists of diorite porphyry of various phases mapped over an area approximately 1.4 km lengthwise in a north-south orientation by 1.0 km in width east to west. The system is bordered to the west by a curvilinear north-south trending fault placing Tertiary as well as Permian sediments against the Jurassic porphyry system. The fault is extensional and related to Toroda graben formation, and varies in dip from vertical to 30° to the west. A related east-west structure forms the southern border of the Tam diorite. This fault dips roughly 20° to the south, with bedded cherty volcaniclastics and minor andesite, conglomerate and sandstone, and coarse hornblende diorite bodies in the hanging wall.

The diorite itself was subdivided into a leucodioritic phase (quartz rich, leucocratic), a dioritic phase, and a chlorite-magnetite alteration phase. D.R.H. has proposed the chlorite-magnetite phase may be a retrograde alteration of biotite alteration substituting for a central potassic zone of alteration which is not prevalent in the system. This hypothesis works well, as the system seems to be zoned concentrically around the chlorite magnetite zone with diorite proximal to the zone and extending outward into leucodiorite. Another possibility for the lack of an

extensive potassic alteration zone with K-feldspar is this may be a dissected system, oriented on its side as a result of rotational block faulting during Tertiary graben formation. The chlorite-magnetite zone would then become an annular alteration zone around the central portion of the system.

Alteration away from this central zones grades through an intermediate argillic zone which includes some sericite, chlorite and calcite, as well as localised zones of hematized magnetite, specular hematite veins, and gypsum. An annular zone of pyritic and siliceous alteration of diorite may indicate a weak zone of phyllic alteration grading into a more intensely altered outer zone of massive silicification occurring at both the northern and southern extent of the diorite. Within the silicification fracturing and stockwork quartz veining, localized hydrothermal breccias, and localized chalcedonic quartz are observed. These areas may present prospective areas for exploration.

Proposed Drilling:

The 1991 drill program on the Tam O'Shanter property is directed at testing mineralization related to the Tam porphyry system. Drill targets on the property have been defined by geology, anomalous rock and soil geochemistry, I.P. geophysics, and magnetometery. A total of 23 holes are planned. The attached schematic cross section and metallogenic model shows in a generalized way the two areas of planned drilling. Topographic sections showing chargeability, anomalous soil geochemistry, magnetometery, and drill hole locations and orientations are attached.

AREA 1

Area 1 encompasses holes P-1 through P-8. Holes P-1 through P-2 will test andesitic volcanics to the north of the Tam diorite for disseminated and replacement mineralization within the volcanics. Holes P-3 through P-6 will test porphyry mineralization within diorite underlying andesitic volcanics and siliceous cappings. Holes P-7 and P-8 will test diorite for porphyry mineralization

directly in areas of high chargeabilities (to +30mV/V) increasing with depth. Surface samples taken in the area of both diorite and silica altered andesite have returned anomalous values of up to 7103 ppm Cu and 3780 ppb Au.

AREA 2

Area 2 encompasses holes P-9 through P-23. Holes P-9 through P-11 will test diorite and chlorite-magnetite alteration near what appears to be the central portion of the porphyry system. Anomalous rocks nearby returned values of 2646 ppm Cu and 328 ppb Au from diorite, and 12962 ppm Cu and 762 ppb Au from a shear within diorite. Holes P-12 through P-14 will test porphyry mineralization underneath areas of siliceous cappings near cross cutting structures. Surface samples in the area have returned results of 4131 ppm Cu and 165 ppb Au, and 1449 ppm Cu and 180 ppb Au. Hole P-15 will test the contact between diorite and Permian sediments located in the southern portion of the property. Cross cutting structures and hydrothermal breccias are located in this area. Hole P-16 will directly test underneath a siliceous capping showing a strong chargeability (+25 mV/V) at depth accompanied by a mag high and anomalous Cu soil geochemistry. Hydrothermal breccias are seen in the area. Holes P-17 and P-18 will test an area of strong stockwork silicification accompanied by a +30 mV/V chargeability anomaly at depth, strong mag high, and broad anomalous Cu-Au soil geochemistry. The chargeability anomaly may indicate the porphyry system underlying the cap. Hole P-19 will test andesitic volcanics for possible stockwork and disseminated mineralization near cross cutting structures, stockwork silicification, and chargeabilities greater than 30 mV/V. Holes P-20 and P-21 will test for sediment hosted disseminated and replacement mineralization in areas accompanied by chargeabilities greater than +30 mV/V, anomalous soil and rock geochemistry, and weak to moderate mag highs. Holes P-22 and P-23 will test diorite where it intrudes Permian sediments. The areas show high chargeabilities (+30 mV/V), anomalous Cu-Au soil geochemistry, and weak to moderate mag highs.

TABLE 1

RAINBOW-TAM O'SHANTER/WILDROSE PROPERTIES, 1991

PROPOSED DRILL HOLE LOCATIONS

HOLE	LOCATION	COLLAR			DEPTH	TARGET
		AZ	DIP	ELEV		
P-1 91-2	2800N 825E	270	-45	1020 metres	130 metres	TEST ANDESITIC VOLCANICS TO NORTH OF DIORITE; Cu/Au SOIL, CHARGEABILITY, MAG AND ROCK SAMPLE ANOMALIES.
P-2 91-1	2800N 975E	110	-60	975 metres	120 metres	
P-3 91-4	2600N 1012E	110	-45	1015 metres	160 metres	TEST ANDESITIC VOLCANICS, DIORITE; CHARGEABILITY, MAG,SOIL, AND SURFACE ROCK SAMPLE ANOMALIES IN AREA.
P-4 91-3	2600N 1275E	270	-60	965 metres	120 metres	
P-5 91-8	2400N 925E	090	-60	1065 metres	120 metres	TEST SILCIFICATION, DIORITE, AND ANDESITIC VOLCANICS; CHARGEABILITY, MAG, SOIL, AND SURFACE ROCK SAMPLE ANOMALIES.
P-6 91-5	2400N 1200E	090	-65	1010 metres	100 metres	
P-7 91-6	2200N 1300E	090	-45	- metres	150 metres	
P-8 91-7	2000N 1050E	090	-60	1050 metres	120 metres	TEST DIORITE IN AREA OF HIGH CHARGEABILITY, MAG, SOIL AND ROCK ANOMALIES.
P-9 91-9	1400N 1025E	090	-45	1100 metres	150 metres	TEST CHLORITE-MAGNETITE ALTERATION ZONE
P-10 91-11	1200N 820E	115	-45	1070 metres	150 metres	TEST CHL-MAG ALTERATION, ANDESITIC VOLCANICS, AND SILICIFICATION WITH CO-INCIDENT CHARGEABILITY, MAG, SOIL, AND ROCK SAMPLE ANOMALIES.
P-11 91-10	1200N 1150E	090	-50	1050 metres	130 metres	
P-12 91-12	1000N 960E	090	-70	1230 metres	100 metres	
P-13 91-13	1000N 1125E	270	-45	- metres	100 metres	

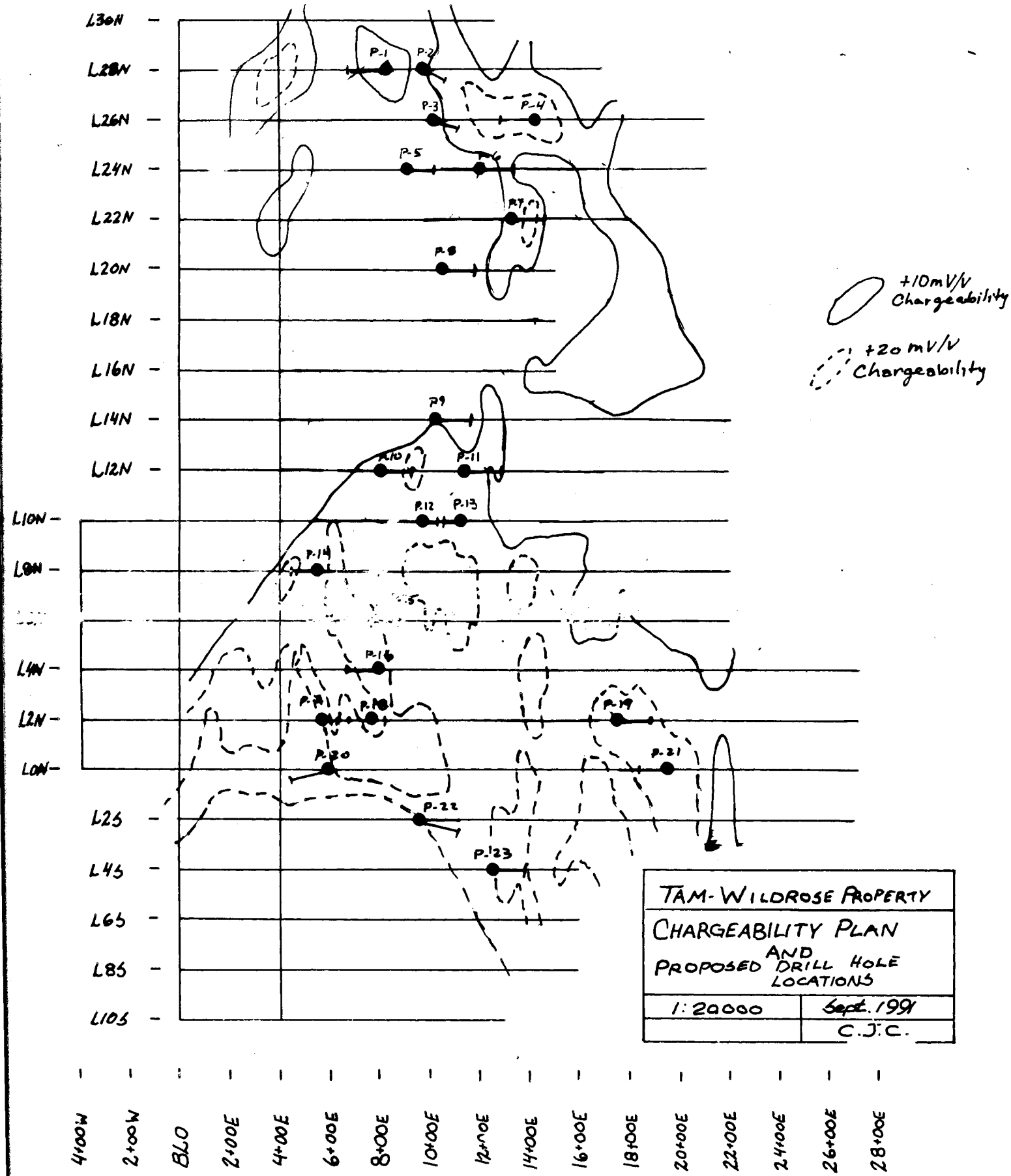
TABLE 1 (CONTINUED)

RAINBOW-TAM O'SHANTER/WILDROSE PROPERTIES, 1991

PROPOSED DRILL HOLE LOCATIONS

HOLE	LOCATION	COLLAR			DEPTH	TARGET
		AZ	DIP	ELEV		
P-14 *C	800N 550E	270	-45	- metres	150 metres	TEST DIORITE, AND SILCIFICATION NEAR SOUTHERN CONTACT WITH PERMIAN BEDDED CHERTS AND ANDESITES; H'THERMAL BX, CHARGEABILITY, MAG, SOIL AND ROCK ANOMALIES.
P-15 91-18	600N 875E	270	-45	1340 metres	200 metres	
P-16 91-17	400N 800E	270	-45	1370 metres	110 metres	
P-17 91-19	200N 575E	090	-70	- metres	110 metres	TEST MAG ANOMALY AND CHARGEABILITY ANOMALY AT DEPTH BELOW SILICEOUS CAP; ANOMALOUS SOIL AND ROCK GEOCHEMISTRY.
P-18 91-16	200N 775E	270	-45	1360 metres	150 metres	
P-19 91-14	200N 1750E	070	-55	1100 metres	130 metres	TEST PERMIAN SEDIMENTS AND ANDESITIC VOLCANICS FOR STKWRK AND/OR SEDIMENT HOSTED DISSEMINATED MINERALIZATION ASSOCIATED WITH HIGH CHARGEABILITIES, WEAK MAG AND WEAK TO STRONG SOIL GEOCHEM AND ANOMALOUS ROCK GEOCHEM.
P-20 *C	000N 600E	245	-45	- metres	120 metres	
P-21 *C	000N 1950E	270	-45	- metres	130 metres	
P-22 *C	200S 950E	120	-55	- metres	130 metres	TEST DIORITE INTRUDING PERMIAN SEDIMENTS WITH CHARGEABILITY AND MAG HIGHS, AND WEAK TO STRONG Au SOIL GEOCHEMISTRY.
P-23 91-15	400S 1255E	090	-50	1240 metres	150 metres	

*C - CANCELLED HOLE



TAM-WILDROSE PROPERTY	
CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS	
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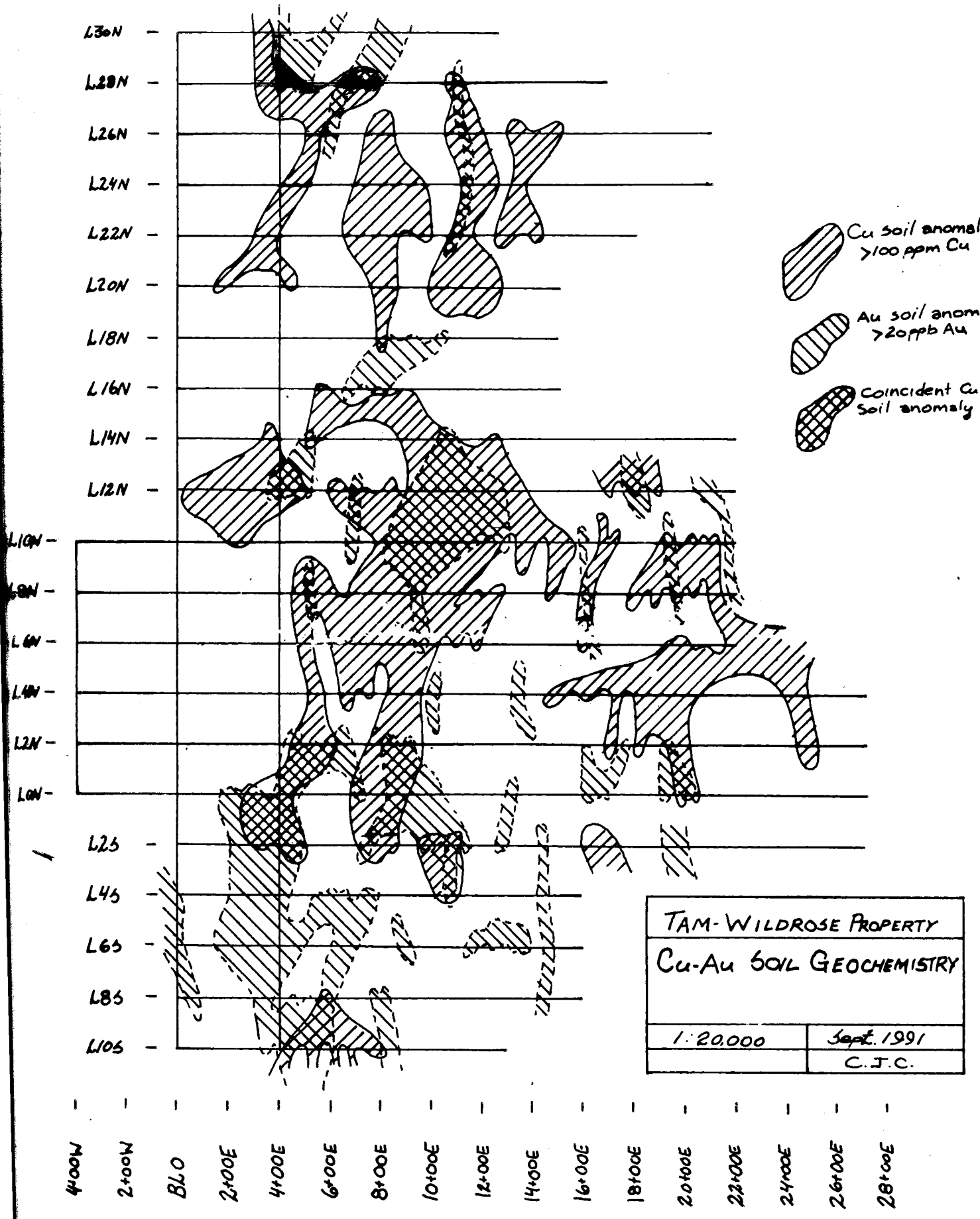
	C.J.C.



TAM-WILDROSE PROPERTY

Cu-Au SOIL GEOCHEMISTRY

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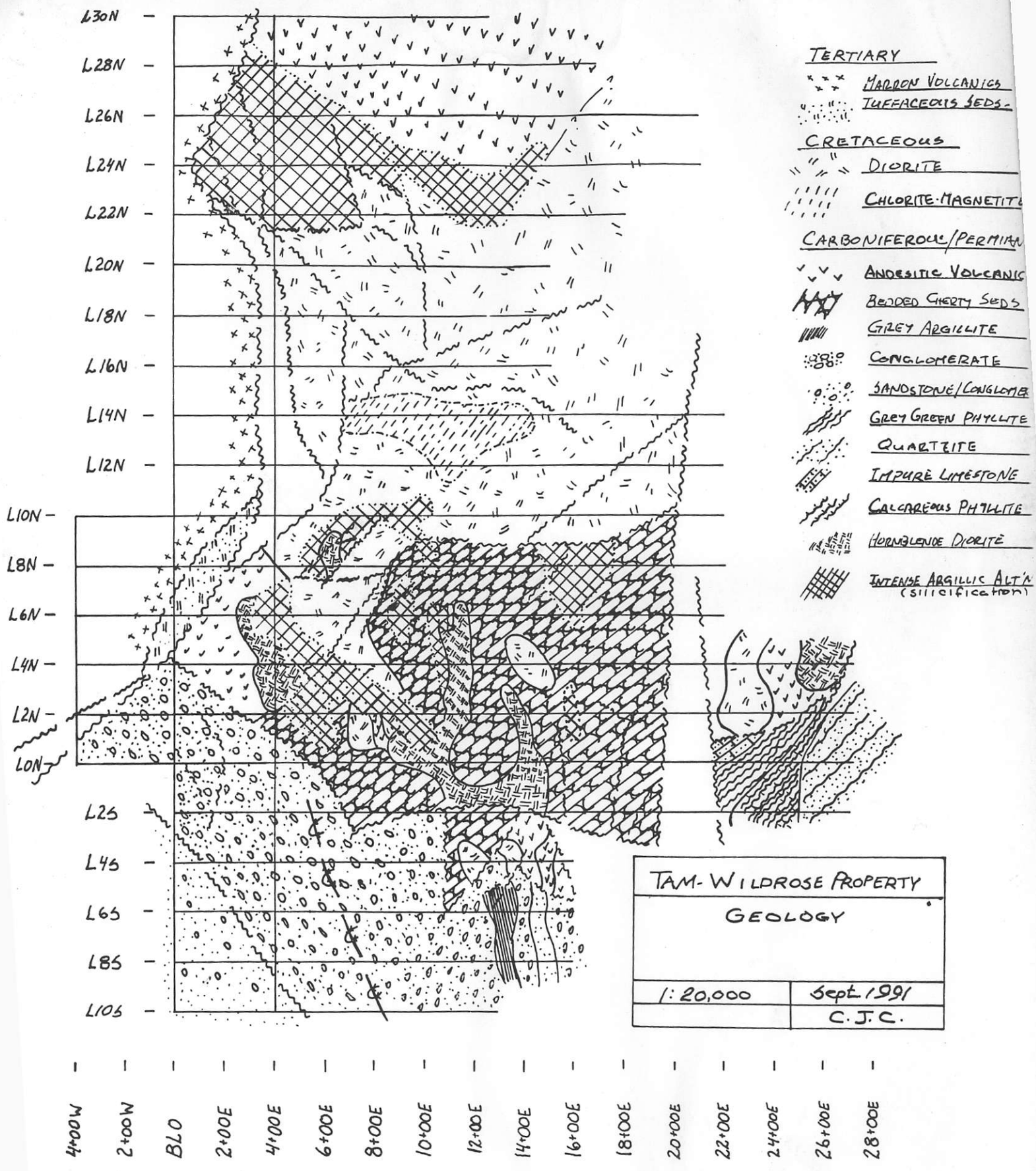
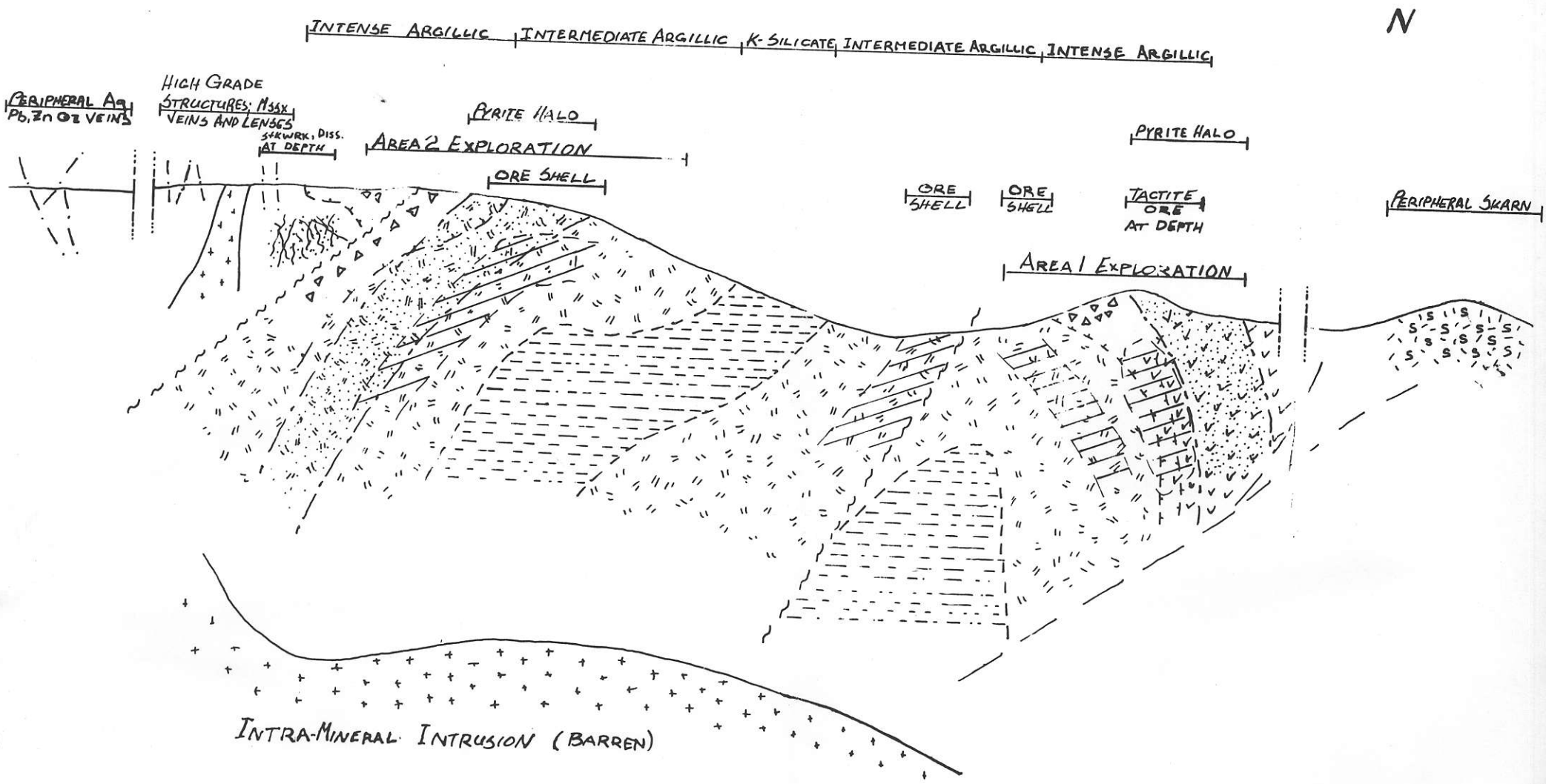
	C.J.C.


L30N
L28N
L26N
L24N
L22N
L20N
L18N
L16N
L14N
L12N
L10N
L8N
L6N
L4N
L2N
L0N
L2S
L4S
L6S
L8S
L10S
4+00W
2+00W
BL 0
2+00E
4+00E
6+00E
8+00E
10+00E
12+00E
14+00E
16+00E
18+00E
20+00E
22+00E
24+00E
26+00E
28+00E
TERTIARY
MAROON VOLCANICS
TUFFACEOUS SEDS.
CRETACEOUS
DIORITE
CHLORITE-MAGNETITE
CARBONIFEROUS/PERMIAN
ANDESITIC VOLCANICS
BEDDED CHERTY SEDS
GREY ARGILLITE
CONGLOMERATE
SANDSTONE/CONGLOMER
GREY GREEN PHYLLITE
QUARTZITE
IMPURE LIMESTONE
CALCAREOUS PHYLLITE
HORNBLENDE DIORITE
INTENSE ARGILLIC ALT'N (SILICIFICATION)
TAM-WILDROSE PROPERTY
GEOLOGY
1:20,000
Sept. 1991
C.J.C.



CENTRAL K-SILICATE ZONE
CHLORITE-MAGNETITE ALTERATION

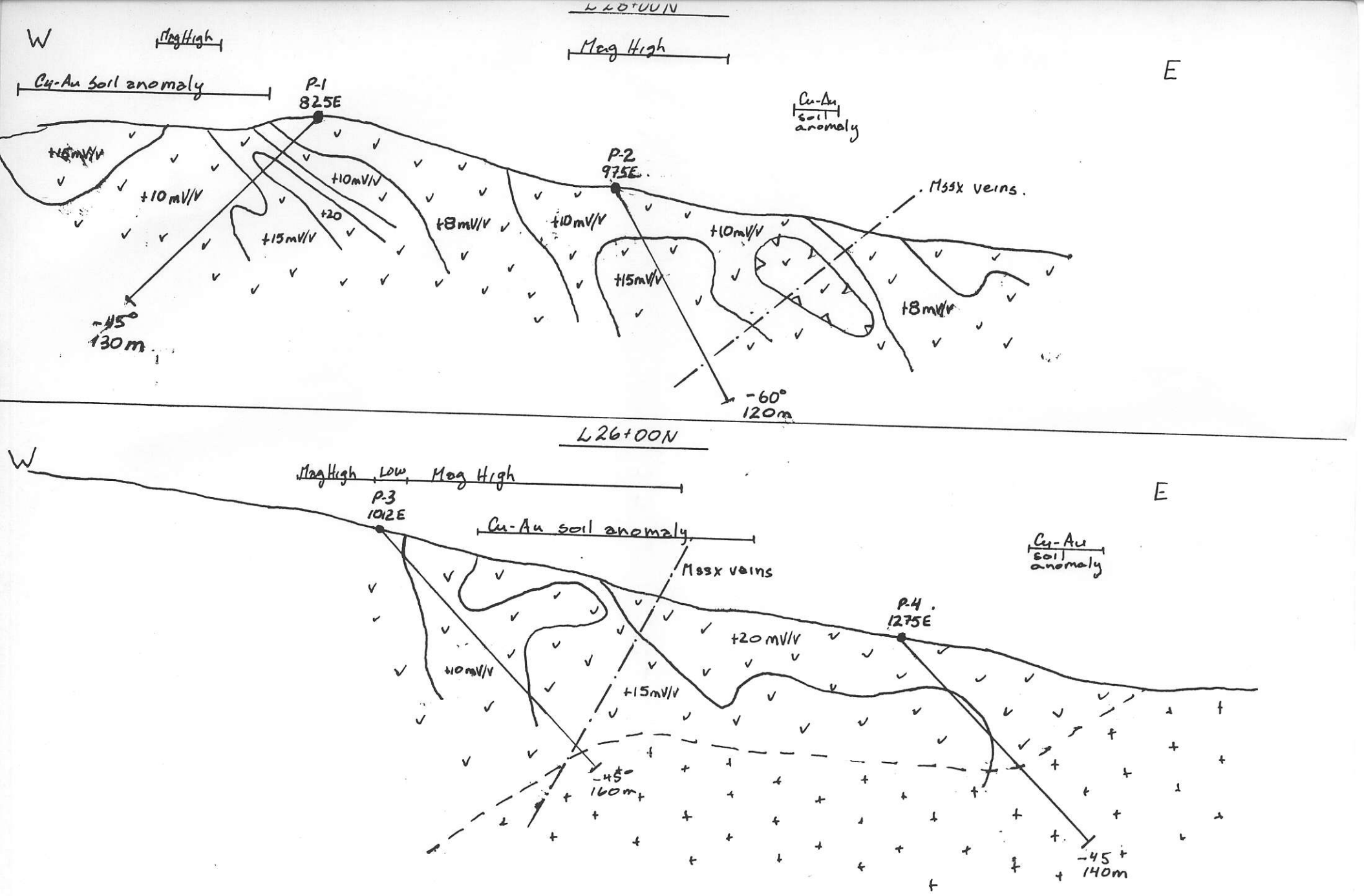
INTENSE SILICA FLOODING AND REPLACEMENT; HYDROTHERMAL BRECCIATION

PYRITIC HALO

DIORITE-QUARTZ DIORITE PORPHYRY
INTERMEDIATE ARGILLIC ALTERATION
INCLUDES SPECULARITE + CHLORITE VEINS, GYPSUM, HEMATIZED FM.

POTENTIAL ORE ZONES.

TAM-WILDROSE PROPERTY	
SCHEMATIC SECTION METALLOGENIC MODEL FACING WEST	
NOT TO SCALE	Sept. 1991
	C.J.C.

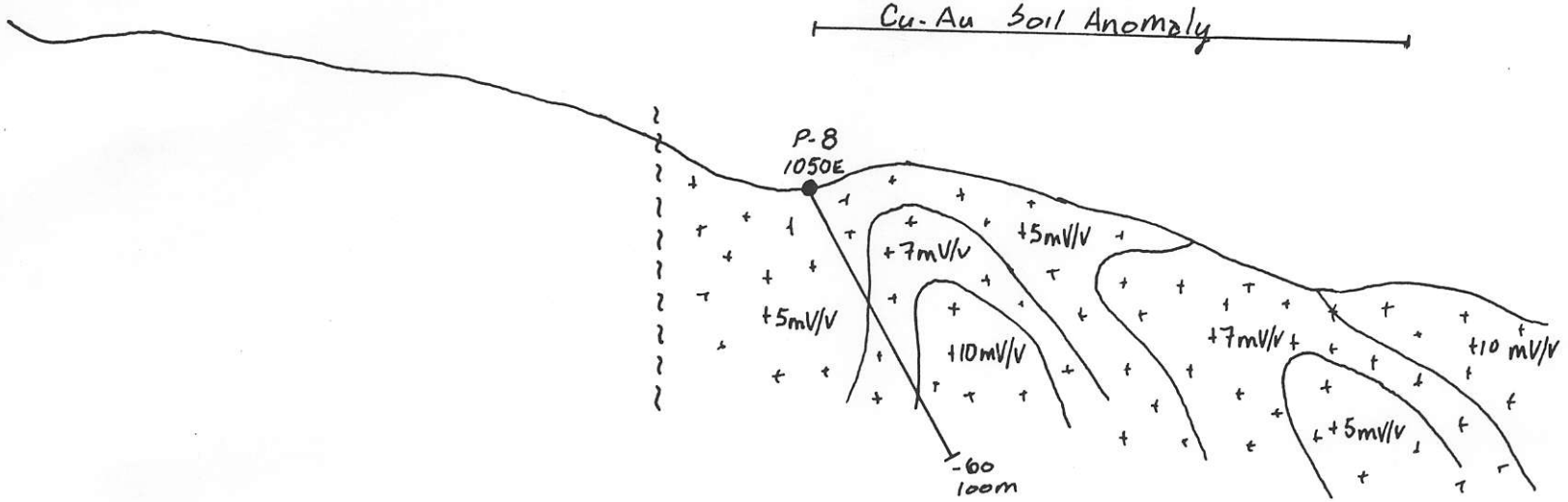

L26+00N
W
Mag High
Mag High
E
Cu-Au Soil anomaly
P-1
825E
Cu-Au
soil
anomaly
+15mV/V
+10mV/V
+10mV/V
+20
+15mV/V
+8mV/V
P-2
975E
+10mV/V
Mssx veins.
+15mV/V
+10mV/V
+8mV/V
-45°
130m
-60°
120m
L26+00N
W
Mag High
Low
Mag High
E
P-3
1012E
Cu-Au soil anomaly
Mssx veins
Cu-Au
soil
anomaly
P-4
1275E
+20 mV/V
+10mV/V
+15mV/V
-45°
160m
-45
140m

W

E

Mag High

Cu-Au Soil Anomaly



W

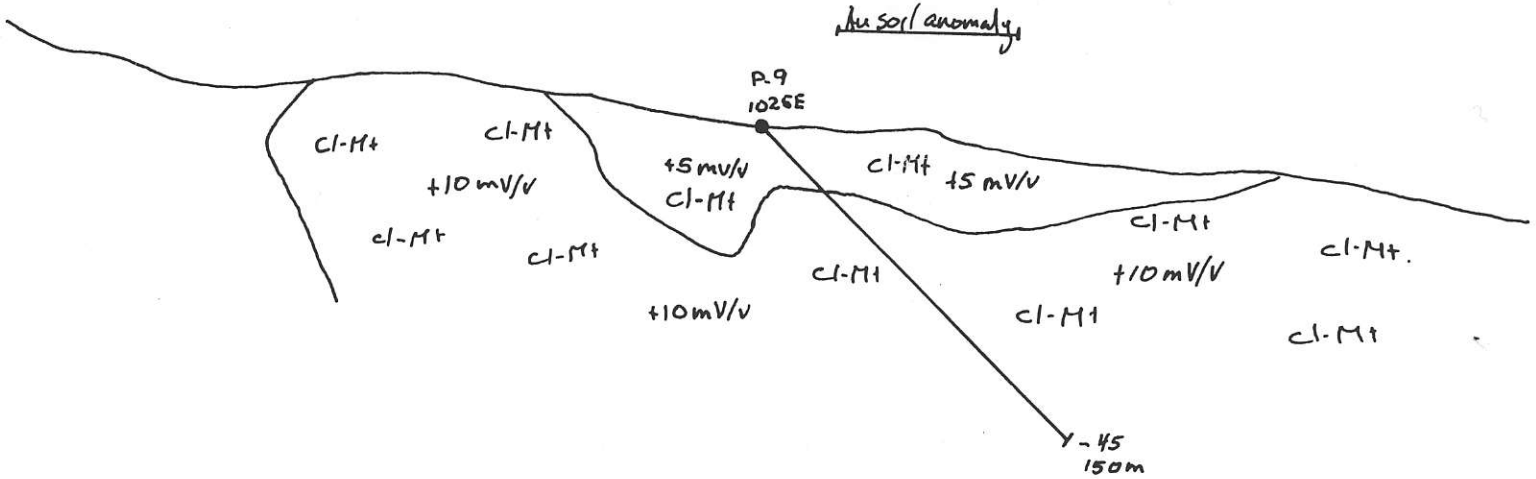
L 14+00N

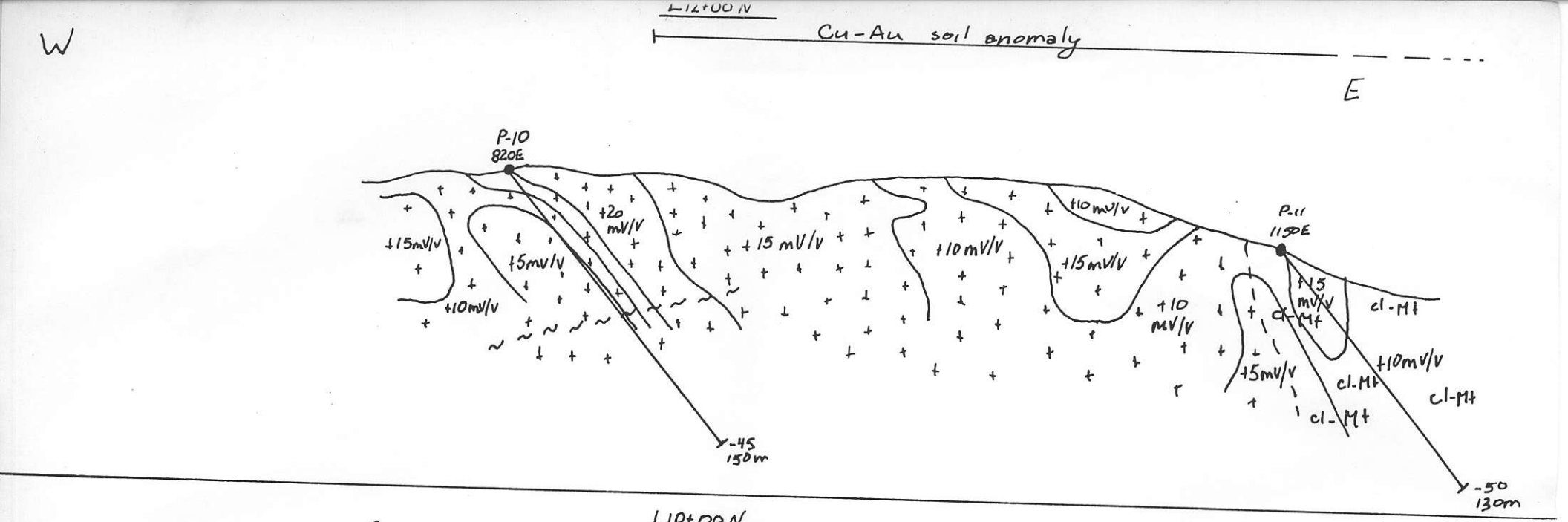
E

Cu soil anomaly

Mag High.

Au soil anomaly




L12+00N
Cu-Au soil anomaly
W
E
P-10
820E
+15mV/V
+10mV/V
+5mV/V
+20
mV/V
+15 mV/V
+10mV/V
+10mV/V
+15mV/V
P-11
1150E
+10
mV/V
+15
mV/V
cl-Mt
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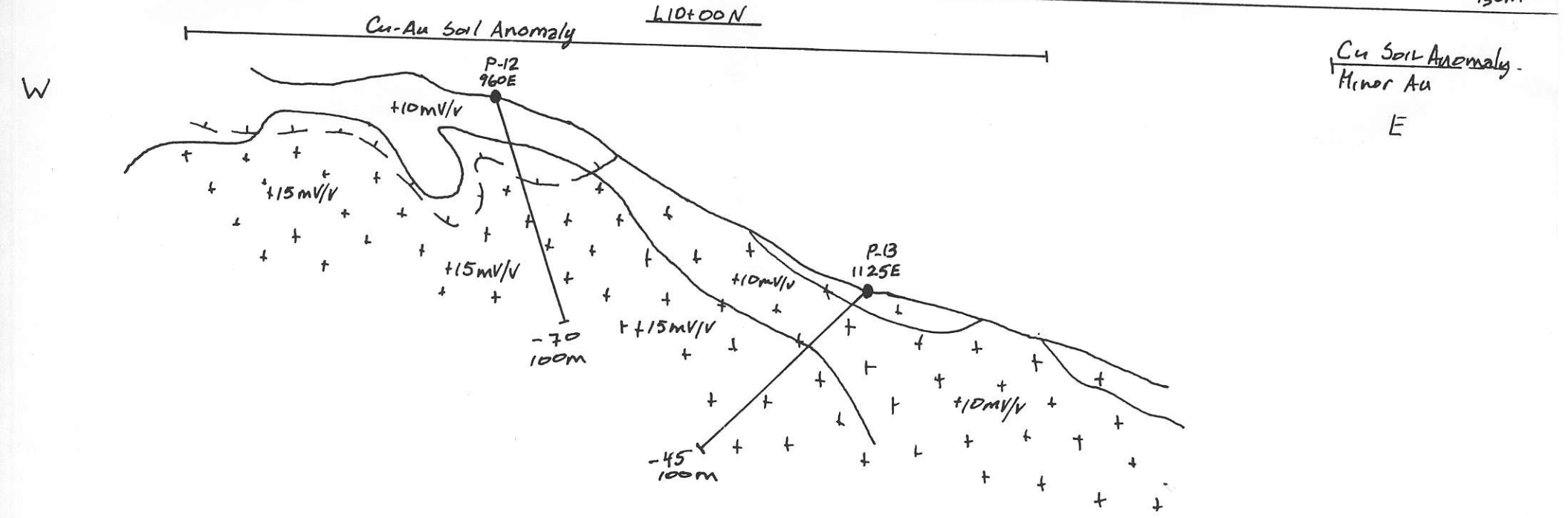
+5mV/V
cl-Mt
cl-Mt
cl-Mt
-45
150m
-50
130m


L10+00N
Cu-Au Soil Anomaly
W
E
P-12
960E
+10mV/V
+15mV/V
+15mV/V
-70
100m
+15mV/V
P-13
1125E
+10mV/V
+10mV/V
-45
100m
Cu Soil Anomaly.
Minor Au

W

Cu soil anomaly

E

Au soil anomaly

P-14
550E

+10mV/V
+15 mV/V
+10mV/V
+15mV/V
-45
150m
+15mV/V
+20mV/V
+20 mV/V
+10 mV/V
+15mV/V
+15 mV/V
+20mV/V

L6+00N

W

Mag High

Mag Low

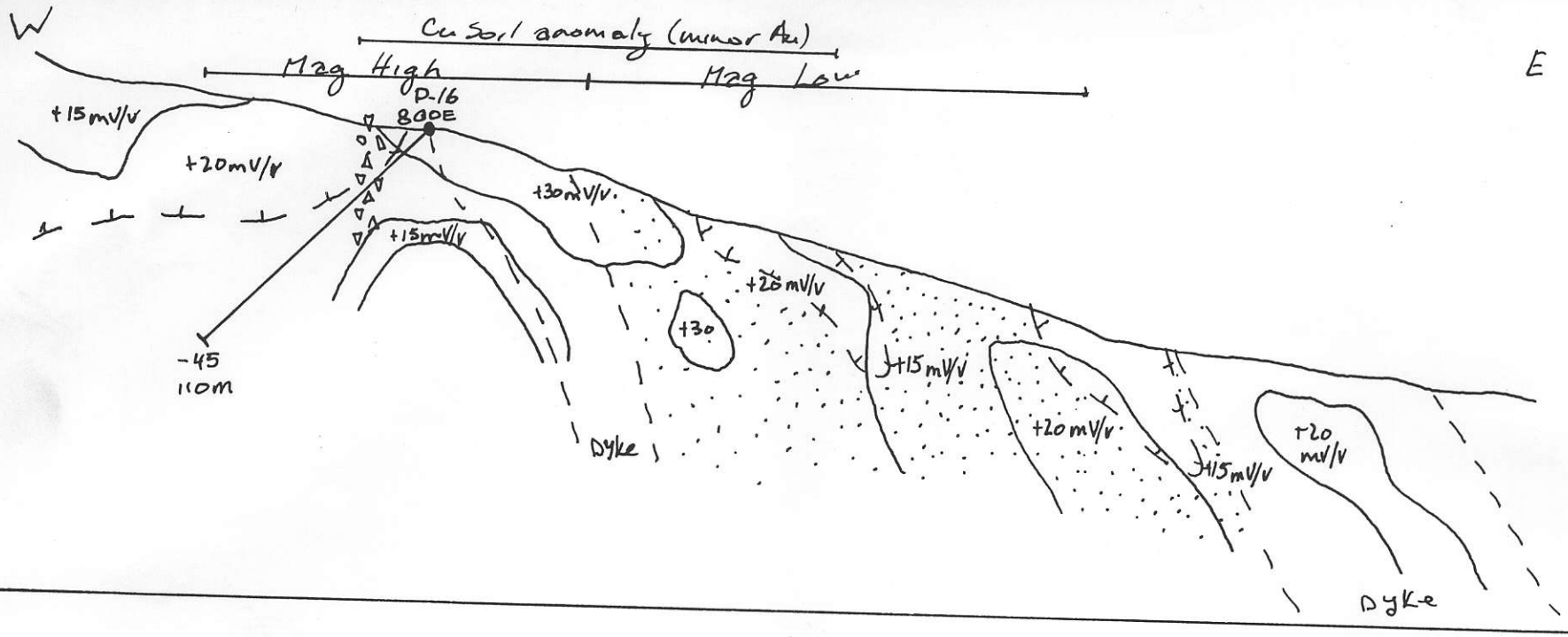
E

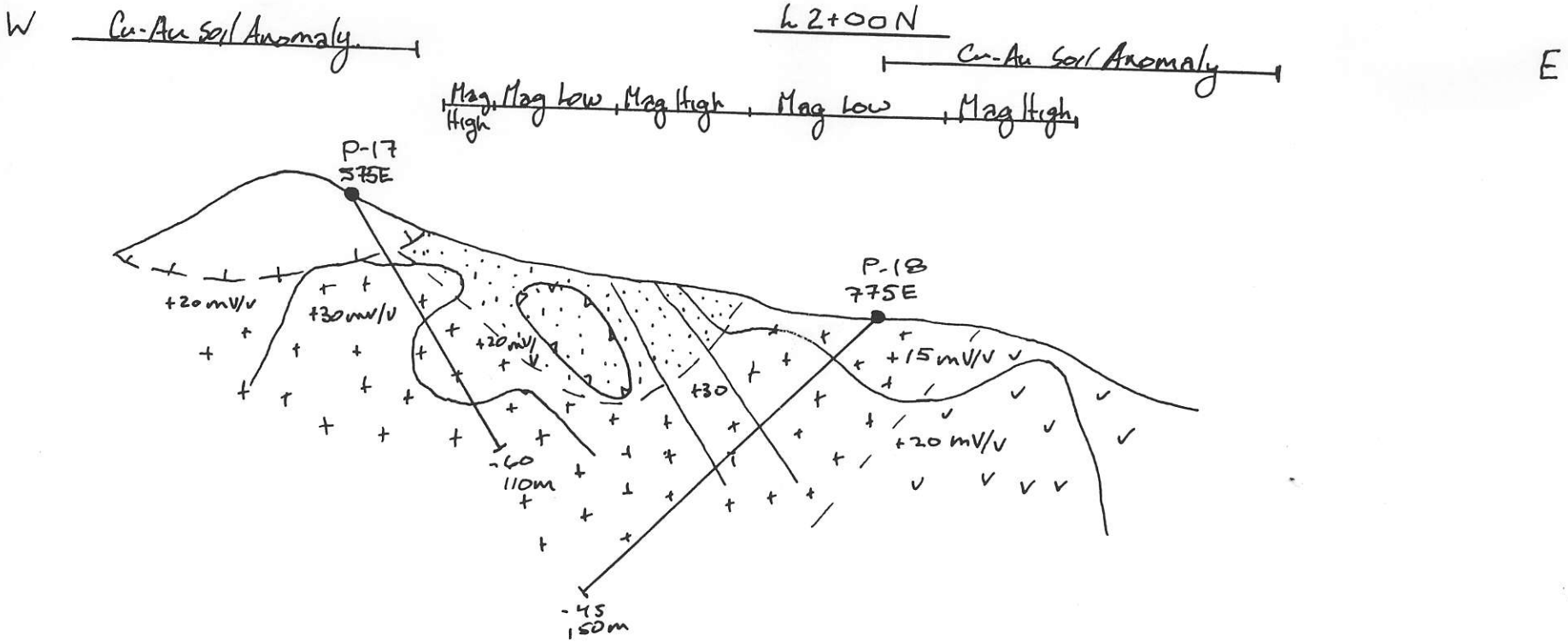
Cu-Soil Geochemistry (Local Au anomalies)

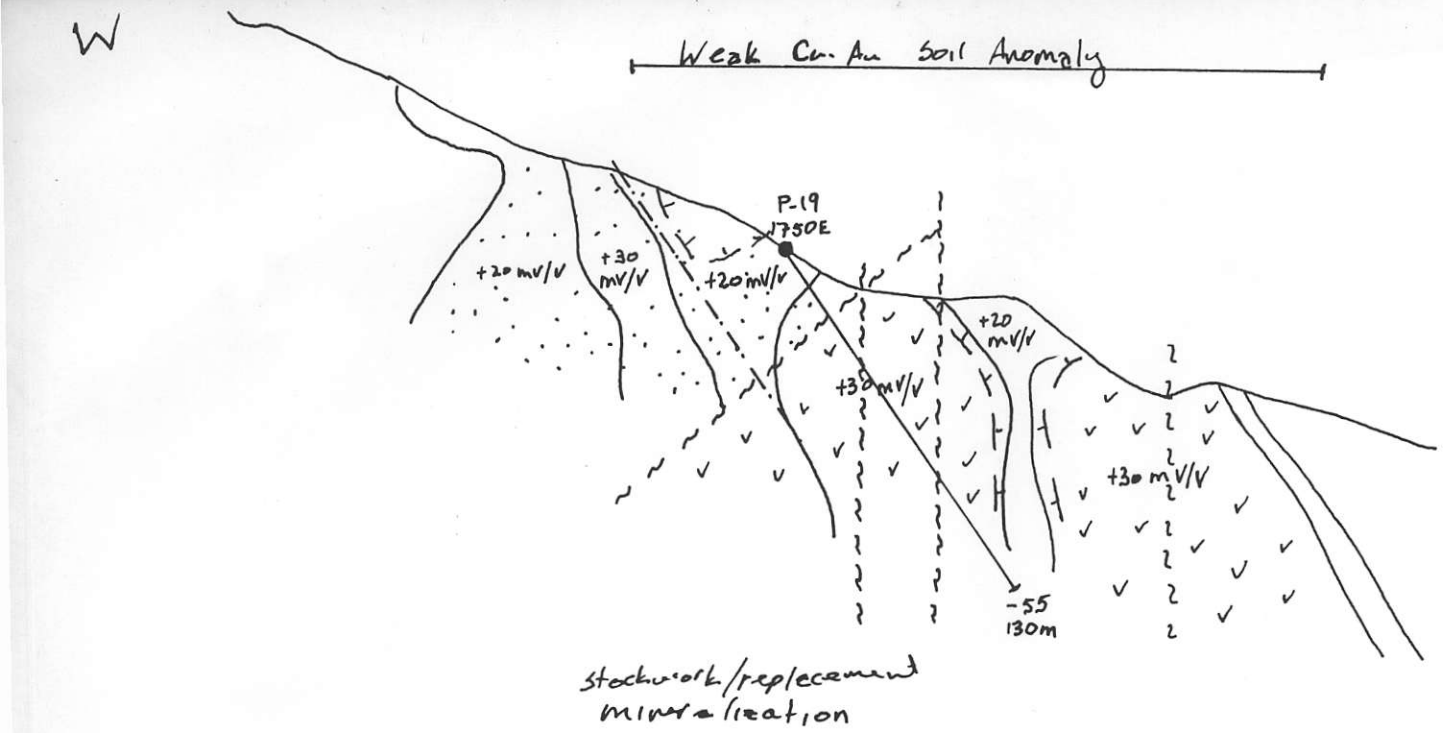
Hydrothermal Breccia.

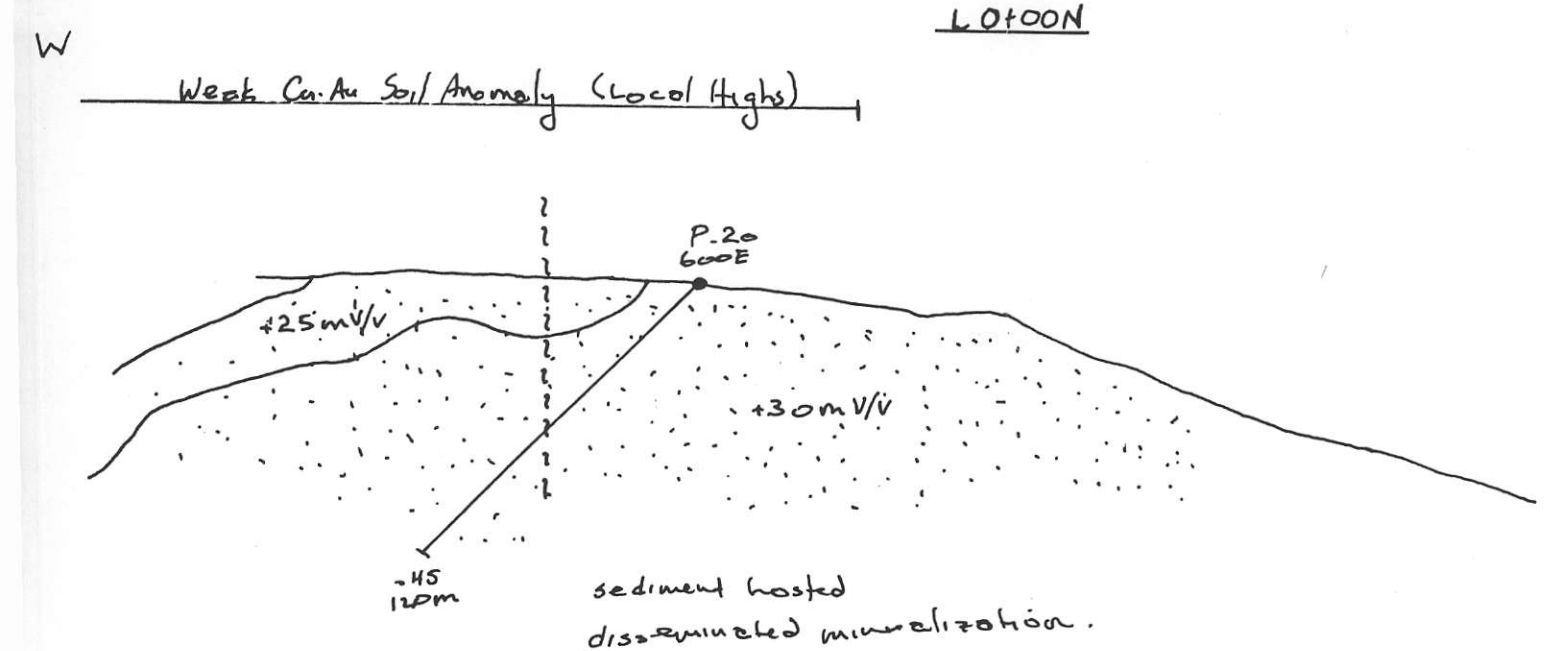
P-15
875E

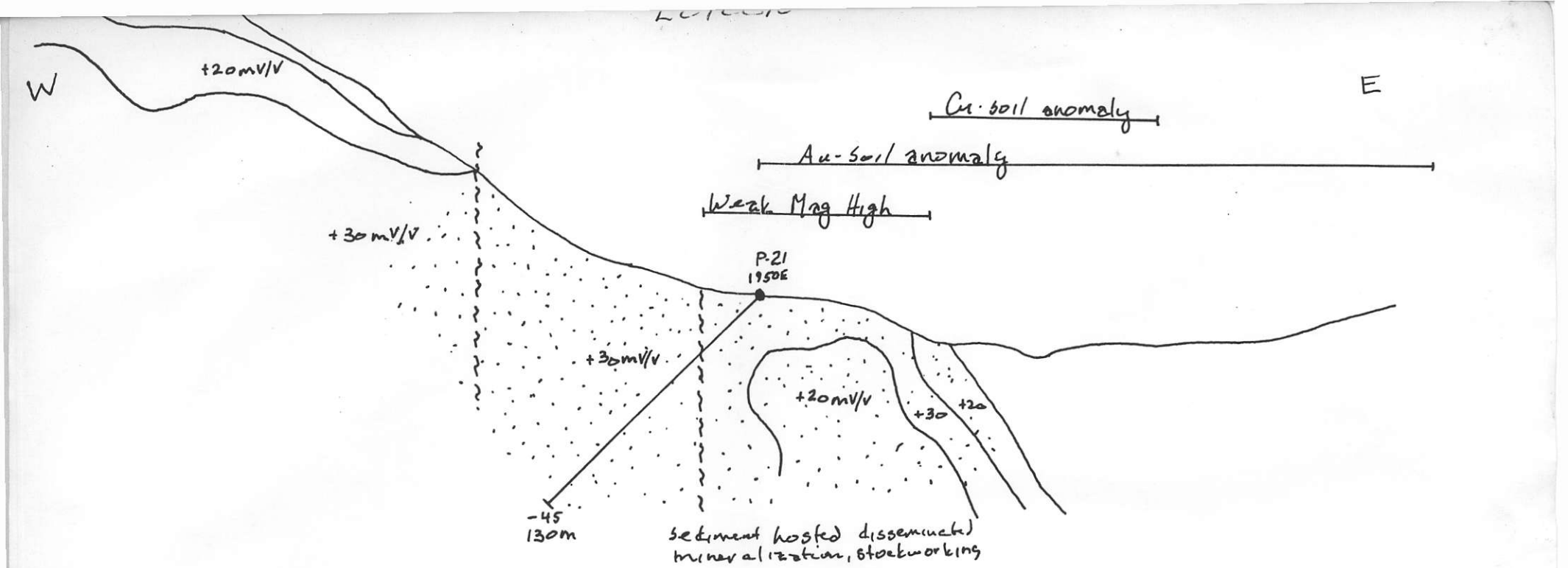
+5 mV/V
+20mV/V
+5mV/V
+20mV/V
+10mV/V
+20mV/V
+15 mV/V
+20 mV/V
-45
200m

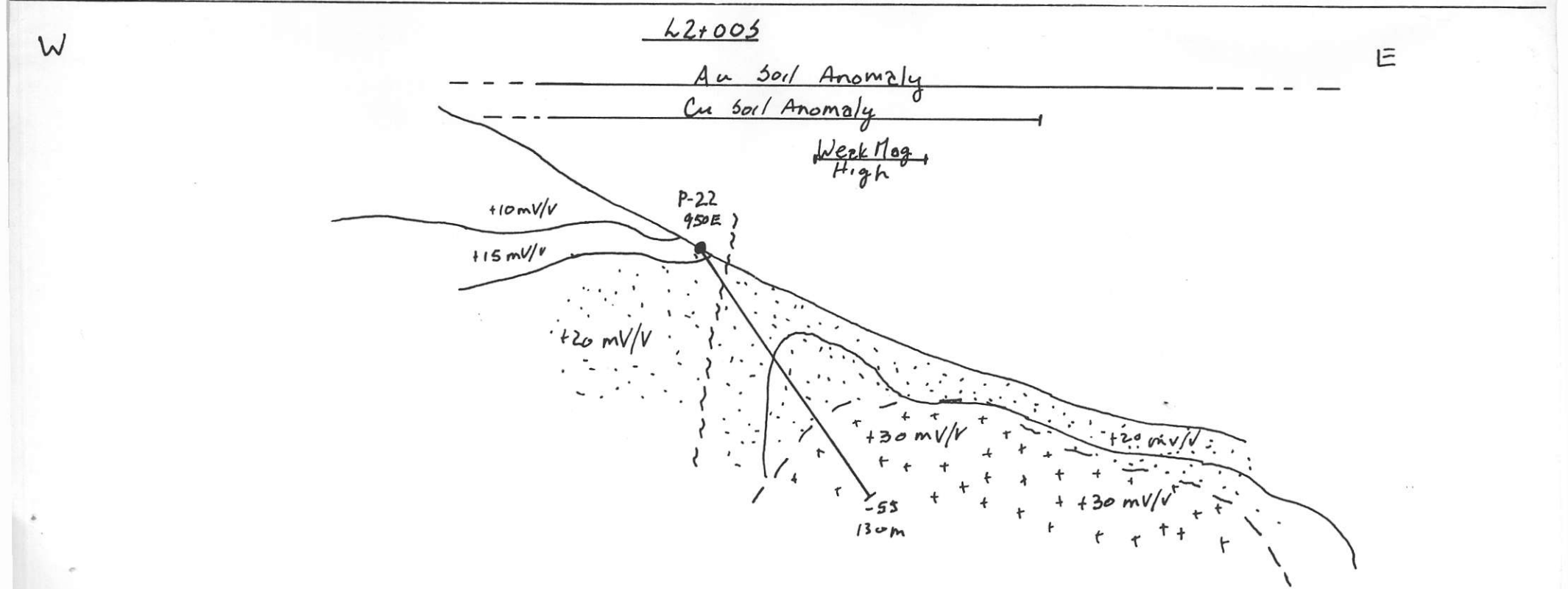

W
Cu Soil anomaly (minor Au)
Mag High
Mag Low
E
P-16
800E
+15mV/V
+20mV/V
+30mV/V
+15mV/V
+20mV/V
+30
+15mV/V
-45
110m
Dyke
+20mV/V
+15mV/V
+20
mV/V
Dyke


W
Cu-Au Soil Anomaly
L 2+00N
Cu-Au Soil Anomaly
E
Mag High
Mag Low
Mag High
Mag Low
Mag High
P-17
575E
P-18
775E
+20mV/V
+30mV/V
+20mV/V
+30
+15mV/V
+20 mV/V
-60
110m
-45
150m


W
Weak Cu. Au Soil Anomaly
E
P-19
1750E
+20 mV/V
+30 mV/V
+20 mV/V
+20 mV/V
+30 mV/V
+30 mV/V
-55
130m
stockwork/replacement
mineralization


LOTOON
W
E
Weak Cu. Au Soil Anomaly (Local Highs)
P-20
600E
+25 mV/V
+30 mV/V
-45
120m
sediment hosted
disseminated mineralization.

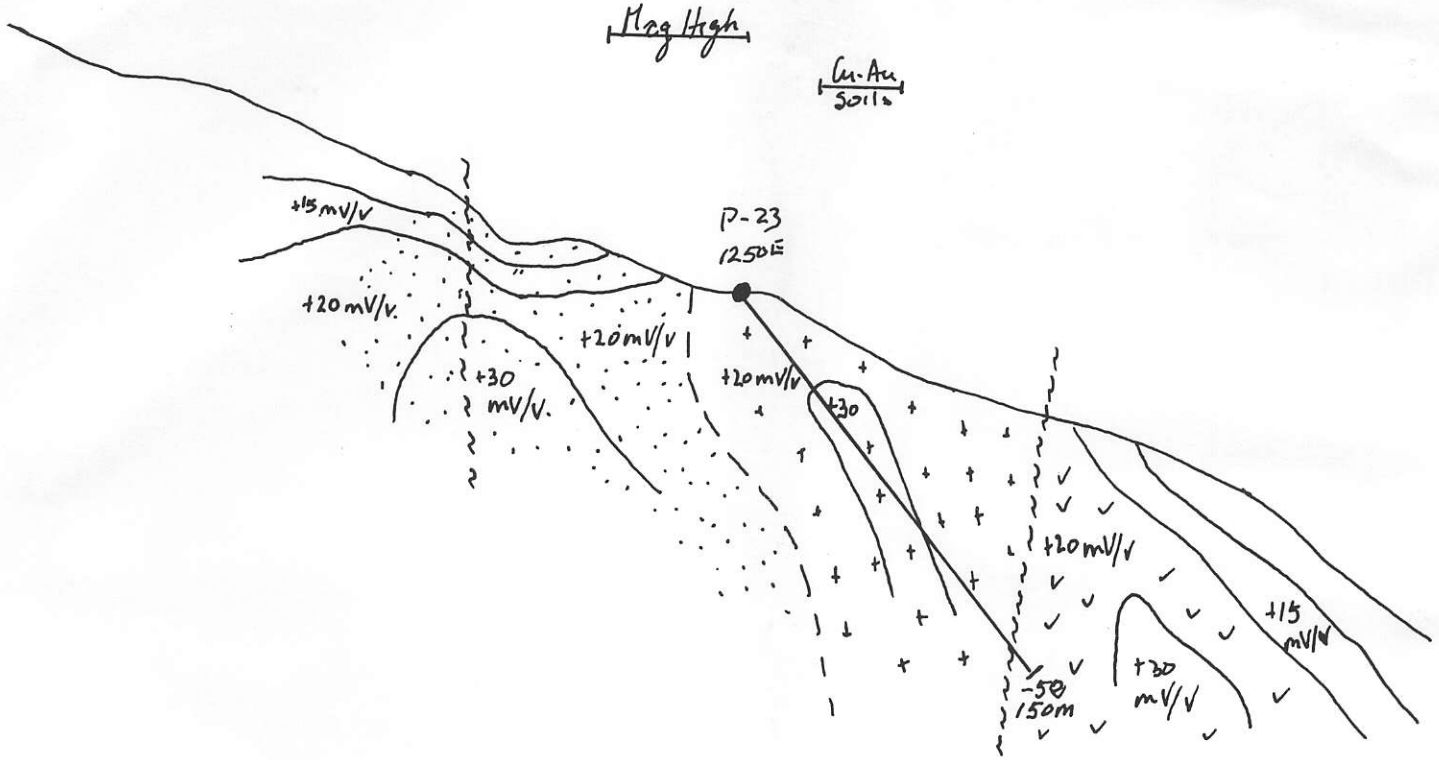

W
E
+20mV/V
Cu soil anomaly
Au-soil anomaly
Weak Mag High
+30 mV/V
P-21
1950E
+30mV/V
+20mV/V
+30
+20
-45
130m
sediment hosted disseminated
mineralization, stockworking


W
E
L2+00S
Au Soil Anomaly
Cu Soil Anomaly
Weak Mag
High
+10mV/V
+15 mV/V
P-22
950E
+20 mV/V
+30 mV/V
+20 mV/V
+30 mV/V
-55
130m

L7+00S

W

E


Mag High
Cu-Au Soils
+15 mV/V
+20 mV/V
+30 mV/V
P-23
1250E
+20 mV/V
+20 mV/V
+30
+20 mV/V
+15 mV/V
+30 mV/V
-50
150m

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MEMORANDUM

DATE: August 21, 1991

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C.J. Clayton

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INTRODUCTION

A 23 hole, 3030 metre drill program is proposed to test a number of targets on the Tam O'Shanter and Wildrose properties. Drilling is planned to commence on the Tam O'Shanter property on October 1, 1991, where 2490 metres of NQ drilling are planned to test for Cu-Au porphyry, disseminated, and replacement mineralization. The program will continue with 540 metres of drilling on the Wildrose property to test the extension of the Tam porphyry system in this area.

SUMMARY

A large diorite porphyry system is present on the Tam O'Shanter area in the north-east corner of the Rainbow-Tam O'Shanter property. This system has been known for some time and was explored fairly extensively during the seventies and eighties as a Cu-Mo system with little or no analysis for Au. As well a number of high grade veins occur within the porphyry and these have been worked in the past. Work in 1991 began with extension of the old BP grid to the north-east and south-east to cover a portion of this system with mapping, rock sampling and soil sampling, and limited geophysical (I.P.) work. As mapping and sampling proceeded both rock and soil analyses returned strongly encouraging Au and Cu results, not only from the veins but from the diorite itself. These results as well as reconnaissance work prompted the extension of the grid further to the east to the property claim boundary. As mapping continued a roughly concentric, mineralization and alteration pattern became evident. When placed in a more regional

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The acquisition of the Wildrose property postponed drilling on the Tam O'Shanter property to allow grid line extensions, grid mapping and rock and soil sampling, and I.P. geophysics and magnetometery to be completed over the new area and over areas on Tam not covered by the original survey.

The Tam porphyry system consists of diorite porphyry of various phases mapped over an area approximately 1.4 km lengthwise in a north-south orientation by 1.0 km in width east to west. The system is bordered to the west by a curvilinear north-south trending fault placing Tertiary as well as Permian sediments against the Jurassic porphyry system. The fault is extensional and related to Toroda graben formation, and varies in dip from vertical to 30° to the west. A related east-west structure forms the southern border of the Tam diorite. This fault dips roughly 20° to the south, with bedded cherty volcaniclastics and minor andesite, conglomerate and sandstone, and coarse hornblende diorite bodies in the hanging wall.

The diorite itself was subdivided into a leucodioritic phase (quartz rich, leucocratic), a dioritic phase, and a chlorite-magnetite alteration phase. D.R.H. has proposed the chlorite-magnetite phase may be a retrograde alteration of biotite alteration substituting for a central potassic zone of alteration

which is not prevalent in the system. This hypothesis works well, as the system seems to be zoned concentrically around the chlorite magnetite zone with diorite proximal to the zone and extending outward into leucodiorite. Another possibility for the lack of an extensive potassic alteration zone with K-feldspar is this may be a dissected system, oriented on its side as a result of rotational block faulting during Tertiary graben formation. The chlorite-magnetite zone would then become an annular alteration zone around the central portion of the system.

Alteration away from this central zones grades through an intermediate argillic zone which includes some sericite, chlorite and calcite, as well as localised zones of hematized magnetite, specular hematite veins, and gypsum. An annular zone of pyritic and siliceous alteration of diorite may indicate a weak zone of phyllic alteration grading into a more intensely altered outer zone of massive silicification occurring at both the northern and southern extent of the diorite. Within the silicification fracturing and stockwork quartz veining, localized hydrothermal breccias, and localized chalcedonic quartz are observed. These areas may present prospective areas for exploration.

Proposed Drilling:

The 1991 drill program on the Tam O'Shanter property is directed at testing mineralization related to the Tam porphyry system. Drill targets on the property have been defined by geology, anomalous rock and soil geochemistry, I.P. geophysics, and magnetometery. A total of 23 holes are planned. The attached schematic cross section and metallogenic model shows in a generalized way the two areas of planned drilling. Topographic sections showing chargeability, anomalous soil geochemistry, magnetometery, and drill hole locations and orientations are attached.

AREA 1

Area 1 encompasses holes P-1 through P-8. Holes P-1 through P-2 will test andesitic volcanics to the north of the Tam diorite for disseminated and replacement mineralization within the volcanics. Holes P-3 through P-6 will test porphyry mineralization within diorite underlying andesitic volcanics and siliceous cappings. Holes P-7 and P-8 will test diorite for porphyry mineralization directly in areas of high chargeabilities (to +30mV/V) increasing with depth. Surface samples taken in the area of both diorite and silica altered andesite have returned anomalous values of up to 7103 ppm Cu and 3780 ppb Au.

AREA 2

Area 2 encompasses holes P-9 through P-23. Holes P-9 through P-11 will test diorite and chlorite-magnetite alteration near what appears to be the central portion of the porphyry system. Anomalous rocks nearby returned values of 2646 ppm Cu and 328 ppb Au from diorite, and 12962 ppm Cu and 762 ppb Au from a shear within diorite. Holes P-12 through P-14 will test porphyry mineralization underneath areas of siliceous cappings near cross cutting structures. Surface samples in the area have returned results of 4131 ppm Cu and 165 ppb Au, and 1449 ppm Cu and 180 ppb Au. Hole P-15 will test the contact between diorite and Permian sediments located in the southern portion of the property. Cross cutting structures and hydrothermal breccias are located in this area. Hole P-16 will directly test underneath a siliceous capping showing a strong chargeability (+25 mV/V) at depth accompanied by a mag high and anomalous Cu soil geochemistry. Hydrothermal breccias are seen in the area. Holes P-17 and P-18 will test an area of strong stockwork silicification accompanied by a +30 mV/V chargeability anomaly at depth, strong mag high, and broad anomalous Cu-Au soil geochemistry. The chargeability anomaly may indicate the porphyry system underlying the cap. Hole P-19 will test andesitic volcanics for possible stockwork and disseminated mineralization near cross cutting structures, stockwork silicification, and chargeabilities greater than 30 mV/V. Holes

P-20 and P-21 will test for sediment hosted disseminated and replacement mineralization in areas accompanied by chargeabilities greater than +30 mV/V, anomalous soil and rock geochemistry, and weak to moderate mag highs. Holes P-22 and P-23 will test diorite where it intrudes Permian sediments. The areas show high chargeabilities (+30 mV/V), anomalous Cu-Au soil geochemistry, and weak to moderate mag highs.

TABLE 1

RAINBOW-TAM O'SHANTER/WILDROSE PROPERTIES, 1991

PROPOSED DRILL HOLE LOCATIONS

HOLE	LOCATION	COLLAR			DEPTH	TARGET
		AZ	DIP	ELEV		
P-1	2800N 825E	270	-45	1020 metres	130 metres	TEST ANDESITIC VOLCANICS TO NORTH OF DIORITE; Cu/Au SOIL, CHARGEABILITY, MAG AND ROCK SAMPLE ANOMALIES.
P-2	2800N 975E	110	-60	975 metres	120 metres	
P-3	2600N 1012E	110	-45	1045 metres	~~160~~ 140 metres	TEST ANDESITIC VOLCANICS, DIORITE; CHARGEABILITY, MAG,SOIL, AND SURFACE ROCK SAMPLE ANOMALIES IN AREA.
P-4	2600N ~~1425E~~ 1200E	270	-45	965 metres	~~140~~ 120 metres	
P-5	2400N ~~900E~~ 925	090	-60	1065 metres	120 metres	TEST SILCIFICATION, DIORITE, AND ANDESITIC VOLCANICS; CHARGEABILITY, MAG, SOIL, AND SURFACE ROCK SAMPLE ANOMALIES.
P-6	2400N 1200E	090	-65	1010 metres	100 metres	
P-7	2200N 1300E	090	-45	- metres	150 metres	
P-8	2000N 1050E	090	-60	1250 metres	~~100~~ 120 metres	TEST DIORITE IN AREA OF HIGH CHARGEABILITY, MAG, SOIL AND ROCK ANOMALIES.
P-9	1400N 1025E	090	-45	1100 metres	150 metres	TEST CHLORITE-MAGNETITE ALTERATION ZONE
P-10	1200N ~~800E~~ ≈820E	115	-45	1170 metres	150 metres	TEST CHL-MAG ALTERATION, ANDESITIC VOLCANICS, AND SILICIFICATION WITH CO-INCIDENT CHARGEABILITY, MAG, SOIL, AND ROCK SAMPLE ANOMALIES.
P-11	1200N 1150E	090	-50	1150 metres	130 metres	
P-12	1000N 960E	090	-70	1230 metres	100 metres	
P-13	1000N 1125E	270	-45	- metres	100 metres	

move to 1200E ↑ can this be moved to 1275? check for geology anomaly

Not in

check for geology anomaly

move to 900??

moved to 820 change dip?

Low Priority add

check geology sample location on trench near 1200N ≈ 975E.

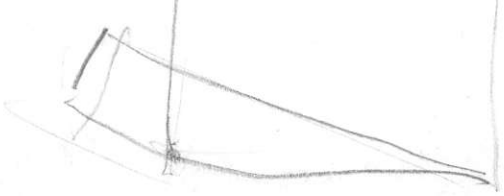
100m

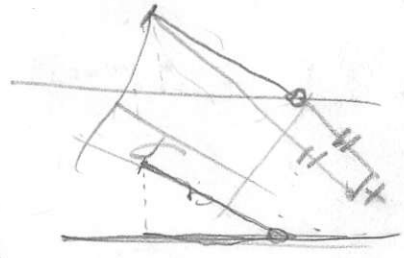
TABLE 1 (CONTINUED)

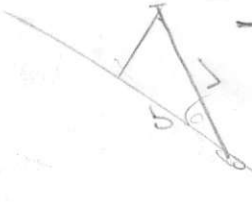
RAINBOW-TAM O'SHANTER/WILDROSE PROPERTIES, 1991

PROPOSED DRILL HOLE LOCATIONS

HOLE	LOCATION	COLLAR			DEPTH	TARGET
		AZ	DIP	ELEV		
P-14	800N 550E	270	-45	1340 metres	150 metres	TEST DIORITE, AND SILCIFICATION NEAR SOUTHERN CONTACT WITH PERMIAN BEDDED CHERTS AND ANDESITES; H'THERMAL BX, CHARGEABILITY, MAG, SOIL AND ROCK ANOMALIES.
P-15	600N 875E	270	-45	1340 metres	200 metres	
P-16	400N 800E	270	-45	1370 metres	110 metres	
P-17	200N 575E	090	~~-60~~ -70	- metres	~~110~~ 140 metres	TEST MAG ANOMALY AND CHARGEABILITY ANOMALY AT DEPTH BELOW SILICEOUS CAP; ANOMALOUS SOIL AND ROCK GEOCHEMISTRY.
P-18	200N 775E	270	-45	1360 metres	150 metres	
P-19	200N 1750E	070	-55	1140 metres	130 metres	TEST PERMIAN SEDIMENTS AND ANDESITIC VOLCANICS FOR STKWRK AND/OR SEDIMENT HOSTED DISSEMINATED MINERALIZATION ASSOCIATED WITH HIGH CHARGEABILITIES, WEAK MAG AND WEAK TO STRONG SOIL GEOCHEM AND ANOMALOUS ROCK GEOCHEM.
P-20	000N 600E	245	-45	- metres	120 metres	
P-21	000N 1950E	270	-45	- metres	130 metres	
P-22	200S 950E	120	-55	- metres	130 metres	TEST DIORITE INTRUDING PERMIAN SEDIMENTS WITH CHARGEABILITY AND MAG HIGHS, AND WEAK TO STRONG Au SOIL GEOCHEMISTRY.
P-23	400S ~~1250E~~ 1255	090	-50	1240 metres	150 metres	







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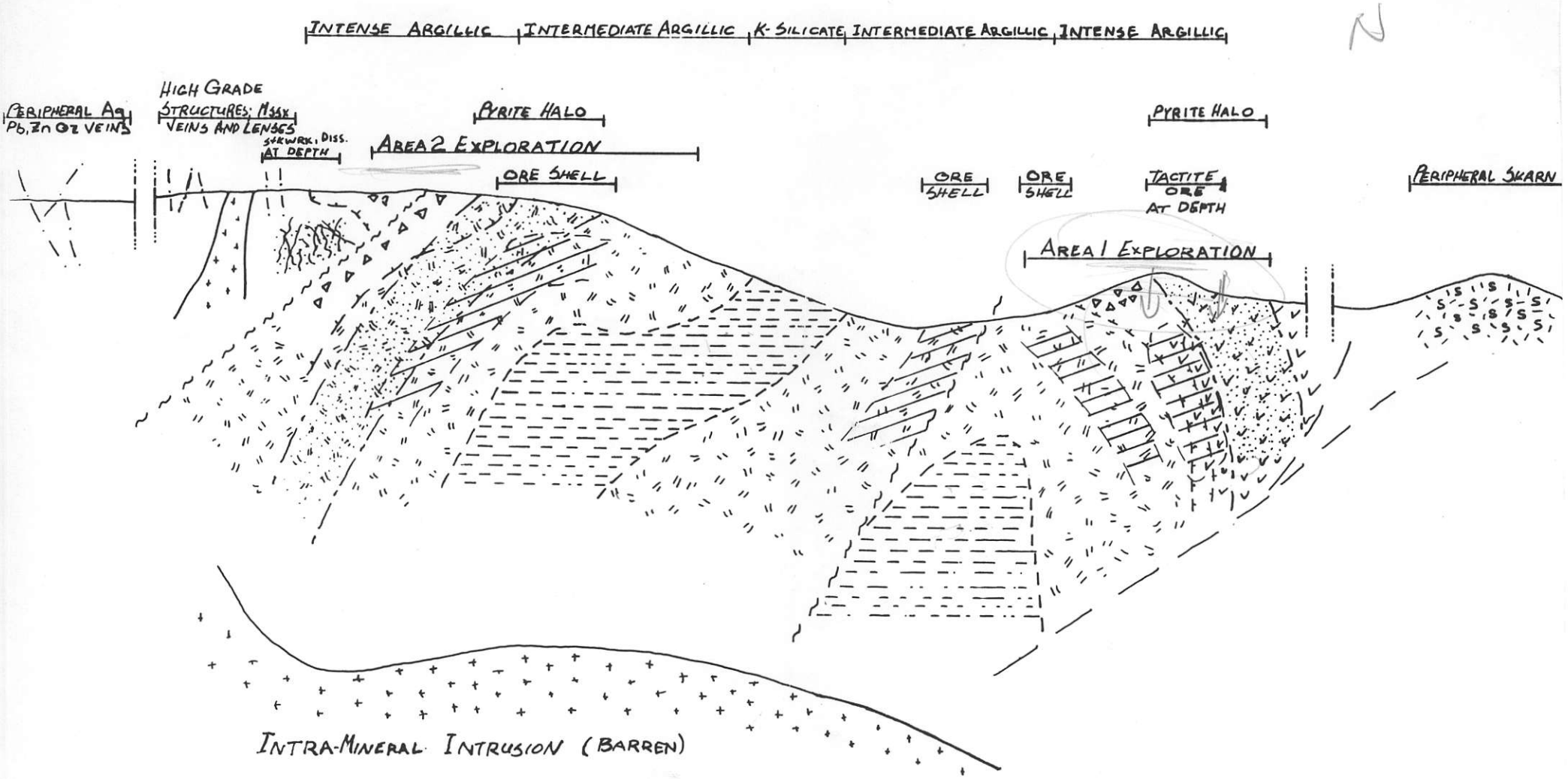


CENTRAL K-SILICATE ZONE
CHLORITE-MAGNETITE ALTERATION

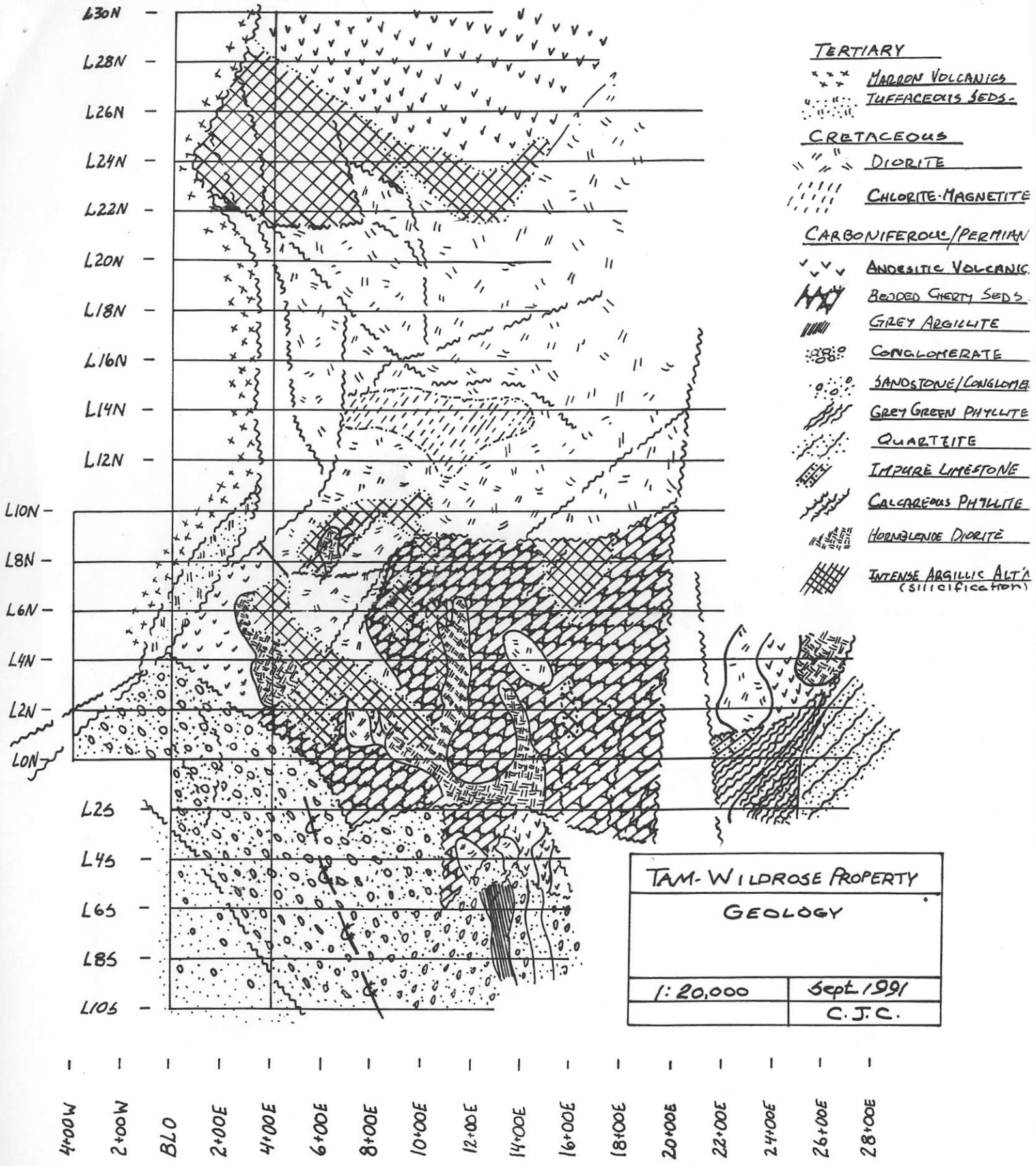
INTENSE SILICA FLOODING AND REPLACEMENT; HYDROTHERMAL BRECCIATION

PYRITIC HALO

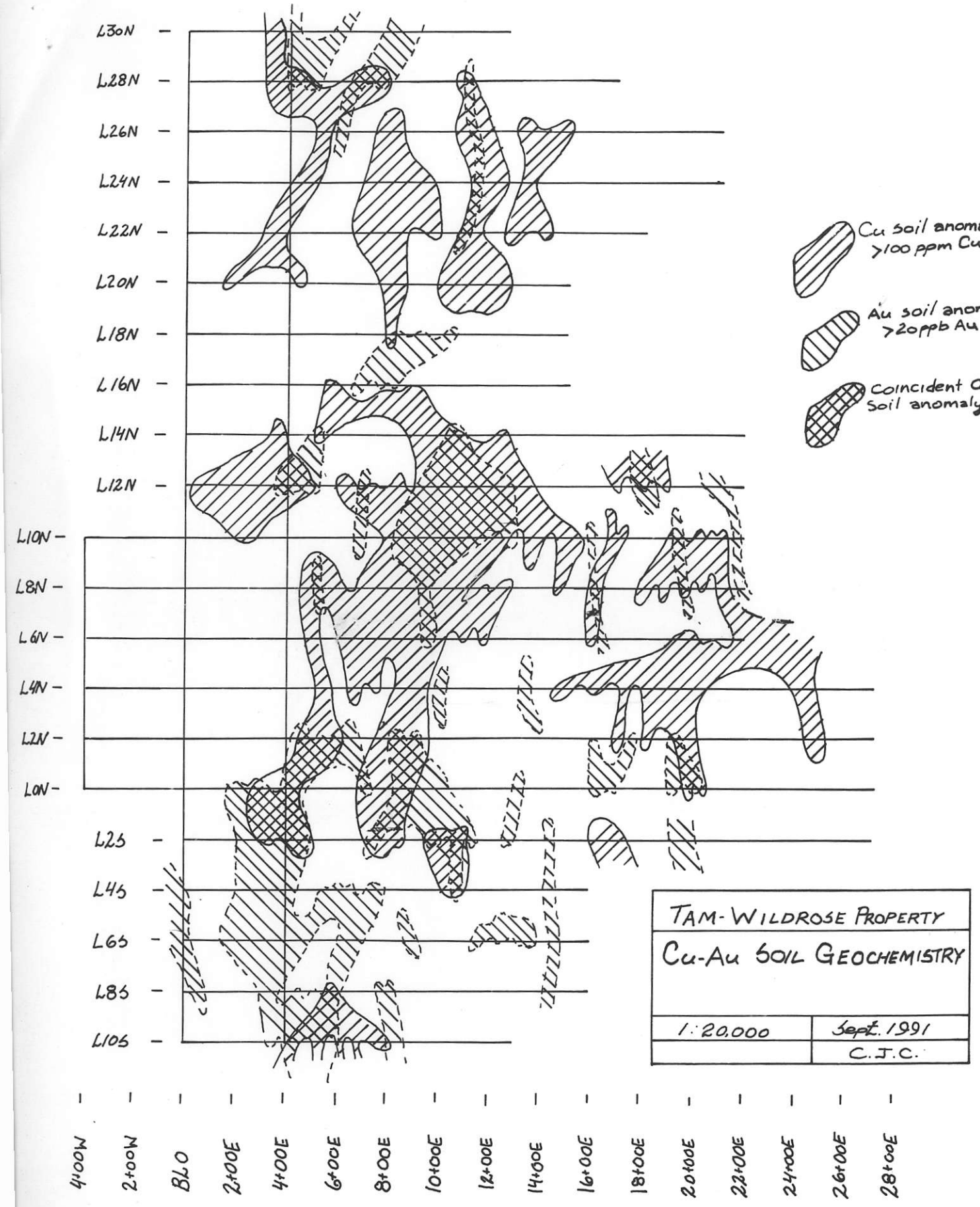
DIORITE · QUARTZ DIORITE PORPHYRY
INTERMEDIATE ARGILLIC ALTERATION
INCLUDES SPECULARITE + CHLORITE VEINS, GYPSUM, HEMATIZED Hf.

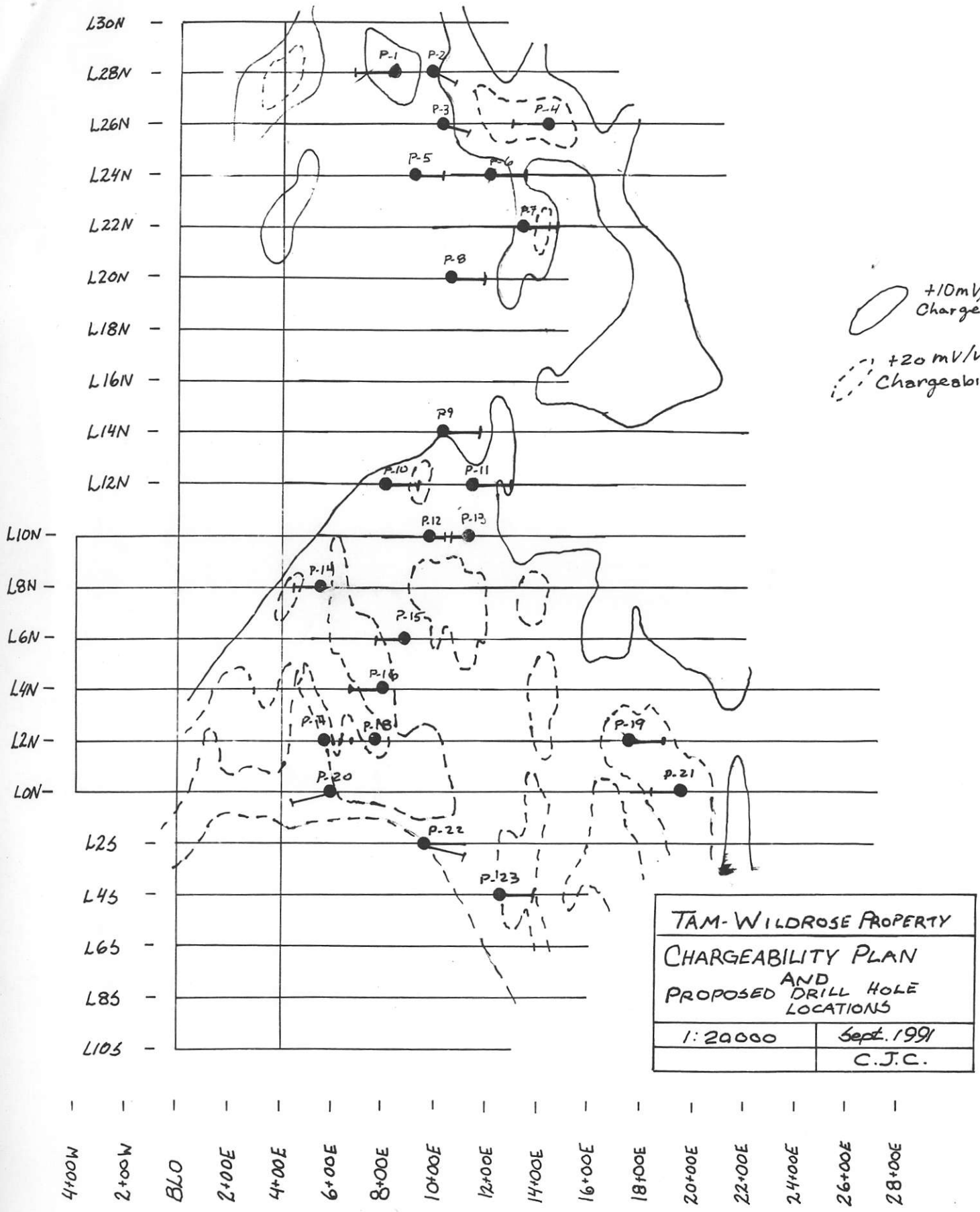
POTENTIAL ORE ZONES.

TAM-WILDROSE PROPERTY	
SCHEMATIC SECTION METALLOGENIC MODEL FACING WEST	
NOT TO SCALE	Sept. 1991
	C.J.C.

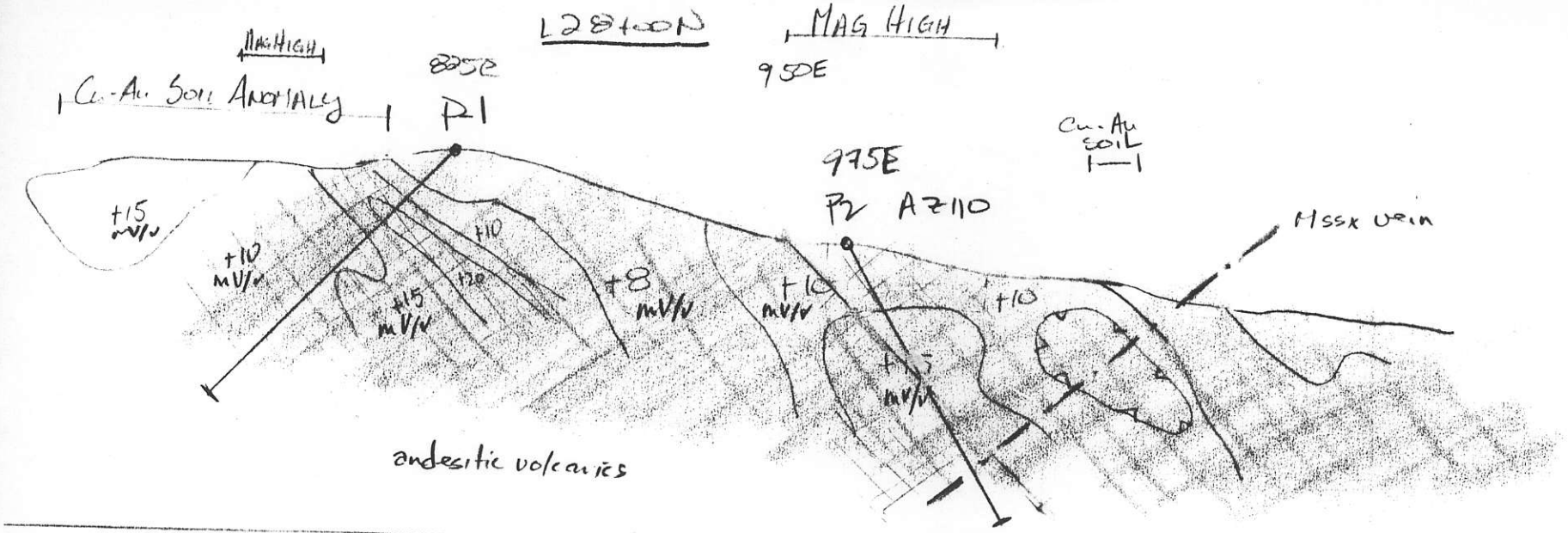


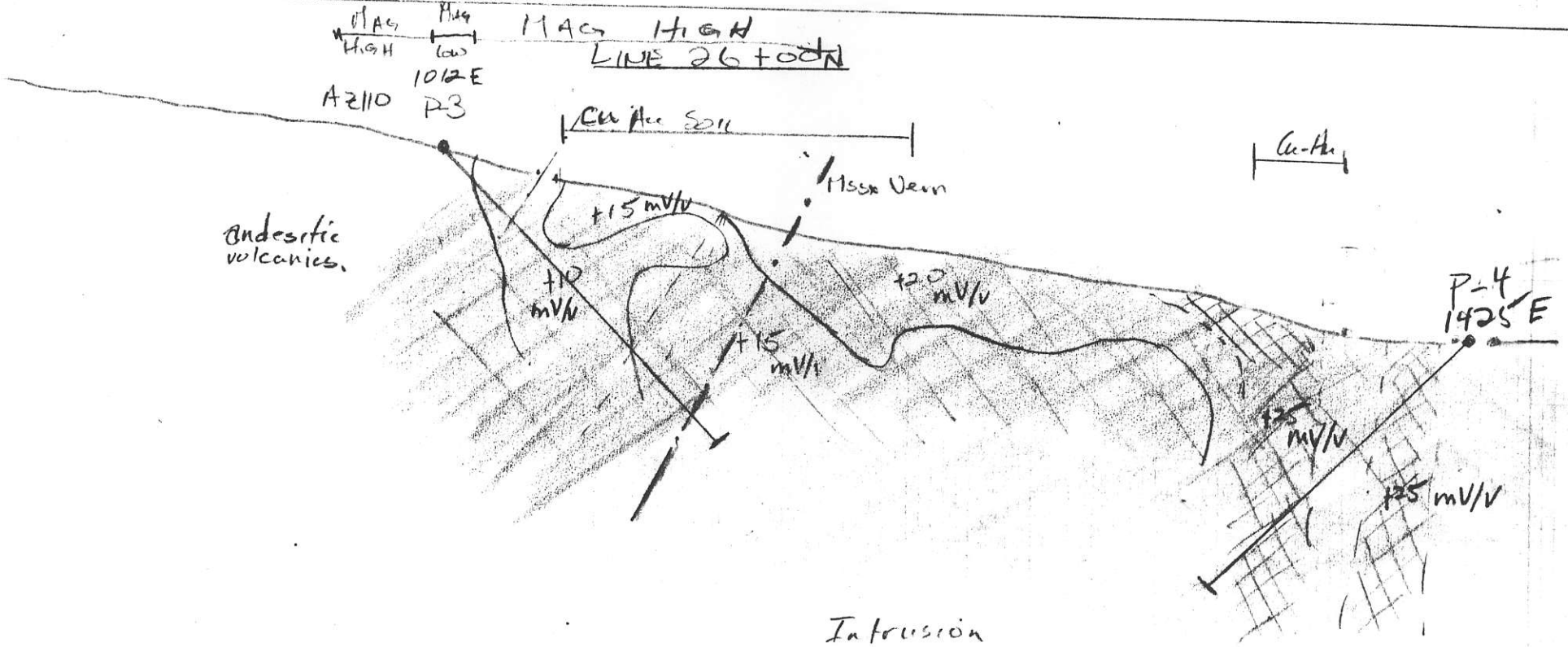
TAM-WILDROSE PROPERTY	
GEOLOGY	
1:20,000	Sept. 1991
	C.J.C.

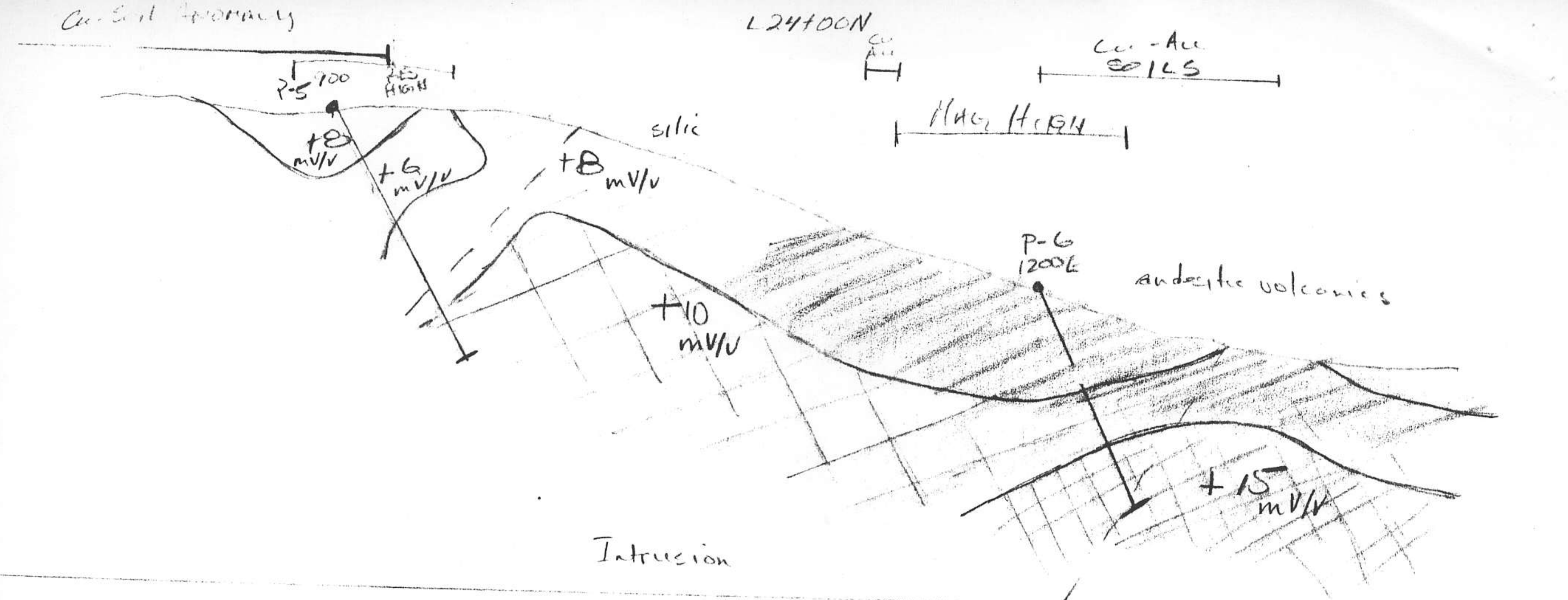

L30N
L28N
L26N
L24N
L22N
L20N
L18N
L16N
L14N
L12N
L10N
L8N
L6N
L4N
L2N
L0N
L2S
L4S
L6S
L8S
L10S
4+00W
2+00W
BL 0
2+00E
4+00E
6+00E
8+00E
10+00E
12+00E
14+00E
16+00E
18+00E
20+00E
22+00E
24+00E
26+00E
28+00E
Cu soil anomaly >100 ppm Cu
Au soil anomaly >20ppb Au
Coincident Cu-Au soil anomaly
TAM-WILDROSE PROPERTY
Cu-Au SOIL GEOCHEMISTRY
1:20,000
Sept. 1991
C.J.C.

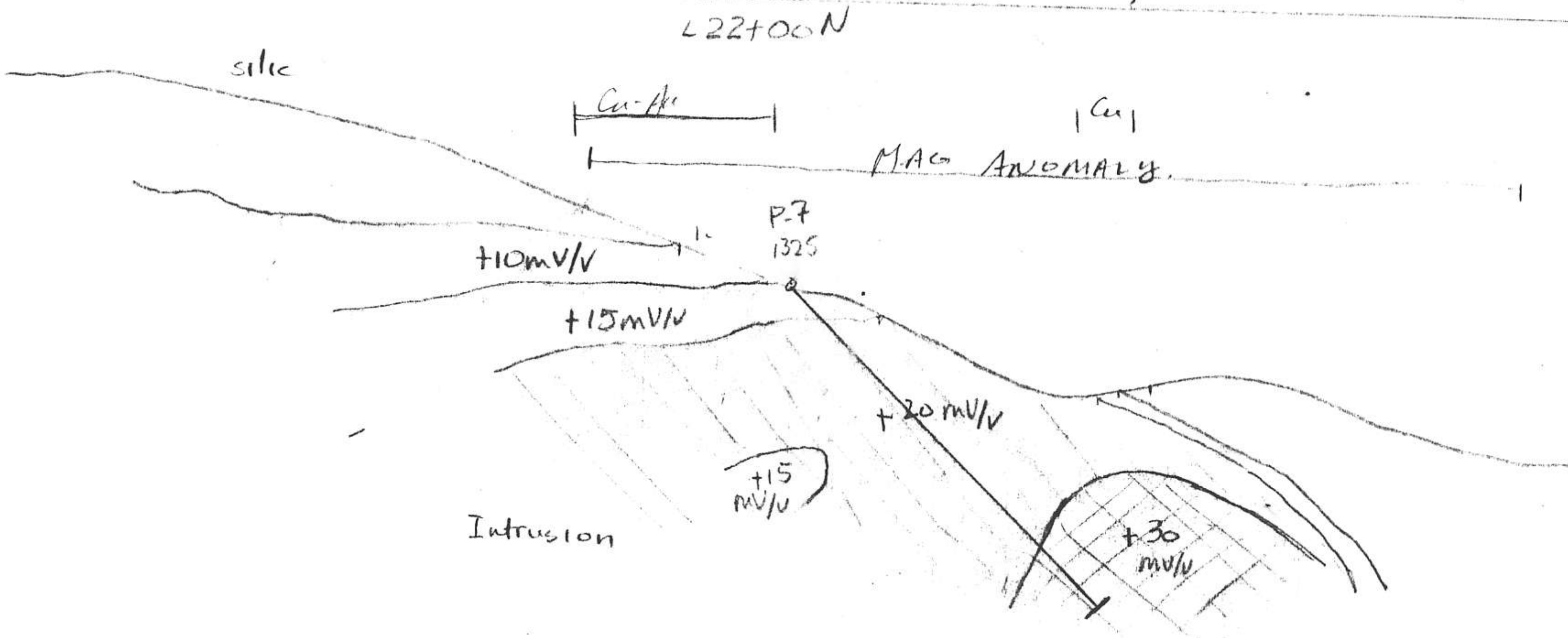


TAM-WILDROSE PROPERTY	
CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS	
1:20000	Sept. 1991
	C.J.C.


L28+00N
MAG HIGH
MAG HIGH
Cu-Au Soil Anomaly
825E
P1
950E
Cu-Au soil
975E
P2 AZ110
Mssx Vein
+15 mV/V
+10 mV/V
+10
+20
+15 mV/V
+8 mV/V
+10 mV/V
+10
andesitic volcanics


MAG HIGH
MAG low
MAG HIGH
LINE 26+00N
1012E
AZ110
P3
Cu Au Soil
Cu-Au
Mssx Vein
andesitic volcanics.
+15 mV/V
+10 mV/V
+20 mV/V
+15 mV/V
P-4
1425E
+25 mV/V
+25 mV/V
Intrusion

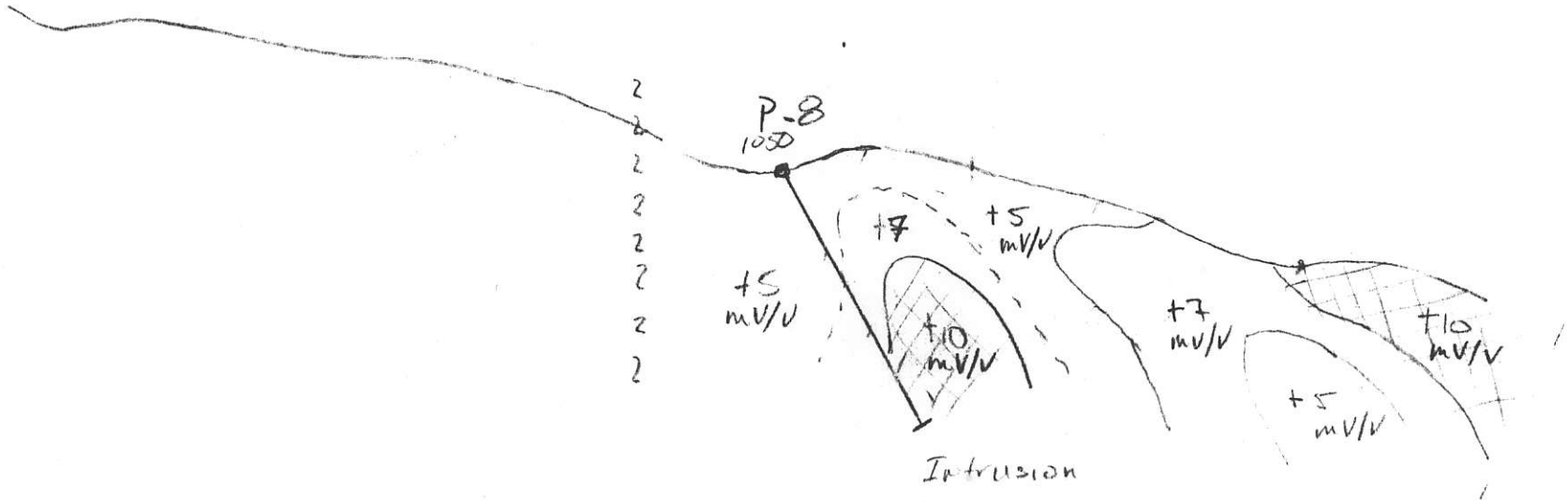

Cu-Soil Anomaly
L24+00N
Cu Au
Cu-Au SOILS
P-5 900
RES HIGH
MAG HIGH
silic
+8 mV/V
+6 mV/V
+8 mV/V
+10 mV/V
P-6 1200E
andesite volcanics
+15 mV/V
Intrusion


L22+00N
silic
Cu-Au
Cu
MAG ANOMALY.
P-7 1325
+10mV/V
+15mV/V
+20 mV/V
+15 mV/V
+30 mV/V
Intrusion

L20+00N

MAG HIGH

Cu - Au SOIL ANOMALY

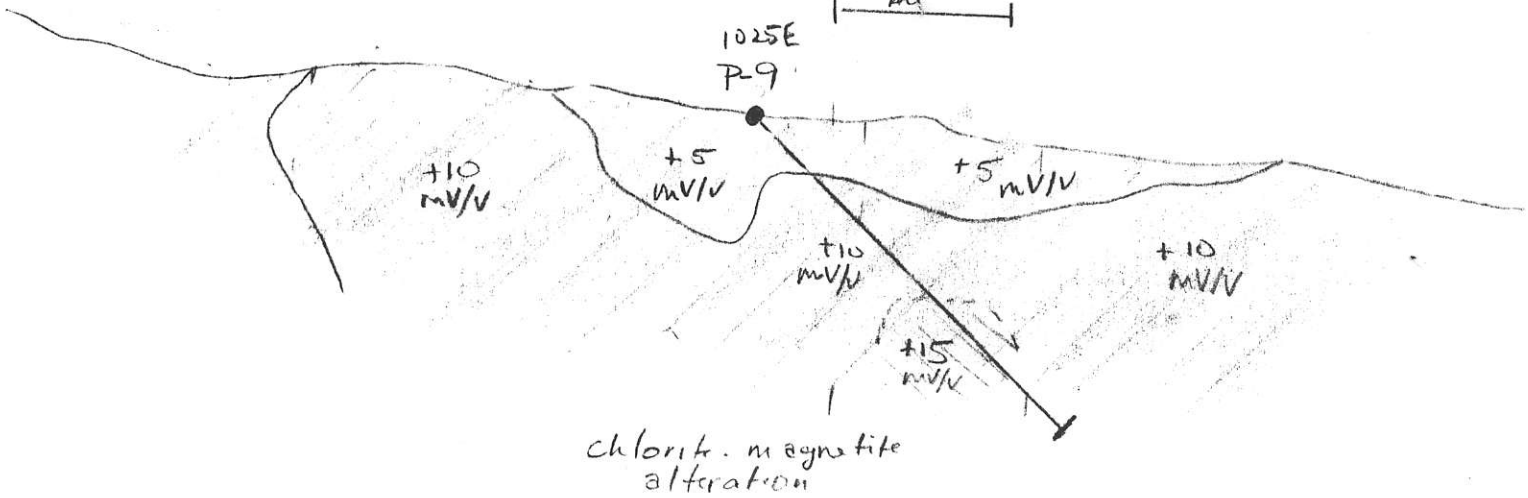


L14+00N

Cu ANOMALY

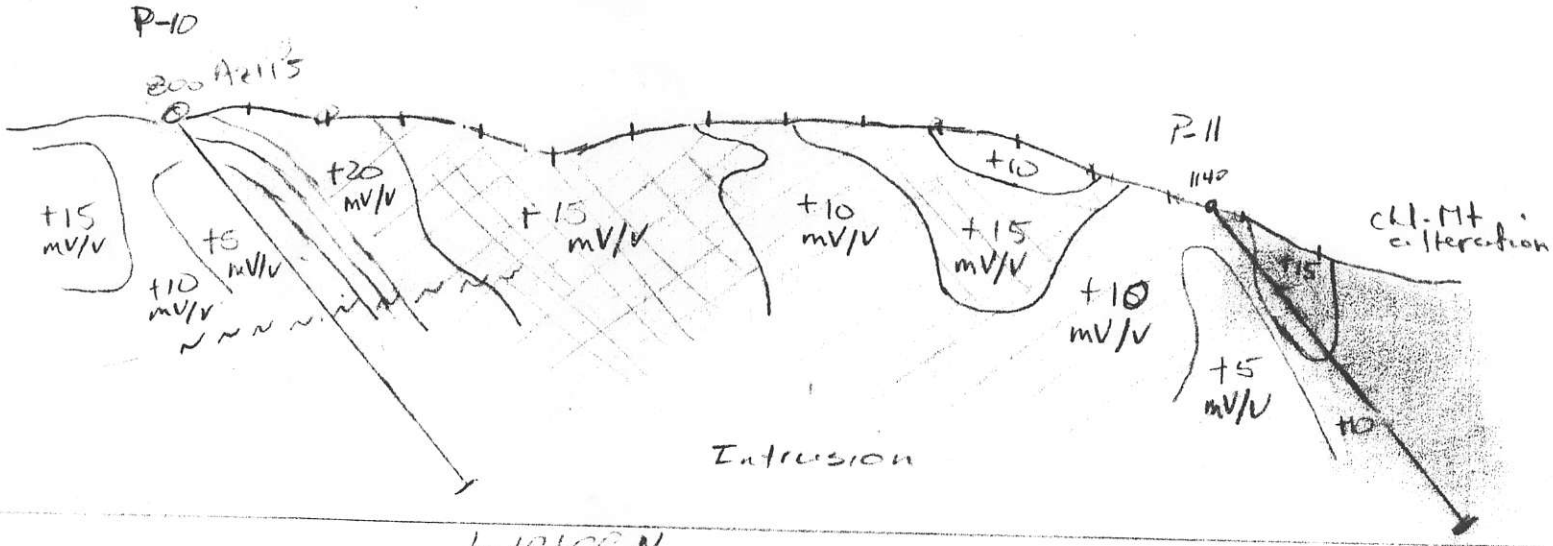
STRONG MAG

Au

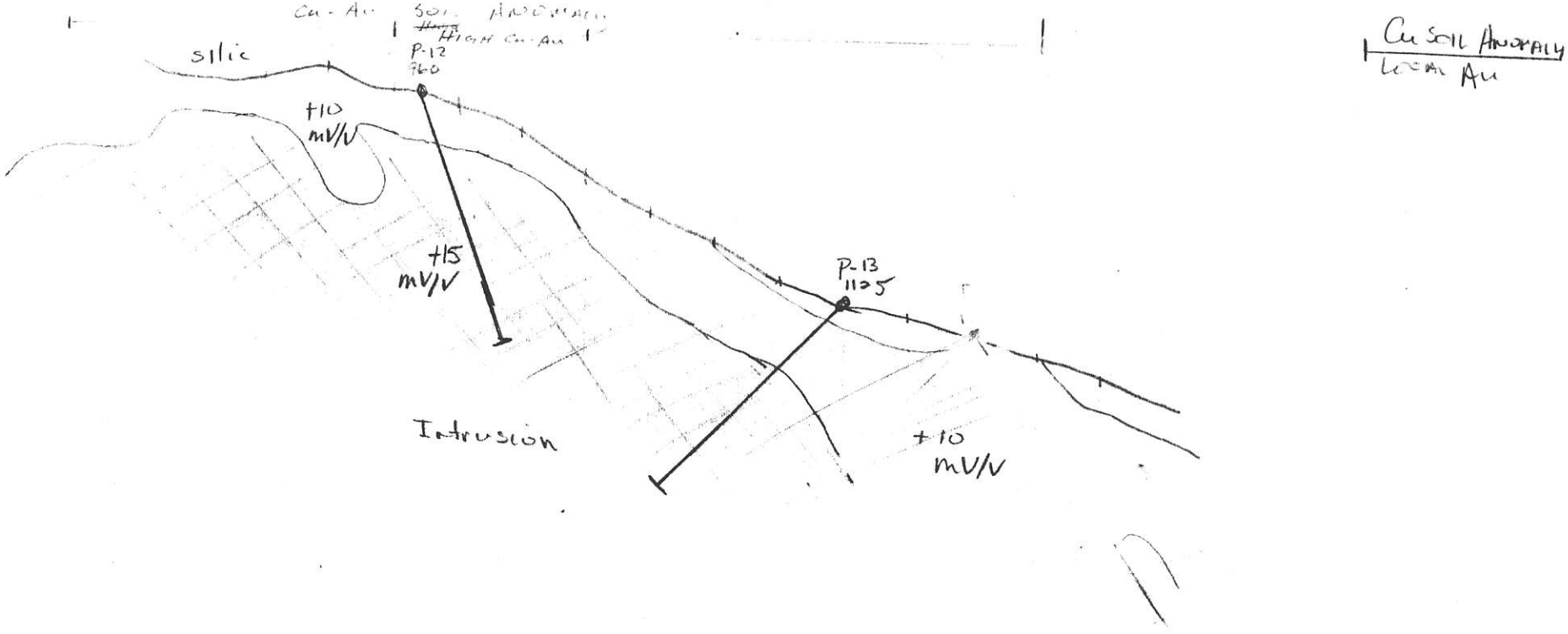


L 10+00 N

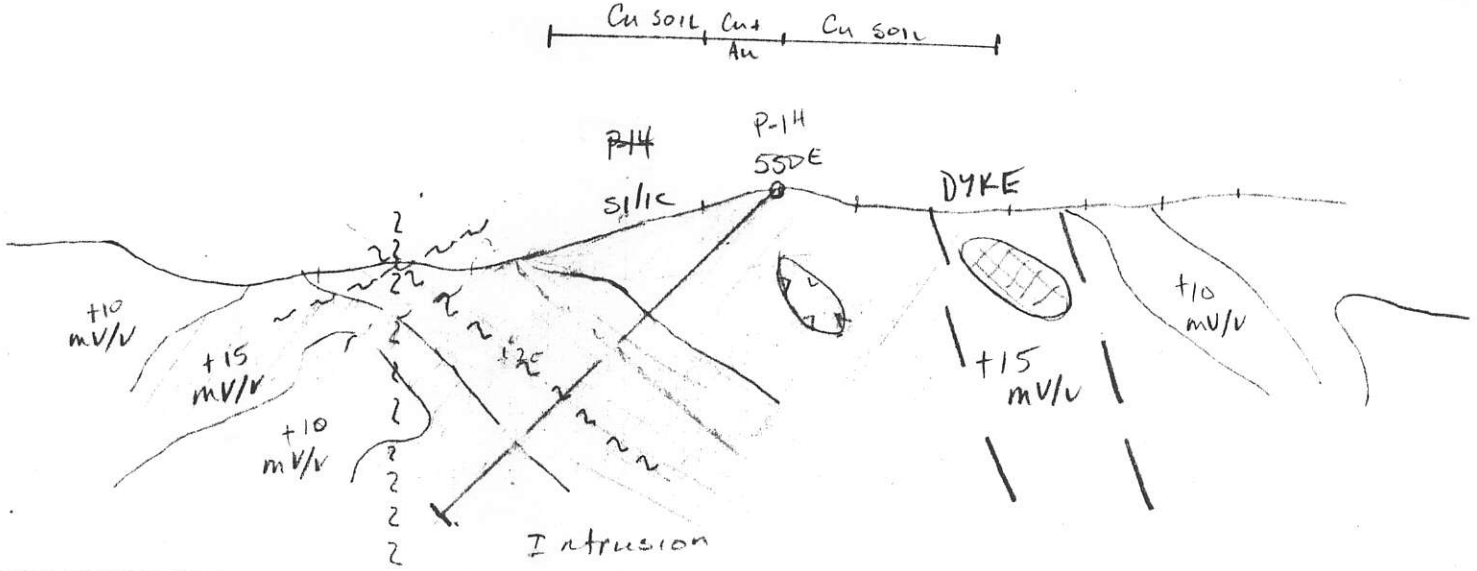
Cu - Au soil Geochem



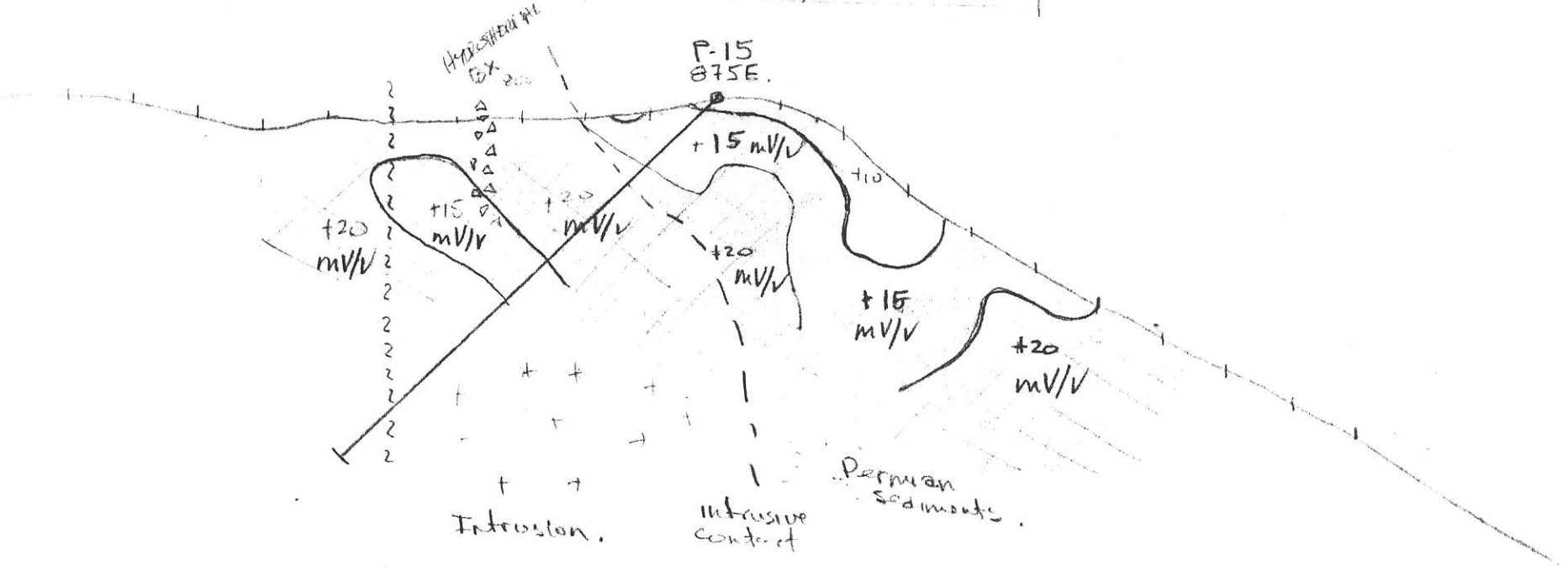
L 10+00 N



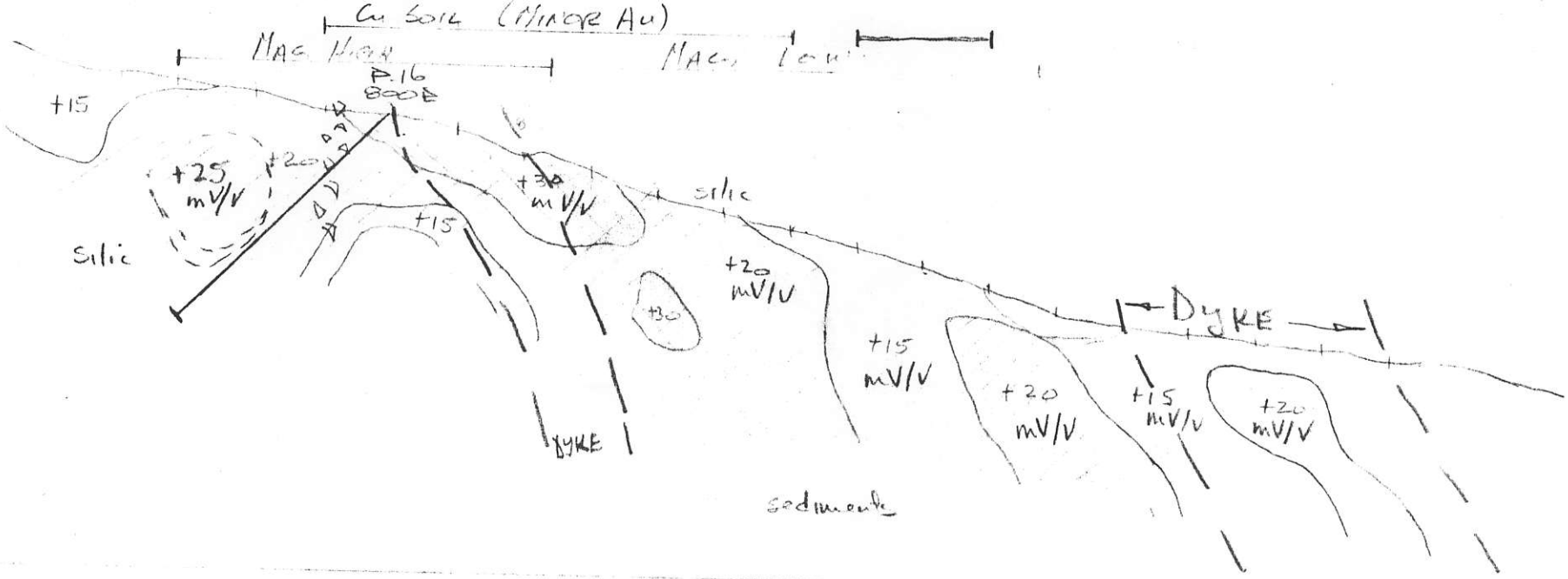
LINE 2+00N

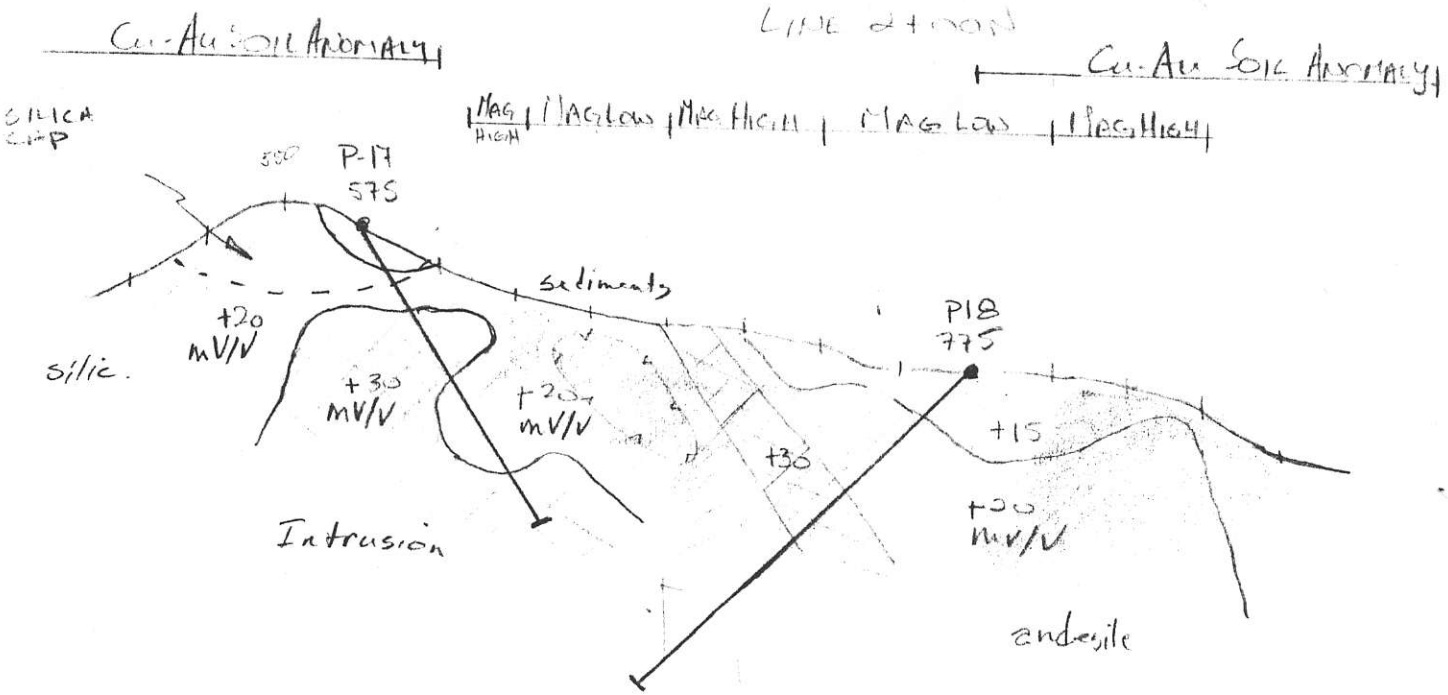


LINE 6+00N

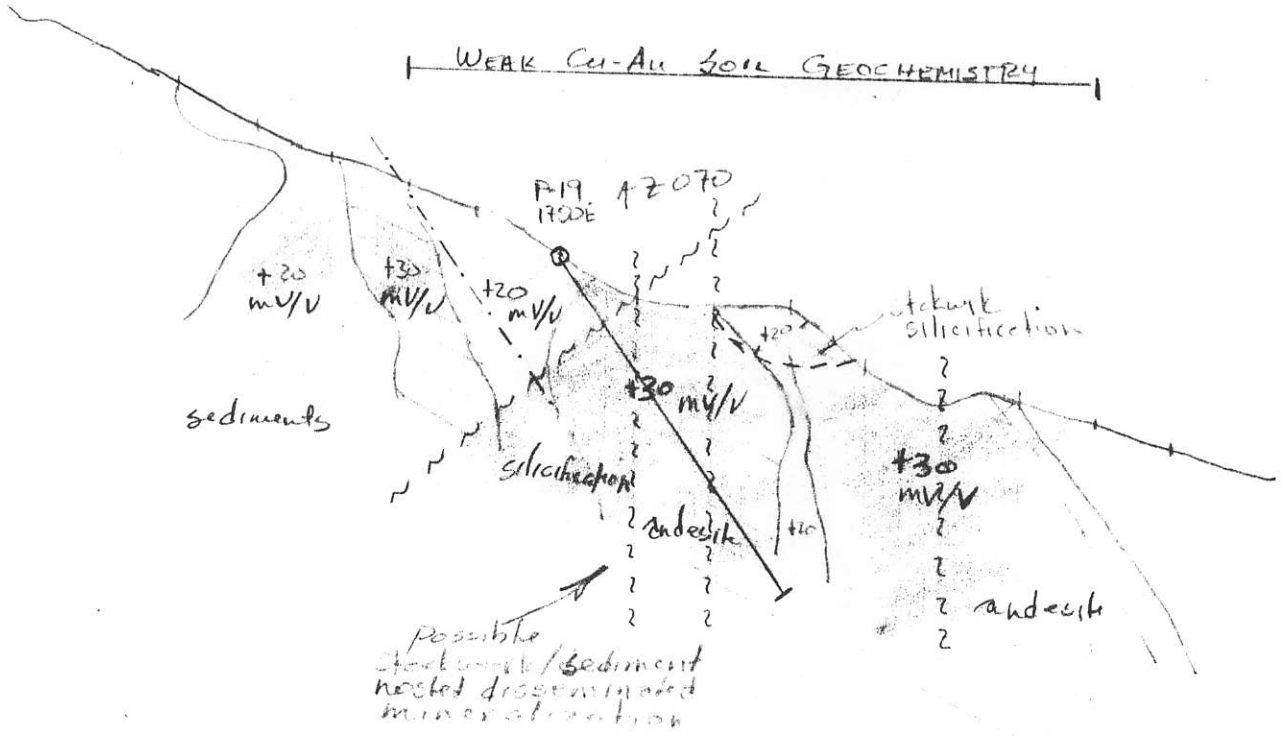


LINE 4+00N.

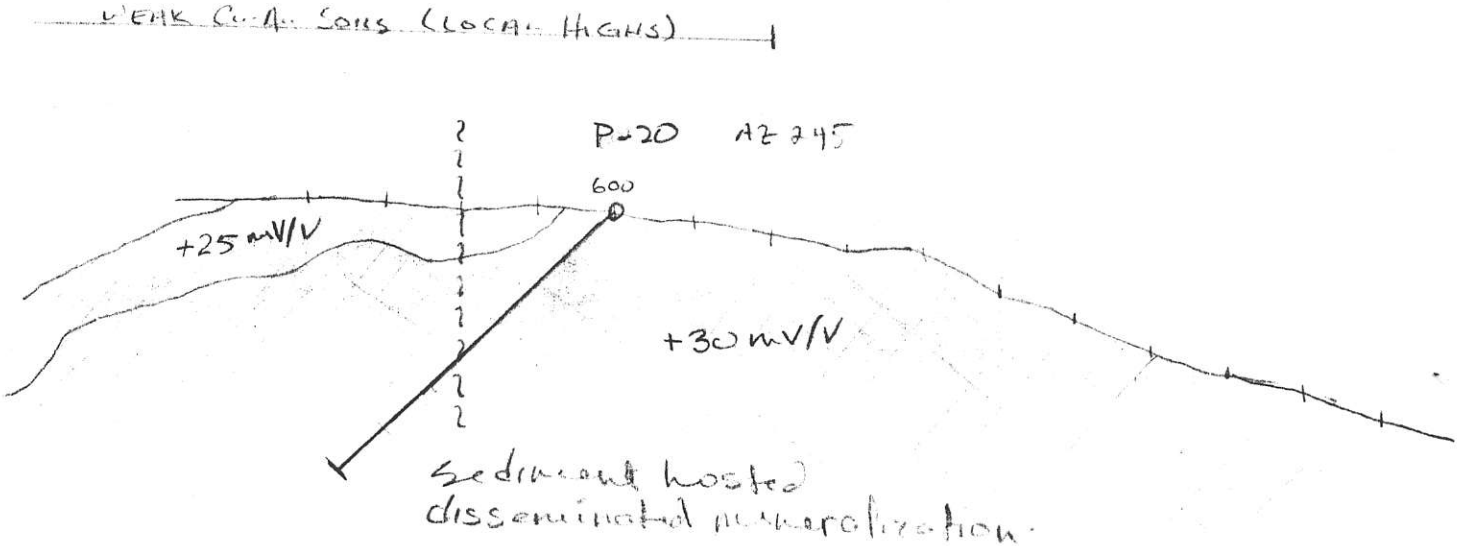

Cu Soil (Minor Au)
Mag High
Mag Low
P-16
800E
+15
+25 mV/V
+20
Silic
+30 mV/V
+15
silic
+20 mV/V
+30
+15 mV/V
Dyke
Dyke
+20 mV/V
+15 mV/V
+20 mV/V
sediments


Cu-Au Soil Anomaly
Line 2+00N
Cu-Au Soil Anomaly
Mag High
Mag Low
Mag High
Mag Low
Mag High
SILICA CAP
500
P-17
575
sediments
+20 mV/V
silic.
+30 mV/V
+20 mV/V
P18
775
+15
+30
+20 mV/V
Intrusion
andesite

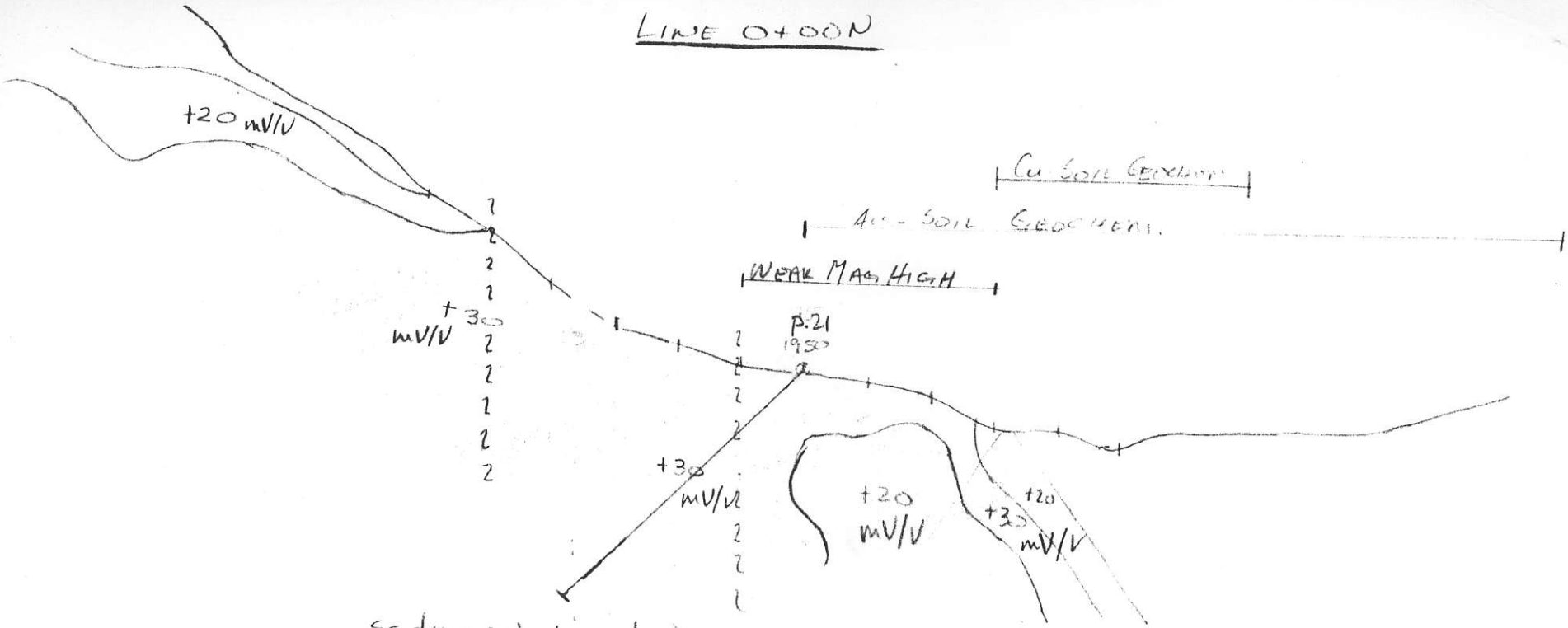
L2+00N


WEAK Cu-Au SOIL GEOCHEMISTRY
P19 AZ070
1700E
+20 mV/V
+30 mV/V
+20 mV/V
+20
+30 mV/V
stockwk silicification
sediments
silicification
andesite
+30 mV/V
andesite
possible stockwk/sediment hosted disseminated mineralization

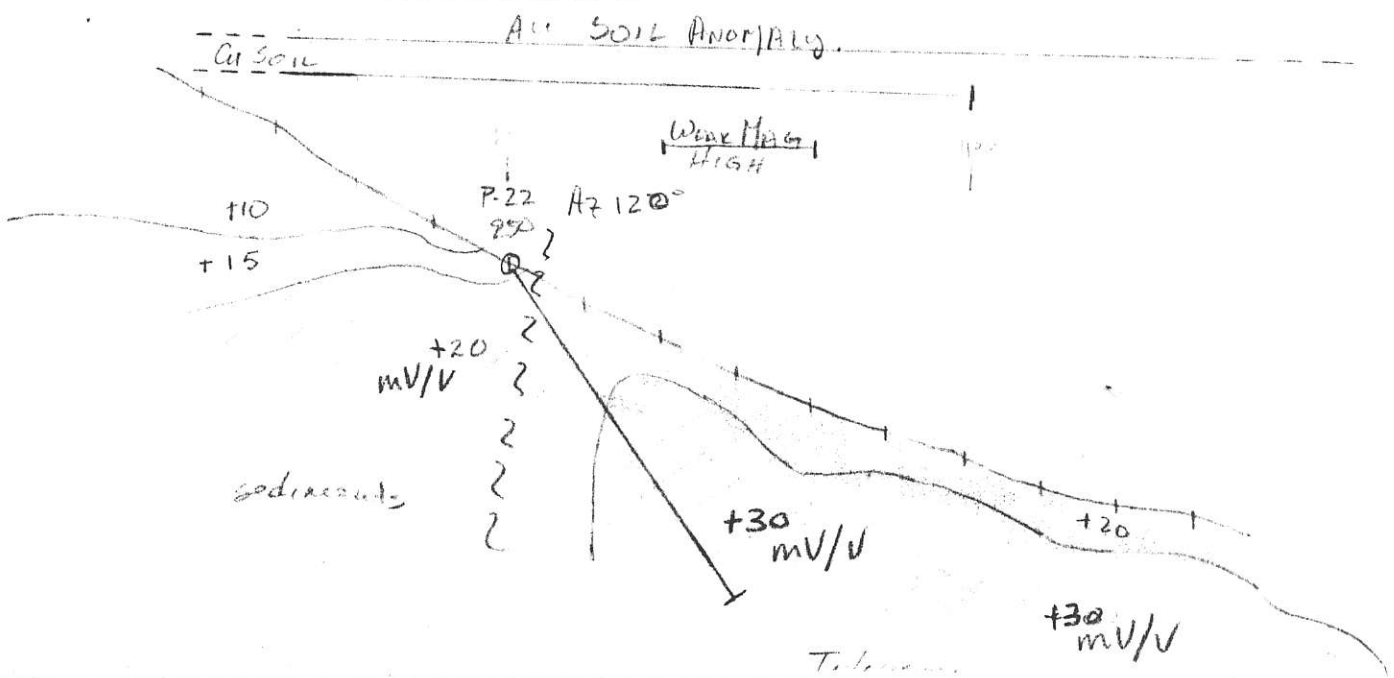
L0+00N


WEAK Cu-Au SOILS (LOCAL HIGHS)
P-20 AZ245
600
+25 mV/V
+30 mV/V
Sediment hosted disseminated mineralization.

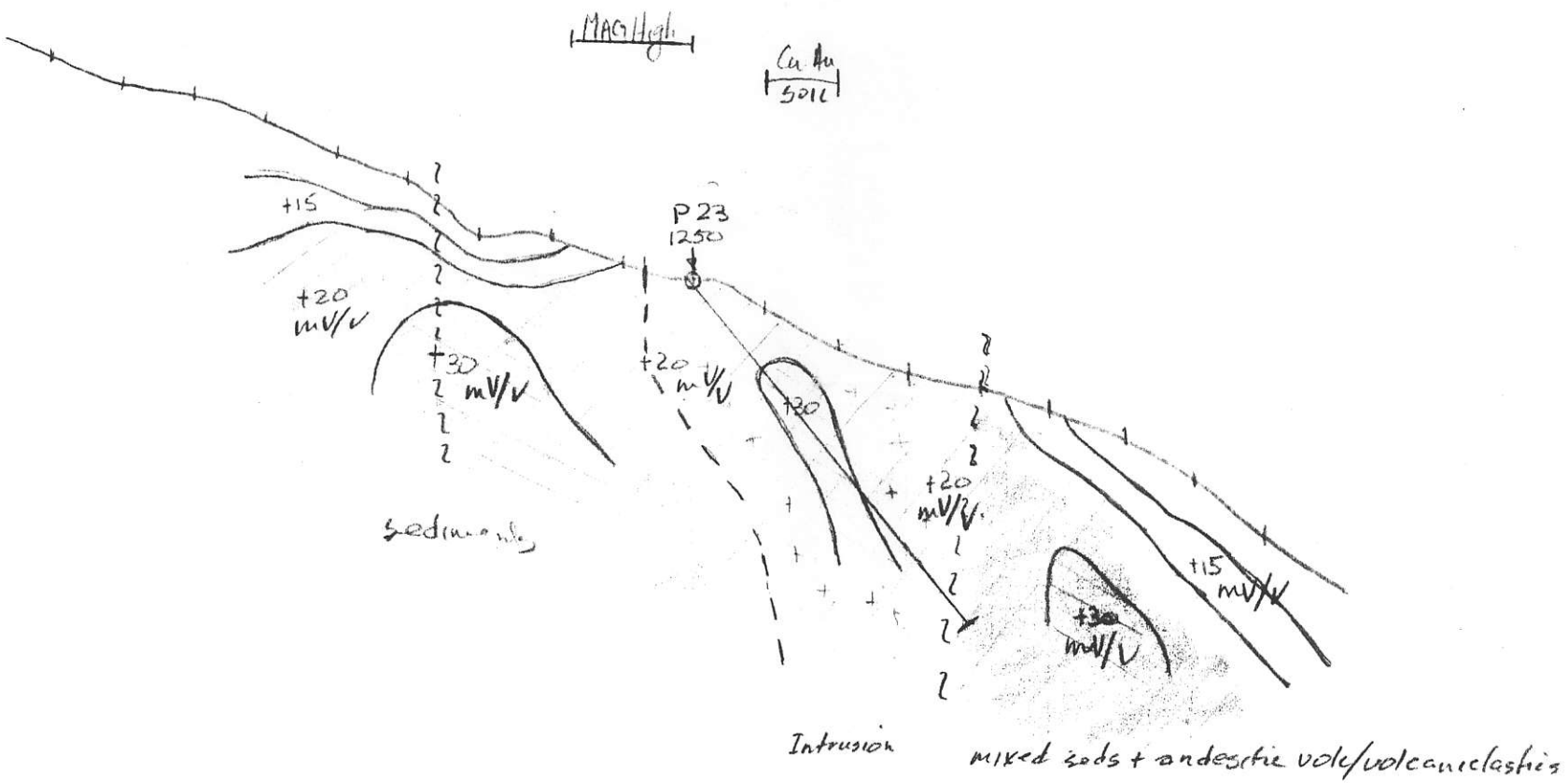
LINE 0+00N



LINE 2+00S



L4400S


MAG High
Cu Au
soil
+15
P23
1250
+20
mV/V
+30
mV/V
+20
mV/V
+20
mV/V
+30
+20
mV/V
+30
mV/V
+15
mV/V
Intrusion
mixed sods + andesitic volc/volcaniclastics

CONFIDENTIAL

DATE: October 30, 1991
TO: Dave Heberlein
COPIES TO: Alex Davidson, Ian Pirie, Chris Nagati
FROM: Cam Clayton
RE: October Monthly Report

Rainbow-Tam O'Shanter/Wildrose Properties: Drilling finally began on the Rainbow-Tam O'Shanter property on October 1, 1991. The program began at the northern end of the property testing andesite volcanics north of the contact zone with the porphyry. The program is continuing in a southerly direction across the porphyry system testing both the porphyry and chlorite-magnetite zone, and will finish by testing disseminated and vein type mineralization in the Wildrose property area. Currently drilling is proceeding on hole P-13 in the area of chlorite-magnetite zone and this should be completed today. This will conclude the drilling of the north and central portion of the property and the drill will be moved to the southern portion. Six holes remain to be drilled and completion of the program is expected by November 15, 1991. Drill summaries are attached to this report, as is a plan map of drill holes completed. The following are summaries of the best intersections obtained to date. Only results for seven holes are available so far.

HOLE TM91-2 (P-1): 32.7 metres @ 0.136% Cu
32.7 metres @ 0.331 g/t AU

includes: 11.4 metres @ 0.213% Cu
11.4 metres @ 0.186 g/t Au

10.8 metres @ 0.068% Cu
10.8 metres @ 0.716 g/t Au

Comments: The samples are from a zone of chloritically altered andesite overprinted by patchy weak to very intense silicification. Magnetite occurs up to 8% fine grained in disseminations and as stringers and chalcopyrite occurs visibly in trace amounts throughout. Leucoxene may be present.

HOLE TM91-6 (P-7): 2.45 metres @ 1.15% Cu
2.45 metres @ 0.565 g/t Au
2.45 metres @ 5.7 g/t Ag

Interval	Length	Cu (ppm)	Au (ppb)
136.55-139	2.45 m	11547	565

Comments: The interval is from a fault zone that is bleached and intensely silicified within a chloritized zone of andesitic volcanics containing patchy zones of weak to moderate magnetism. Unfortunately the hanging wall and footwall of this zone are essentially barren (HW interval 298 ppm Cu, 3 ppb Au; FW interval 645 ppm Cu, 19 ppb Au).

HOLE TM91-7 (P-8): 12.0 metres @ 0.114% Cu
12.0 metres @ .049 g/t Au

Interval	Length	Cu (ppm)	Au (ppb)
54.2-57.2	3.0 m	1374	47
57.2-60.2	3.0 m	941	39
60.2-63.2	3.0 m	1128	48
63.2-66.2	3.0 m	1129	61

Comments: The interval is taken from a fine grained diorite containing chloritized mafics, sulphides, and magnetite comprising 50% of the core. Rare narrow K-spar alteration zones occur with quartz veinlets. Minor chalcopyrite is disseminated throughout.

Copper and gold grades have so far proven sub-economic for a large tonnage deposit. Results from holes associated with the chlorite-magnetite zone and the diorite in areas of highest Cu-Au soil geochemistry have not been obtained as yet and the possibility of higher grades occurring in drill core is still present.

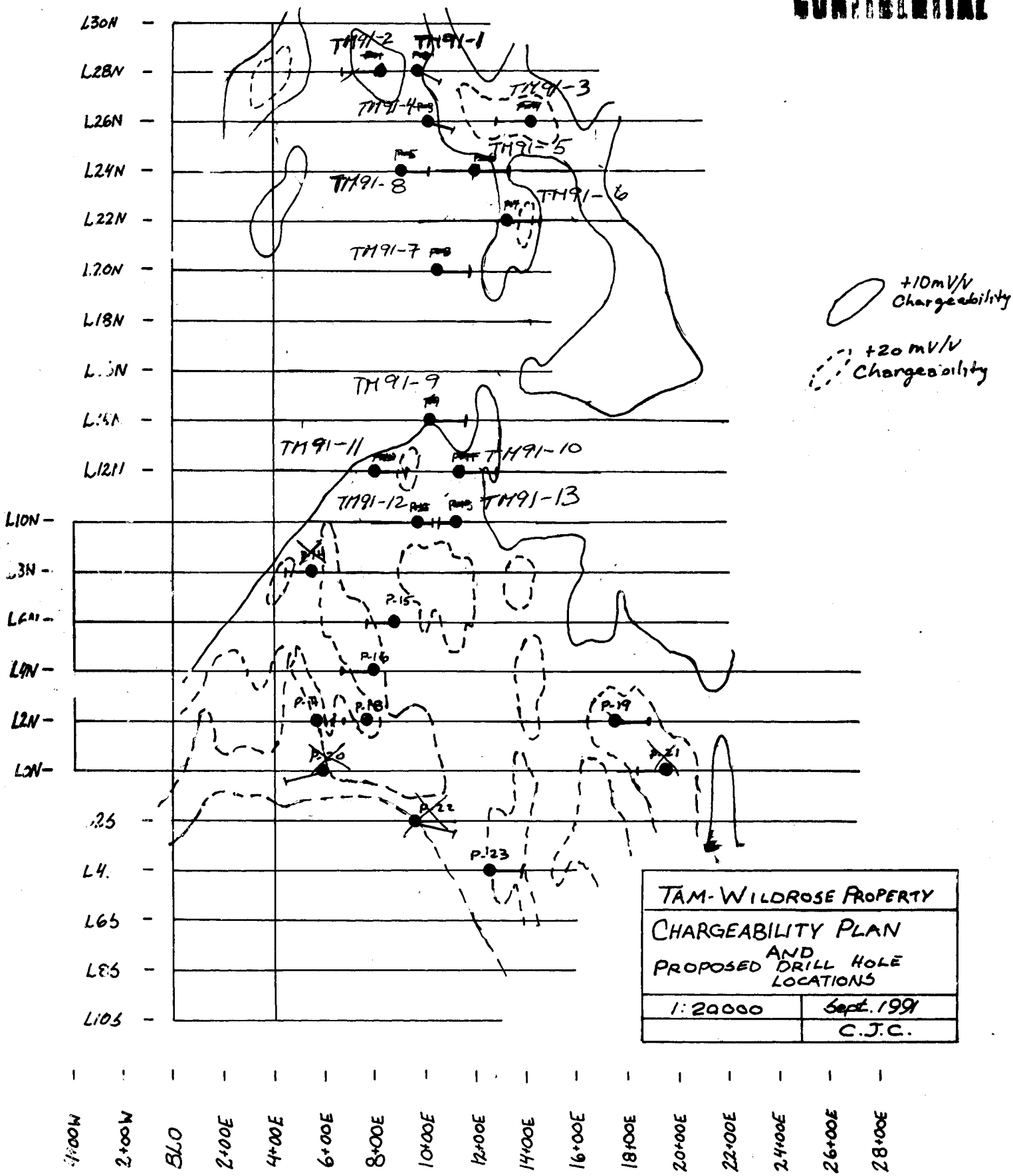
Interval	Length	Cu (ppm)	Au (ppb)
39.3-42.3	3 m	2262	183
42.3-44.3	2 m	2814	245
44.3-46.5	2.2 m	2208	244
46.5-47.7	1.2 m	1461	60
47.7-50.7	3 m	1740	157
50.7-53.5	2.8 m	834	364
53.5-54.4	0.9 m	719	4800
54.4-56.4	2.0 m	137	42
56.4-58.6	2.2 m	632	700
58.6-60.7	2.1 m	367	285
60.7-61.5	0.8 m	2414	216
61.5-63.0	1.5 m	958	188
63.0-66.0	3.0 m	1311	100
66.0-69.0	3.0 m	1231	45
69.0-72.0	3.0 m	1255	80

Comments: These grades are over the interval from 39.3 metres to 72.0 metres occurring within propylitically altered andesite containing variably altered zones of epidote, carbonate and minor hematite. The highest Au grade of 4800 ppb (719 ppm Cu) over 0.9 metres occurred from 53.5 metres to 54.4 metres and is associated with a shear.

HOLE TM91-4 (P-3): 31.5 metres @ 0.116% Cu
negligible Au

Interval	Length	Cu (ppm)	Au (ppb)
24.0-26.5	2.5 m	1466	19
26.5-29.0	2.5 m	1061	12
29.0-31.5	2.5 m	1088	20
31.5-34.25	2.75 m	1255	3
34.25-37.3	3.05 m	822	18
37.3-40.3	3.0 m	1099	21
40.3-43.3	3.0 m	1104	22
43.3-46.3	3.0 m	1017	16
46.3-49.3	3.0 m	1253	14
49.3-52.0	2.7 m	1411	30
52.0-53.5	1.5 m	1332	39
53.5-55.5	2.0 m	1113	30

CONFIDENTIAL



TAM-WILDROSE PROPERTY	
CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS	
1:20000	Sept. 1991
	C.J.C.

91-16 26.14m @ 0.754 g/t Au
145 ppm Cu
incl. 5.51 m @ 2.05 g/t Au
69 ppm Cu

8307.95

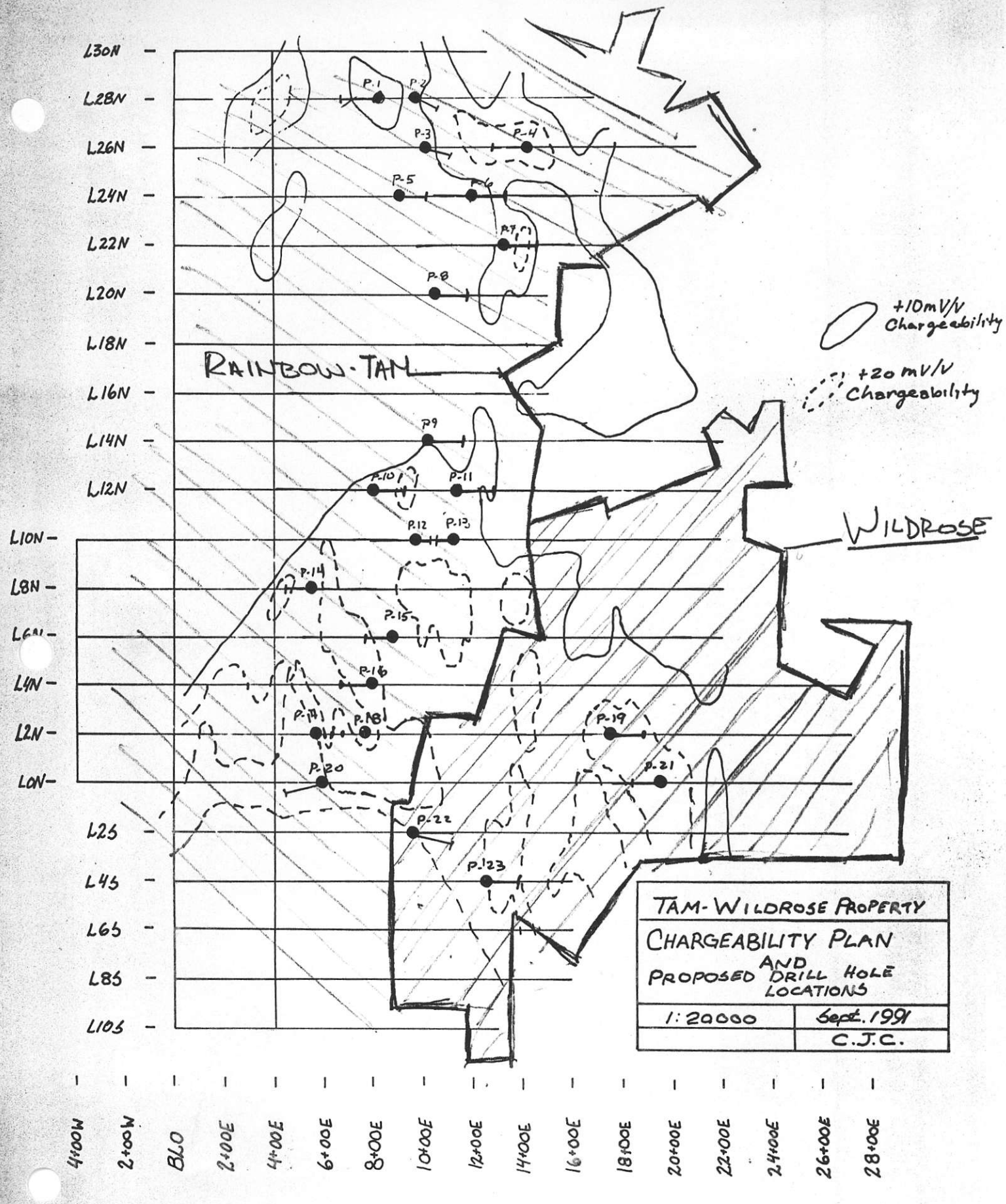
91-19
53.5m @ 2.6 g/t Au
155 ppm Cu
incl. 9.0m @ .510 g/t Au
171 ppm Cu

39561.94

91-20A.
27.07 m @ 1.09 g/t Au
1461 ppm Cu.
and 3.3 m @ 7.3 g/t Au
8321 ppm Cu.

Alex (416) (T.O.) 982-7274

982-7270


L30N
L28N
L26N
L24N
L22N
L20N
L18N
L16N
L14N
L12N
L10N
L8N
L6N
L4N
L2N
L0N
L2S
L4S
L6S
L8S
L10S
4+00W
2+00W
BLO
2+00E
4+00E
6+00E
8+00E
10+00E
12+00E
14+00E
16+00E
18+00E
20+00E
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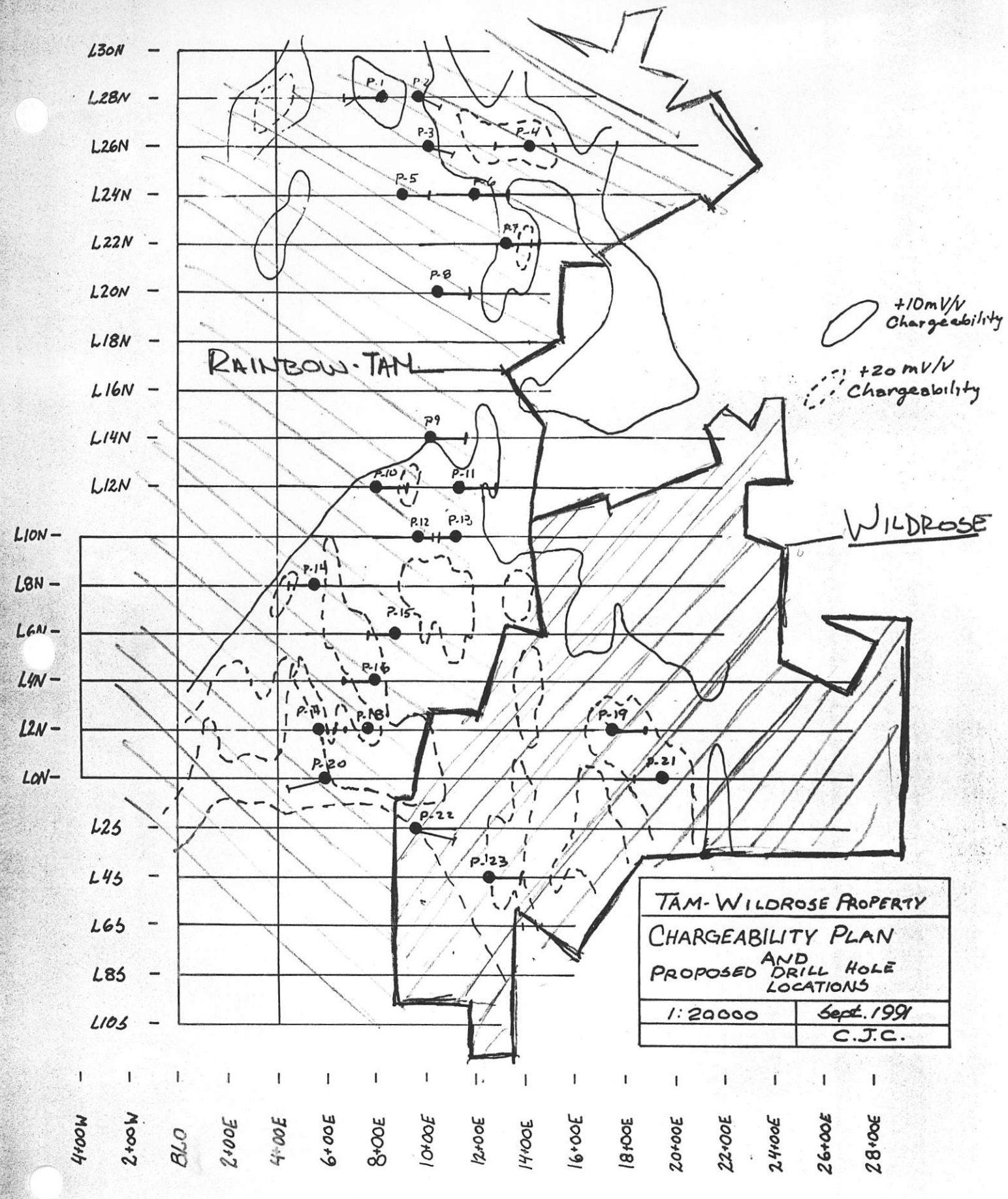
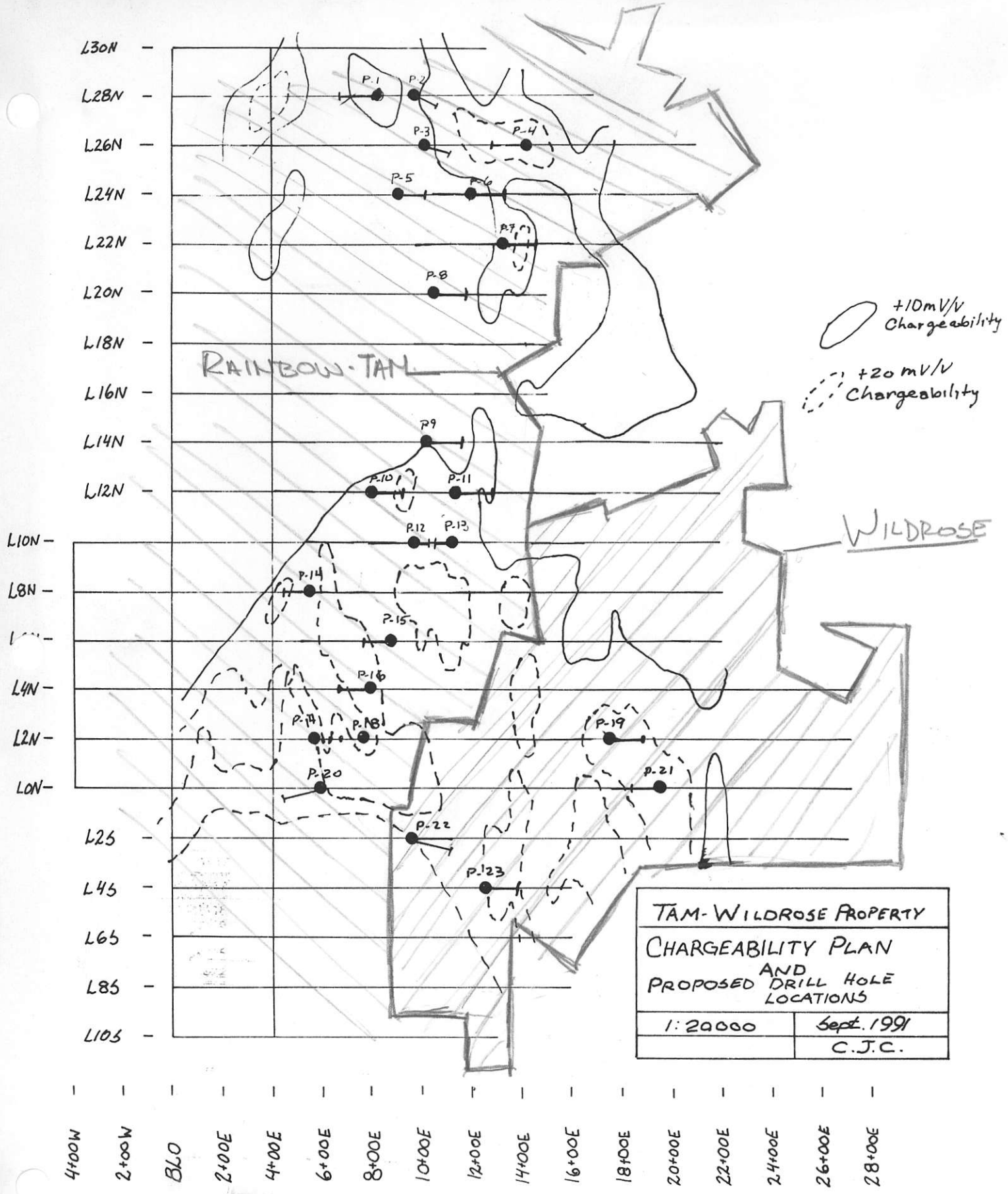
P-21
P-22
P-23
RAINBOW-TAM
WILDROSE
+10mV/V Chargeability
+20 mV/V Chargeability
TAM-WILDROSE PROPERTY
CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS
1:20000
Sept. 1991
C.J.C.



TAM-WILDROSE PROPERTY

CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS

1:20000	Sept. 1991
	C.J.C.



TAM-WILDROSE PROPERTY	
CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS	
1:20000	Sept. 1991
	C.J.C.

MINNOVA, INC.

DATE: October 7, 1991

TO: I. PIRIE, D. Heberlein, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-1 (P-2) START DATE: OCT 1 END DATE: OCT 2

NORTHING: 28+00N EASTING: 9+75E ELEVATION: 993m

AZIMUTH: 110 DIP: -60 LENGTH: 122.8m

PURPOSE: To test Cu/Au soil, chargeability, magnetic, and rock sample anomalies in the andesitic volcanics to the north of the diorite.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	6.1	CASING
6.1	20.1	ANDESITE: Typical propylitic alteration; core is chlorite altered and contains 5-10% epidote. Intense silicification zone between 15.8-16.8m contains 20% pyrite.
20.1	21.3	BRECCIA ZONE: Andesite, as above, has been fault brecciated.
21.3	23.2	QUARTZ-CARBONATE VEIN: Vein contains shear planes paralleling the vein orientation.
23.2	102.6	SHEARED TO FAULTED ANDESITE: The andesite in this interval has been affected by a broad shear zone which has produced local talc-carbonate alteration and stockworks. Between 28.9-31.0m, 52.2-57.0m, 72.4-72.5m and 100.3-102.6m fine grained magnetite is present in concentrations up to 40%. There is trace to 5% pyrite and trace very fine grained chalcopyrite disseminated throughout the interval.
102.6	104.7	CHLORITIC ASH TUFF: Bedding is contorted; foliation @ 20 degrees to core axis.

104.7	106.9	SERICITE ALTERED ANDESITE: Massive, green andesite is striated by localized sericitic alteration along foliation. Some K-spar bearing veins occur between 106-106.5m.
106.9	122.8	SILICIFIED ANDESITE: Fine to medium grained andesite has been extensively silicified. This silicified zone contains greater concentrations of sulphides than previously seen in the hole; between 106.9-112.2m there is 10-20% disseminated pyrite and chalcopyrite in a ratio (py:cp) of 7:3. Epidote is disseminated throughout the interval and frequently rims the sulphide disseminations.
		**** END OF HOLE ****

DISCUSSION

The broad zone of shearing and faulting seen in the hole is believed to be related to a fault structure mapped on surface to the north. The presence of small intervals containing fairly abundant magnetite within this shear zone may account for magnetic anomalies seen in this area.

The presence of numerous (small) zones bearing chalcopyrite came as something of a surprise. The overall content is quite low but is a further indication that mineralizing fluids are present in the area. Hopefully, correspondingly high gold geochemical results will be obtained.

TO MINNOVA-VANC.

FROM MINNOVA SAM EXPLORATION

10/10/1991 12:31

PPM Cu PPM Zn PPM Pb PPM Ag PPB Au

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length (M)	~~% Cu~~	~~% Zn~~	~~% Pb~~	~~gm/t~~ Ag	~~gm/t~~ Au	~~%~~ SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	P
25577	15.6	16.8			1.2	1396			3.3	62							
25578	21.3	21.7			0.4	88			1.0	254							
25579	23.2	26.2			3.0	119			0.9	7							
25580	26.2	28.8			2.6	246			1.0	18							
25581	29.4	30.9			1.5	727			1.7	30							
25582	31.4	34.4			3.0	168			0.9	10							
25584	41.3	41.9			0.6	286			0.8	4							
25585	43.9	44.8			0.9	186			0.8	1							
25586	47.5	50.5			3.0	189			0.6	1							
25588	59.4	62.6			3.2	246			0.5	2							
25589	65.6	68.6			3.0	180			0.7	1							
25590	71.4	72.4			1.0	123			0.5	1							
25591	72.4	72.55			0.15	77			0.7	2							
25592	72.55	75.6			3.05	167			0.2	1							
25594	84.0	87.0			3.0	131			0.6	1							
25595	90.0	91.0			1.0	182			0.9	18							
25596	91.0	95.4			4.4	246			0.7	1							
25597	95.4	97.25			1.85	166			0.8	1							
25598	97.25	100.0			2.75	463			0.7	2							
25599	100.3	102.5			2.2	431			1.0	1							

HOLE NO TM 91-1

LITHOGEOCHEMISTRY

SAMPLE NUMBER	FROM ( )	TO ( )	MAJOR OXIDES SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	TRACE ELEMENTS ppm Cu	ppm Ag	ppm Au	ppm Ag
25576	11.0	14.6											162	2.5	2	
25583	37.4	40.5											91	0.6	2	
25587	53.6	56.7											187	0.7	12	
25593	79.0	82.0											126	0.4	2	
25600	102.5	104.5											5	0.7	1	
25976	104.5	106.7											58	1.3	87	

Hole No. JM 91-7 Entered by _____ Logged by C. CLAYTON

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25977	106.7	110.4			3.7	205			1.4	4							
25978	110.4	111.6			1.2	283			1.0	2							
25979	111.6	112.2			0.6	1640			0.2	28							
25980	112.2	114.9			2.7	497			1.9	19							
25981	114.9	118.3			3.4	923			1.9	23							
25982	118.3	121.0			2.7	332			1.4	8							
25983	121.0	122.8			1.8	352			1.8	7							
25984	6.1	9.2			3.1	580			3.3	6							
25985	9.2	11.0			1.8	221			3.1	1							
25986	11.0	14.6			3.6	191			3.0	2							
25987	14.6	15.6			1.0	50			2.8	1							
25988	16.8	18.3			1.5	193			2.0	1							
25989	18.3	21.3			3.0	224			0.7	2							
25992	28.8	29.4			0.6	300			1.6	4							
25993	30.9	31.4			0.5	447			1.5	16							
25994	34.4	37.4			3.0	100			0.9	2							
25995	37.4	40.5			3.1	91			0.7	4							
25996	40.5	41.3			0.8	119			0.8	1							
25997	41.9	43.9			2.0	138			0.8	1							
25998	44.8	47.5			2.7	146			1.0	4							

HOLE NO TM 91-1

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25999	50.1	53.6			2.5	277			0.8	1							
26000	53.6	56.7			3.1	208			0.7	4							
25713	56.7	59.4			2.7	119			0.5	2							
25714	62.6	65.6			3.0	186			0.6	1							
25715	68.6	71.4			1.8	221			0.6	1							
25716	75.6	79.0			3.4	104			0.7	3							
25717	79.0	82.0			3.0	125			0.5	1							
25718	82.0	84.0			2.0	142			0.5	4							
25719	87.0	90.0			3.0	139			0.8	5							
25720	102.5	104.5			2.0	97			0.8	4							
25721	104.5	106.7			2.2	67			1.0	24							

HOLE NO TM-91-1

P.89 TO MINNOVA-VANC. FROM MINNOVA SAM EXPLORATION 10/15/1991 07:54

Extended Page 8.1

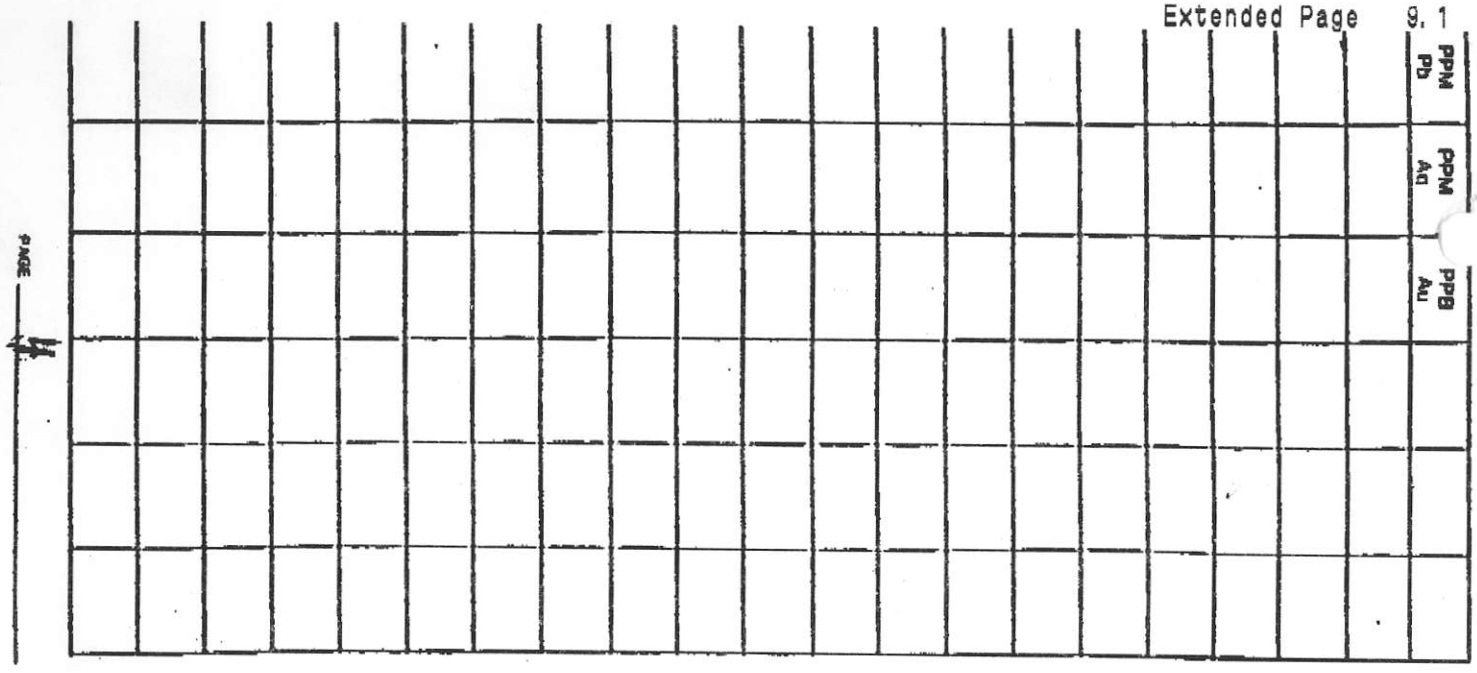
PPM Pb	PPM Ag	PPB Au			

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25999	50.1	53.6			2.5	277			0.8	1							
26000	53.6	56.7			3.1	208			0.7	4							
25713	56.7	59.4			2.7	119			0.5	2							
25714	62.6	65.6			3.0	186			0.6	1							
25715	68.6	71.4			1.8	221			0.6	1							
25716	75.6	79.0			3.4	104			0.7	3							
25717	79.0	82.0			3.0	125			0.5	1							
25718	82.0	84.0			2.0	142			0.5	4							
25719	87.0	90.0			3.0	139			0.8	5							
25720	102.5	104.5			2.0	97			0.8	4							
25721	104.5	106.7			2.2	67			1.0	24							

HOLE NO TM-91-1

P.09 TO MINNOVA-VANC. FROM MINNOVA SAM EXPLORATION 10/15/1991 07:54



TOTAL P.09

MINNOVA INC.

DATE: October 7, 1991

TO: I. PIRIE, D. Heberlein, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-2 (P-1) START DATE: OCT 2 END DATE: OCT 4

NORTHING: 28+00N EASTING: 8+25E ELEVATION: 1038m

AZIMUTH: 270 DIP: -45 LENGTH: 129.7m

PURPOSE: To test Cu/Au soil, chargeability, magnetic and rock sample anomalies in andesitic volcanics to the north of the diorite.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	9.1	CASING
9.1	94.5	PROPYLITIC ALTERED ANDESITE: Massive green chlorite altered andesitic volcanic rocks have been further altered by variable patchy zones of epidote, carbonate and minor hematite. Zones of intense silicification occur between 26-26.4m, 26.8-28.2m, 60.7-61.5m. The core is weakly magnetic to 28.2m; <1% visible magnetite. The pyrite content varies between 1-15% with a mean concentration of approximately 5%. Narrow zones containing trace to 1% finely disseminated chalcopyrite in andesite, pyritic blebs, quartz-carbonate stringers and silicified intervals occur to 82.3m.
94.5	96.6	SILICIFIED VOLCANICS: Intense silicification destroys original rock textures in what was most likely andesite. Core is non-magnetic. 5% pyrite, .5% chalcopyrite.
96.6	98.6	ANDESITE: Chloritic, non-magnetic andesite.
98.6	102.5	SILICIFIED VOLCANIC: Intense silicification again destroys original textures in what was most likely an andesite. 5% pyrite, <=1% fine grained chalcopyrite.

DDH TM 91-2 CONT... -2-

102.5	104.8	ANDESITE: Typical chloritized andesite.
104.8	105.7	SILICIFIED VOLCANIC: Another interval of intensely silicified andesite? which contains <=8% pyrite and <.5% chalcopyrite.
105.7	117.0	ALTERED ANDESITE: Chloritized andesite is affected by further alteration of varying types and intensities including silicification, bleaching and sericite alteration, and what appears to be a buff stained aphanitic plagioclase - albite?? Feldspar stain has no visible effect. The interval contains small zones with minor chalcopyrite and/or <= 1% magnetite.
117.0	117.8	HORNBLENDE/PLAGIOCLASE LAMPROPHYRE? DYKE?: 20% phenocrysts of hornblende and 3% plagioclase phenocrysts are supported by an aphanitic matrix.
117.8	122.45	ALTERED ANDESITE: This interval is similar to that between 105.7-117.0m. There is 6% pyrite, <1% chalcopyrite present in the interval.
122.45	125.3	HORNBLENDE/PLAGIOCLASE LAMPROPHYRE? DYKE?: The core in this interval is the same as that between 117.0-117.8m.
125.3	125.9	BRECCIA: A sericitic matrix supports angular to subrounded clasts of quartz, andesite, and lamprophyre dyke.
125.9	129.7	ANDESITE: Typical chlorite altered andesite.
		**** END OF HOLE ****

DISCUSSION

Chalcopyrite was once again intersected in small quantities in a number of zones throughout the hole. There seems to be a high correlation between chalcopyrite and silicification/silica in this hole, although this is not an absolute relationship. The intermittent 10m wide zone of very intense silicification carrying chalcopyrite is likely to be the source of some soil geochemical anomalies in the area. The silica in these zones is quite grey and probably carries further microscopic sulphides.

ASSAY SHEET

PPM Cu PPM PPB

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	ppm	% Zn	% Pb	~~gm/t~~ Ag	~~gm/t~~ Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25601	10.5	15.5			5.0	404			0.6	3							
25602	17.1	20.4			3.3	284			1.1	2							
25603	20.4	21.9			1.5	4850			1.6	282							
25604	26	28.2			2.2	325			0.8	17							
25605	28.2	29.7			1.5	432			0.1	10							
25606	33.3	36.3			3.0	295			0.1	22							
25607	39.3	42.3			3.0	2262			0.5	183							
25608	46.5	47.7			1.2	1461			1.7	60							
25609	47.7	50.7			3.0	1740			1.6	157							
25610	50.9	53.5			2.8	834			1.2	364							
25611	53.5	54.4			0.9	719			1.7	4800							
25613	60.7	61.5			0.8	2414			3.8	216							
25614	61.5	63.0			1.5	958			0.8	188							
25615	66.0	69.0			3.0	1231			0.7	45							
25616	77.45	800			2.55	551			0.9	2							
25617	80.0	82.3			2.3	975			0.3	1							
25618	85.3	883			3.0	313			0.1	2							
25619	94.5	96.6			2.1	865			1.1	28							
25620	96.6	98.6			2.0	466			0.1	2							
25621	98.6	100.6			2.0	663			1.2	24							

HOLE NO TM 91-2

P.06

TO MINNOVA-VANC.

10/10/1991 12:35 FROM MINNOVA SAM EXPLORATION

ASSAY SHEET

PPM PPM PPB

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	Cu	% Zn	% Pb	Ag	Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25622	100.6	102.5			1.9	363			1.4	8							
25623	102.5	104.8			2.3	649			0.8	20							
25624	104.8	105.7			0.9	534			1.9	18							
25625	105.7	108.7			3.0	816			1.3	54							
25626	111.7	112.9			2.2	895			1.3	16							
25628	119.2	120.6			1.4	1054			0.5	4							
25629	120.6	122.45			1.85	1068			1.0	2							
25630	125.3	125.9			0.6	665			0.7	30							
25631	127.0	129.7			2.9	666			0.9	46							

HOLE NO TM-91-2

P.07

TO MINNOVA-VANC.

10/10/1991 12:36 FROM MINNOVA SAM EXPLORATION

SAMPLE NUMBER	FROM (M)	TO (M)	MAJOR OXIDES										TRACE ELEMENTS			
			SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	ppm Cu	ppm Ag	ppm Mo	ppm Ag
25612	54.4	56.4											64	0.5	5	
25627	117.0	117.8											73	0.5	1	
25632	112.9	113.9											1731	0.5	29	

Hole No. TM91-2 Entered by _____ Logged by C. NAGAI

P.02 FROM MINNOVA SAM EXPLORATION TO MINNOVA-VANC 10/21/91 08:16

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
25722	15.5	17.1			1.6	173			0.7	4										
25723	21.9	24.0			2.1	279			0.5	2.										
25724	24.0	26.0			2.0	389			0.3	22										
25725	29.7	33.3			3.6	125			0.6	10										
25726	36.3	39.3			3.0	924			0.7	76										
25727	42.3	44.3			2.0	2814			1.7	245										
25728	144.3	146.5			2.2	2208			1.8	244										
25729	54.4	56.4			2.0	137			0.4	42										
25730	56.4	58.6			2.2	632			2.1	700										
25731	58.6	60.7			2.1	367			1.6	285										
25732	63.0	66.0			3.0	1311			1.2	100										
25733	69.0	72.0			3.0	1255			1.0	80										
25734	72.0	75.0			3.0	966			0.6	2										
25735	75	77.5			2.5	759			0.9	1										
25736	82.3	85.3			3.0	341			1.2	2										
25737	88.3	91.3			3.0	304			1.8	1.										
25738	91.3	94.5			3.2	483			1.3	40										
25739	108.7	111.7			3.0	737			1.0	52										
25740	112.9	113.9			1.0	2134			0.7	65										
25741	113.9	117			3.1	482			0.6	12										

HOLE NO TM-91-2

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
25742	117	117.8			0.8	110			0.6	24										
25743	117.8	119.2			1.4	720			0.5	21.										
25744	122.5	125.3			2.8	410			0.6	10										
25745	125.9	127			1.1	279			0.1	5										

HOLE NO TM-91-2

PAGE 4

MINNOVA, INC.

DATE: October 8, 1991

TO: I. PIRIE, D. Heberlein, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-3 (P-4) START DATE: OCT 4 END DATE: OCT 6

NORTHING: 26+00N EASTING: 12+75E ELEVATION: 980m

AZIMUTH: 090 DIP: -60 LENGTH: 121.9m

PURPOSE: To test Cu/Au soil, chargeability, magnetic, and rock sample anomalies in andesitic volcanics and diorite.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	6.1	CASING
6.1	24.6	HORNFELSED? ANDESITE: Interval consists of massive dark green andesitic volcanics which are quite siliceous without being obviously silica flooded; possibly weakly hornfelsed. 3% fine grained pyrite and minor chalcopyrite are present in fine disseminations. Narrow bleached zone between 15.27-15.77m contains 1% cp, 8% py, 1% epidote. A 4mm wide qtz-feld-epidote veinlet contains 5% molybdenum?? (very fine grained with silvery-grey streak).
24.6	35.2	INTENSE ALBITIZED? ANDESITE: 30% of the interval is typical andesite; the remainder of the interval contains patchy, intensely bleached zones of aphanitic albite?. Feldspar stain has negligible effect.
35.2	37.6	HORNFELSED? ANDESITE: Similar to the interval 6.1-24.6m. The interval contains patchy bleaching.
37.6	38.1	QUARTZ MONZODIORITE: Mafics are chloritized. 4% epidote stringers along fractures.
38.1	66.8	EPIDOTE/ALBITE ALTERED ANDESITE: The interval contains 20% fine grained epidote alteration, 30% patchy bleaching and albitization? and

		50% chlorite altered dark green andesite. The andesite is very weakly calcareous except in zones rich in epidote which occurs in a moderately calcareous matrix. Minor chalcopyrite mineralization occurs with pyrite clots and with intense epidote alteration.
66.8	67.8	QUARTZ DIORITE: The diorite contains 2% disseminated fine grained magnetite.
67.8	121.9	EPIDOTE/CARBONATE ALTERED ANDESITE: The unit consists of the typical dark chloritic andesite which is locally moderately epidote and carbonate altered. Between 75.2-76.3m 45% of the interval is qtz diorite; the intrusive/volcanic contact is subparallel to the core axis. There are numerous narrow fault zones located between 77.1-91.45m. Trace chalcopyrite.
		**** END OF HOLE ****

DISCUSSION

The three small zones of fine grained dioritic rock intersected in the hole were not visibly mineralized outside of a small amount of magnetite. The presence of a larger dioritic body nearby is the probable cause of the albite?, epidote and hornfelsed zones within the andesite. Minor amounts of disseminated chalcopyrite are again associated with these altered zones within the andesite.

TM 91-3

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25633	9.3	12.3			3.0	.273			2.5	17							
25634	15.3	18.3			3.0	998			2.7	40.							
25635	21.3	24.3			3.0	161			2.4	2							
25636	26.5	28.5			2.0	226			2.2	3							
25638	32.2	35.2			3.0	554			1.8	21							
25639	37.6	38.1			0.5	425			1.4	17							
25640	38.1	40.6			2.5	915			1.4	22							
25641	40.6	41.6			1.0	2353			0.9	71							
25642	44.6	47.6			3.0	396			1.8	19							
25643	49.6	52.6			3.0	218			2.0	3							
25644	55.6	58.6			3.0	234			2.0	15							
25645	61.6	64.6			3.0	226			2.1	17							
25646	64.6	66.8			2.2	299			2.2	3							
25648	70.8	73.8			3.0	252			2.2	1							
25649	73.8	76.8			3.0	149			2.0	3							
25650	76.8	79.8			3.0	234			2.2	9							
25651	82.8	85.8			3.0	287			1.8	10							
25652	88.8	91.8			3.0	1044			1.5	114							
25653	94.8	97.8			3.0	502			2.0	22							
25654	97.8	100.8			3.0	322			1.7	12							

HOLE NO TM 91-3

TM 91-3

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25655	103.8	106.8			3.0	332			1.9	19							
25656	108.8	111.8			3.0	363			2.5	7.							
25657	111.8	114.8			3.0	378			2.7	8							
25658	117.8	120.8			3.0	318			1.7	7							
25659	47.6	49.6			2.0	463			2.1	12							

HOLE NO TM 91-3

P.09

10/10/1991 12:38 FROM MINNOVA SAM EXPLORATION TO MINNOVA-VANC.

TM 91-3 Cu Ag Au

SAMPLE NUMBER	FROM	TO	MAJOR OXIDES										TRACE ELEMENTS			
			~~SiO~~	~~Al~~	~~CaO~~	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	ppm Cu	ppm Zn	ppm Pb	ppm Ag
25637	30.48	32.2	621	2.03	17											
25647	66.8	67.8	210	1.0	1											

Hole No. TM 91-3 Entered by _____ Logged by _____

10/10/1991 12:38 FROM MINNOVA SAM EXPLORATION TO MINNOVA-VANC. P.10

Extended Page 4.1

PPM Pb	PPM Ag	PPB Au			

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
25746	6.1	9.3			3.2	411			2.3	17													
25747	12.3	15.3			3.0	433			2.8	31													
25748	18.3	21.3			3.0	290			2.9	21													
25749	24.3	26.5			2.2	620			2.8	56													
25750	28.5	30.48			1.98	281			2.6	21													
25751	35.2	37.6			2.4	534			2.6	27													
25752	41.6	44.6			3.0	441			2.7	10													
25754	52.6	55.6			3.0	208			2.4	22													
25755	58.6	61.6			3.0	316			2.1	40													
25756	66.8	67.8			1.0	208			0.9	32													
25757	67.8	70.8			3.0	328			2.1	27													
25758	79.8	82.8			3.0	216			1.8	26													
25759	85.8	88.8			3.0	309			1.2	58													
25760	91.8	94.8			3.0	377			2.1	60													
25761	100.8	103.8			3.0	444			2.0	59													
25762	106.8	108.8			2.0	347			2.4	37													
25763	114.8	117.8			3.0	286			2.4	20													
25764	120.8	121.9			1.1	325			2.0	32													

HOLE NO TM91-3 Additional Samples.

PAGE 10

MINNOVA, INC.

DATE: October 13, 1991

TO: I. PIRIE, D. Heberlein, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-4 (P-3) START DATE: OCT 6 END DATE: OCT 9

NORTHING: 26+00N EASTING: 10+12E ELEVATION: 1024m

AZIMUTH: 110 DIP: -45 LENGTH: 154.8m

PURPOSE: To test Cu/Au soil, chargeability, magnetic, and rock sample anomalies in andesitic volcanics and diorite.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	12.2	CASING
12.2	65.53	SILICIFIED ANDESITE: Massive chlorite altered andesites are overprinted by patchy weak to very intense silicification, with weak to moderate sil. being prevalent. The interval contains up to 8% fine grained magnetite disseminations and stringers. Overall, the interval contains minor very fine grained disseminated chalcopyrite; local concentrations can reach 4%. Between 30.1-30.8m there is 3% cp, 1% py and 5% magnetite. Pyrite content ranges between 1-5%. There is a trace amount of a pale brown, very fine grained mineral which may be sphalerite. At 55.5-56.3m there is 20% py, minor cp and sp? (possibly leucoxene).
65.53	73.4	PROPYLITICALLY ALTERED DIORITE: Fine grained diorite comprised of 50% chlorite altered mafics and 50% sausseritized feldspar. The diorite contains disseminated magnetite.
73.4	77.1	QUARTZ VEIN: Finely fractured quartz vein containing up to 20% chlorite altered clasts.
77.1	96.6	ANDESITE: Typical chlorite altered andesitic volcanic rocks are moderately to intensely overprinted by silicification to a depth of

		90.85m. The interval contains up to 10% disseminated magnetite, 2% pyrite and minor chalcopyrite.
96.6	110.55	RECRYSTALLIZED CHERT: The unit consists is monotonous, uniform sugary quartz with minor sericite. Minor cross-cutting grey quartz veinlets.
110.55	122.0	DIORITE: The intrusive is comprised of roughly equal proportions of chloritized mafics and plagioclase + quartz. The unit is moderately magnetic.
122.0	124.35	ALTERED ANDESITE: Typical green chlorite altered andesitic unit which has patchy brown sericite alteration. The interval is strongly calcareous. Small magnetic zones are present within the unit.
124.35	129.2	DIORITE: As in the interval 110.55-122.0m.
129.2	154.8	LEUCO-DIORITE: The unit is a very pale dioritic intrusive. Mafics are represented by pale green `ghosts'; in 10% of the interval the mafics are better preserved - chlorite altered. Core is non-magnetic.
		**** END OF HOLE ****

DISCUSSION

The variable amounts of magnetite seen throughout the hole serve to explain both the magnetic and the chargeability anomalies seen in the vicinity. The lithologic change to leuco-diorite should be represented by a decrease in both the magnetic and chargeability susceptibility. The presence of minor amounts of fine grained disseminated chalcopyrite to a depth of 65.53m likewise explains the presence of the copper soil anomaly in the area. Presumably the presence of copper mineralization will correspond to that of gold. No massive sulphide veins were intersected in the hole.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/t Ag	gm/t Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	
25660	12.2	16.5			4.3	655			1.1	3								
25661	16.5	19.3			2.8	803			0.9	22								
25662	19.3	21.0			1.7	461			0.7	20								
25663	21.0	24.0			3.0	647			1.0	17								
25664	24.0	26.5			2.5	1466			0.9	19								
25665	26.5	29.0			2.5	1061			1.0	12								
25666	29.0	31.5			2.5	1088			1.3	20								
25667	31.5	34.25			2.75	1255			1.0	3								
25668	34.25	37.3			3.05	822			0.8	18								
25669	37.3	40.3			3.0	1099			1.1	21								
25670	40.3	43.3			3.0	1104			0.9	22								
25671	43.3	46.3			3.0	1017			1.2	16								
25672	46.3	49.3			3.0	1253			1.2	14								
25673	49.3	52.0			2.7	1411			1.0	30								
25674	52.0	53.5			1.5	1332			1.5	39								
25675	53.5	55.5			2.0	1113			1.5	30								
25676	55.5	56.3			0.8	314			0.5	100								
25677	56.3	59.4			3.1	945			1.7	38								
25678	59.4	62.5			3.1	770			1.1	50								
25679	62.5	65.5			3.0	230			0.8	12								

HOLE NO. JM 91-4

TO MINNOVA-VANC

FROM MINNOVA SAM EXPLORATION

10/15/1991 07:50

10/15/1991 07:51 FROM MINNOVA SAM EXPLORATION .. TO MINNOVA-VANC.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25680	65.5	68.5			3.0	31			0.1	25							
25681	68.5	71.5			3.0	70			0.2	18							
25682	71.5	73.4			1.9	41			0.5	40							
25683	73.4	75.3			1.9	15			0.8	48							
25684	75.3	77.1			1.8	17			0.9	19							
25685	77.1	80.1			3.0	678			1.1	17							
25686	80.1	83.1			3.0	739			0.8	8							
25687	83.1	86.1			3.0	355			1.1	5							
25688	89.1	92.1			3.0	680			0.8	19							
25689	92.1	94.1			2.0	664			1.1	27							
25690	94.1	96.6			2.5	459			1.6	18							
25691	96.6	99.6			3.0	40			1.8	2							
25693	102.6	105.6			3.0	103			1.9	4							
25694	105.6	108.1			2.5	20			1.9	6							
25695	108.1	110.55			2.45	91			1.9	3							
25696	110.55	113.5			2.95	7			0.7	4							
25697	113.5	116.5			3.0	10			1.5	3							
25698	116.5	119.5			3.0	6			0.9	17							
25699	119.5	122.0			2.5	5			0.5	5							
25700	122.0	124.35			2.35	5			0.8	4							

HOLE NO TM91-4

5.1 Extended Page

PPM Pb	PPM Ag	PPB Au			

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
25701	86.1	89.1			3.0	614			1.5	23							
25702	124.35	126.4			2.05	10			0.6	14							
25703	126.4	129.2			2.8	4			1.2	9							
25704	129.2	132.2			3.0	3			1.3	3							
25705	132.2	135.2			3.0	7			1.7	5							
25706	135.2	138.2			3.0	4			1.7	6							
25707	138.2	141.2			3.0	4			1.8	13							
25708	141.2	144.2			3.0	4			1.6	8							
25709	144.2	147.2			3.0	3			1.6	4							
25710	147.2	150.2			3.0	3			1.6	9							
25711	150.2	153.0			2.8	3			1.8	3							
25712	153.0	154.8			1.8	2			1.3	5							

HOLE NO TM91-4

Extended Page 6.1

	PPM Pb	PPM Ag	PPB Au			

Cu Ag Au

SAMPLE NUMBER	FROM (m)	TO (m)	MAJOR OXIDES										TRACE ELEMENTS			
			~~SiO~~	~~Al2O~~	~~CaO~~	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	ppm Cu	ppm Zn	ppm Pb	ppm Ag
25692	99.6	102.6	159	1.8	2											

Hole No. TM91-4 Entered by _____ Logged by _____

ppm Ag	ppb Au	Rock Type	Alt	Min	Grid	

MINNOVA, INC.

DATE: October 19, 1991

TO: I. PIRIE, D. Heberlein, C. CLAYTON

FROM: M. MCDOWELL

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-5 (P-6) START DATE: OCT 9 END DATE: OCT 11

NORTHING: 24+00N EASTING: 12+00E ELEVATION: 1017m

AZIMUTH: 090 DIP: -65 LENGTH: 111.8m

PURPOSE: To test silicification, Cu/Au soil, chargeability, magnetic, and rock sample anomalies in andesitic volcanics and diorite.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	3.05	CASING
3.05	7.40	SILICIFIED ANDESITE: Typical andesitic volcanic rocks which are weakly to intensely silicified. Between 5.41-7.0m there is a zone of intense silicification. Mafics are intensely chloritized. Core is non-magnetic. <1% chalcopyrite occurs as fine-grained disseminations which tend to be associated with more intensely silicified zones.
7.40	8.22	DIORITE: Medium-grained leucocratic diorite.
8.22	65.8	VARIABLY SILICIFIED ANDESITE: Approximately 60% of the interval consists of intensely silicified andesite which washes out original textures. Other alteration minerals include patchy zones of sericite, epidote, hematite, albite? and pervasive weak to moderate chlorite. SOme of the very intensely 'silicified' zones may intervals of recrystallized chert. Patchy weak magnetic zones are present. Trace to 3% chalcopyrite is finely disseminated throughout the interval. Between 59.37-64.95m siliceous breccia clasts are supported by a silicified chloritic matrix. Between 31.35-31.6m there is 3% chalcopyrite.

65.8	68.4	CHERT BRECCIA: Chert clasts are supported by a rehealed siliceous matrix. Local intense recrystallization obscures fragmental textures. <1% pyrite, chalcopyrite present.
68.4	83.27	INTENSELY SILICIFIED ANDESITE: Intense silicification generally destroys original textures and gives core a glassy appearance. The intervals 68.4-69.37m and 75.05-75.5m consist of brecciated and rehealed silicified andesite. Some of the intensely silicified andesite may be recrystallized cherts. Trace to minor chalcopyrite is disseminated throughout the interval. Between 77.8-79.2m there is 10% pyrite and 2% chalcopyrite.
83.27	83.9	TRACHYTE: Aphanitic K-spar matrix supports 10% plagioclase and 5% biotite phenocrysts. The unit has chilled margins. The unit is similar to the alkali-feldspar trachyte seen in TM 91-6.
83.9	111.8	INTENSELY SILICIFIED ANDESITE: The interval is similar to the previous occurrences of silicified andesite seen above. Up to 30% K-spar phenocrysts occur in 1 cm wide quartz veinlets at 84.25m. Up to 1% magnetite is present in the more intensely silicified zones. Minor chalcopyrite is present.
		**** END OF HOLE ****

DISCUSSION

The presence of patchy magnetite mineralization in the less silicified andesitic core accounts for the zone of mag high readings obtained in the geophysical survey. The survey also indicates that there is an increase in chargeability towards the east. The cause for this increase is not readily determinable from the core. Concentrations of chalcopyrite up to 3% in narrow intervals of silicified andesite are the probable source of the Cu soil anomalies. It is expected that there will be a positive correlation between the Cu and Au results.

TM 91-5

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
BCD25765	3.05	6.05			3.0	814			1.3	38										
BCD25766	6.05	8.2			2.15	587			0.8	5										
BCD25767	8.2	11.2			3.0	1038			1.7	21										
BCD25768	11.2	12.65			1.45	827			2.9	43										
BCD25769	12.65	14.8			2.15	701			1.2	20										
BCD25770	14.8	17.8			3.0	672			2.5	7										
BCD25771	17.8	20.8			3.0	521			2.0	18										
BCD25772	20.8	23.7			2.9	517			0.7	17										
BCD25773	23.7	26.3			2.6	713			0.9	5										
BCD25774	26.3	28.6			2.3	828			0.5	2										
BCD25775	28.6	31.35			2.75	1475			1.1	48										
BCD25776	31.35	33.7			2.35	807			0.6	3										
BCD25777	33.7	36.7			3.0	636			0.7	5										
BCD25778	36.7	37.8			1.1	756			0.8	12										
BCD25779	37.8	40.8			3.0	1341			1.8	30										
BCD25780	40.8	43.8			3.0	872			0.7	8										
BCD25781	43.8	46.8			3.0	959			1.2	62										
BCD25846	46.8	49.8			3.0	809			1.0	4										
BCD25782	49.8	52.8			3.0	1544			1.0	68										
BCD25783	52.8	55.8			3.0	1809			1.3	37										

HOLE NO TM 91-5

PAGE 1

P.02 MJ QUA-VANC. TO FROM MINNOVA SAM EXPLORATION 10/22 '91 08:06

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
BCD25784	55.8	58.8			3.0	574			0.8	12										
BCD25785	58.8	61.8			3.0	953			0.8	14										
BCD25786	61.8	64.8			3.0	922			0.5	15										
BCD25787	64.8	67.8			3.0	543			0.6	6										
BCD25788	67.8	70.8			3.0	528			0.8	10										
BCD25789	70.8	73.8			3.0	753			0.4	32										
BCD25790	73.8	77.8			4.0	398			0.5	6										
BCD25791	77.8	79.8			2.0	1539			1.0	52										
BCD25792	79.8	83.27			3.47	437			0.5	8										
BCD25793	83.27	83.9			0.63	55			1.0	6										
BCD25794	83.9	86.9			3.0	564			1.5	7										
BCD25795	86.9	89.9			3.0	407			2.3	5										
BCD25796	89.9	92.9			3.0	1108			0.9	12										
BCD25797	92.9	95.9			3.0	466			0.6	1										
BCD25798	95.9	98.9			3.0	348			0.5	1										
BCD25799	98.9	101.9			3.0	566			1.0	3										
BCD25800	101.9	104.9			3.0	442			1.4	14										
BCD25847	104.9	107.9			3.0	207			0.5	10										
BCD25848	107.9	111.9			4.0	275			0.5	14										

HOLE NO TM 91-5

MINNOVA, INC.

DATE: October 18, 1991

TO: I. PIRIE, D. Heberlein, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-6 (P-7) START DATE: OCT 12 END DATE: OCT 13

NORTHING: 22+00N EASTING: 12+87.5E ELEVATION: 1010m

AZIMUTH: 095 DIP: -45 LENGTH: 153.0m

PURPOSE: To test silicification, Cu/Au soil, chargeability, magnetic, and rock sample anomalies in andesitic volcanics and diorite.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	25.0	CASING
25.0	69.4	ANDESITE: The interval consists of variably altered andesitic volcanics. Alteration minerals present include silica, hematite, epidote, sericite and ubiquitous chlorite. Between 25-31.4m the andesite is moderately to intensely silicified with trace to 1%, very fine grained, disseminated chalcopyrite. A zone of weak hornfels alteration occurs from 57.3-65.2m. This interval contains small patchy zones of coarser grained dioritic and alteration mineral assemblages. The unit is generally non-magnetic.
69.4	75.9	ALKALI FELDSPAR TRACHYTE: A fine grained K-spar matrix supports 10% plagioclase phenocrysts and rosettes, 5% chloritized mafics and 3% quartz. The unit is not far removed compositionally or texturally, from belonging to one of the following rock types: trachyte, alkali feldspar syenite or syenite. The unit is weakly to moderately magnetic. The unit's contacts exhibit a weak chill margin.
75.9	115.5	ANDESITE: The unit is the typical chlorite

altered andesitic volcanic. The primary style of alteration consists of zones of bleaching and/or silicification. Zones of moderate to intense epidote alteration also occur. The unit is generally non- to very weakly magnetic, however between 75.9-77.5m and 94.6-95.0m there is 10-15% magnetite.

115.5 116.05 ALKALI FELDSPAR TRACHYTE: This unit is similar to the previous occurrence of this rock type between 69.4-75.9m except that the matrix tends to be very fine grained to aphanitic. The unit is very weakly magnetic.

116.05 153.90 ANDESITE: The interval consists of a chloritized andesitic volcanic rock which contains patchy zones of weak to moderate magnetism and rare intervals of moderate to intense silicification. Between 136.55-141.1m the andesite is strongly affected by faulting and is bleached and intensely silicified. There are <=1% fine grained clots of chalcopyrite within this subinterval. There are minor occurrences of chalcopyrite elsewhere in the unit.

**** END OF HOLE ****

DISCUSSION

The broad zone of magnetic high readings obtained in the geophysical survey can be attributed to the weak to moderate magnetic characteristic/magnetite observed in the core. According to the survey there is a general increase in chargeability, coincident with the magnetic highs, as one progresses to the east. The cause of this increase is not readily apparent from the core. The sulphide content was fairly consistent throughout the hole and the magnetite content generally had only localized variations; there does not appear to be a relative increase in magnetite content with increasing depth. Similarly the amount of clay alteration/fault gouge is fairly consistent throughout the hole. It is possible that the highest chargeability readings obtained (+30mV/V) are related to a contact zone between the andesitic units and the underlying rock type (not intersected in the hole). The amount of chalcopyrite intersected is relatively minor but could account for the narrow copper anomaly seen at surface if there has been some concentration in veinlets or if there is some supergene enrichment present.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
BCD25801	25.0	28.2			3.2	1121			1.2	21										
BCD25802	28.2	31.4			3.2	1290			0.8	37										
BCD25803	31.4	34.4			3.0	280			0.7	2										
BCD25804	34.4	37.3			2.9	224			1.0	22										
BCD25805	37.3	40.3			3.0	277			1.1	2										
BCD25806	40.3	43.3			3.0	400			1.8	2										
BCD25807	43.3	46.3			3.0	914			1.7	1										
BCD25808	46.3	49.3			3.0	886			1.6	3										
BCD25809	49.3	52.3			3.0	1102			1.9	5										
BCD25810	52.3	54.8			2.5	526			1.6	1										
BCD25811	54.8	57.3			2.5	960			1.5	10										
BCD25812	57.3	60.3			3.0	823			1.6	4										
BCD25813	60.3	63.3			3.0	552			1.4	8										
BCD25814	63.3	66.3			3.0	455			1.4	2										
BCD25815	66.3	69.4			3.1	537			1.0	16										
BCD25816	69.4	72.6			3.2	58			0.7	1										
BCD25817	72.6	75.9			3.3	41			0.8	2										
BCD25818	75.9	78.9			3.0	354			1.4	10										
BCD25819	78.9	81.9			3.0	529			0.7	9										
BCD25820	81.9	84.9			3.0	975			1.2	16										

HOLE NO TM 91-6

PAGE 1

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
BCD25821	84.9	87.9			3.0	474			1.0	3										
BCD25822	87.9	90.9			3.0	468			1.3	4.										
BCD25823	90.9	93.9			3.0	543			1.3	2										
BCD25824	93.9	96.9			3.0	372			1.8	2										
BCD25825	96.9	99.9			3.0	771			2.0	28										
BCD25826	99.9	102.9			3.0	616			2.2	2										
BCD25827	102.9	105.9			3.0	488			2.0	11										
BCD25828	105.9	108.9			3.0	469			1.2	29										
BCD25829	108.9	111.9			3.0	252			1.6	6										
BCD25830	111.9	113.7			1.8	671			1.4	21										
BCD25831	113.7	115.5			1.8	403			1.3	13										
BCD25832	115.5	116.05			0.55	41			1.1	2										
BCD25833	116.05	119			2.95	501			1.2	98										
BCD25834	119	122			3.0	366			0.6	3										
BCD25835	122	125			3.0	421			0.9	17										
BCD25836	125	128			3.0	303			0.6	5										
BCD25837	128	131			3.0	259			1.2	14										
BCD25838	131	134			3.0	234			0.6	3										
BCD25839	134	136.55			2.15	298			0.6	3										
BCD25840	136.55	139			2.45	11547			5.7	565										

HOLE NO JM 91-6

PAGE 2

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD25841	139	142			3.0	645			1.1	19													
BCD25842	142	145			3.0	335			1.5	8													
BCD25843	145	148			3.0	399			1.6	87													
BCD25844	148	151			3.0	371			1.6	10													
BCD25845	151	153			2.0	576			0.6	12													

HOLE NO TM 91-6

PAGE 3

MINNOVA, INC.

DATE: October 21, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-7 (P-8) START DATE: OCT 14 END DATE: OCT 15

NORTHING: 19+91.5N EASTING: 13+31.5E ELEVATION: 1015m

AZIMUTH: 090 DIP: -60 LENGTH: 126.8m

PURPOSE: To test diorite in an area of high chargeability, Cu/Au soil, magnetic, and rock sample anomalies.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	11.0	CASING
11.0	11.2	SILICIFIED VOLCANICS: Intense silicification of volcanics (chert?) destroys original textures. The rock has a greenish tint caused by fine grained chlorite.
11.2	113.6	DIORITE: The interval generally consists of a fine grained dioritic intrusive in which chloritized mafics plus sulphides and magnetite comprise 50% of the core and felsic minerals make up the remainder. The felsic minerals are 44% sausseritized plagioclase, 1% quartz, <5% K-spar. The diorite is weakly to moderately magnetic with up to 3% disseminated magnetite. There are some rare, narrow K-spar alteration zones associated with quartz veinlets present in the unit. The core contains numerous rubbled intervals and brittle fault breccias. Minor amounts of chalcopyrite are disseminated throughout the unit; cp is commonly associated with quartz-carbonate stringers.
113.6	114.55	LEUCO-DIORITE: The interval consists of a fine grained leucocratic diorite intrusive containing 10% chloritized mafics and 3% quartz. The unit is not magnetic. Minor fine grained chalcopyrite occurs with quartz.

114.55	121.4	DIORITE: This unit is very similar to that above (11.2-113.6m).
121.4	123.55	ALKALI FELDSPAR TRACHYTE: 3% chloritized mafic phenocrysts and 3% plagioclase phenocrysts are supported by an aphanitic K-spar matrix. The unit is weakly magnetic. No sulphides were seen.
123.55	126.8	LEUCO-DIORITE: The core in this interval is similar to that between 113.6-114.55m.
		**** END OF HOLE ****

DISCUSSION

The presence of disseminated magnetite throughout the diorite intrusive is the source of the high magnetic readings obtained in the geophysical survey. The source of the weak chargeability high is uncertain. There may be a slight overall increase in the amount of magnetite and sulphides at depth, but, in general, the higher sulphide/magnetite concentration zones are very localized. The boundary of the chargeability high may coincide with the contact between diorite and leuco-diorite. The copper soil anomaly is caused by the fine disseminations of chalcopyrite throughout the diorite.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
25849	11.0	12.2			1.2	601			1.3	19										
25850	12.2	15.2			3.0	455			1.3	20.										
20101	15.2	18.2			3.0	387			1.2	6										
20102	18.2	21.2			3.0	366			0.6	4										
20103	21.2	24.2			3.0	446			0.8	12										
20104	24.2	27.2			3.0	396			0.5	9										
20105	27.2	30.2			3.0	570			0.6	5										
20106	30.2	33.2			3.0	745			0.1	28										
20107	33.2	36.2			3.0	1848			0.8	86										
20108	36.2	39.2			3.0	357			0.3	14										
20109	39.2	42.2			3.0	521			0.3	49										
20110	42.2	45.2			3.0	438			0.3	53										
20111	45.2	48.2			3.0	489			0.3	46										
20112	48.2	51.2			3.0	375			0.3	8										
20113	51.2	54.2			3.0	865			0.7	11										
20114	54.2	57.2			3.0	1374			1.6	47										
20115	57.2	60.2			3.0	941			0.9	39										
20116	60.2	63.2			3.0	1128			1.1	48										
20117	63.2	66.2			3.0	1129			1.3	61										
20118	66.2	69.2			3.0	674			1.0	23										

HOLE NO TM91-7

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au		
20119	69.2	72.2			3.0	524			1.0	18												
20120	72.2	75.2			3.0	476			1.0	16												
20121	75.2	78.2			3.0	641			0.5	21												
20122	78.2	81.7			3.5	579			0.6	56												
20123	81.7	84.7			3.0	421			0.7	70												
20124	84.7	88.7			3.0	356			0.6	51												
20125	88.7	91.7			3.0	696			1.0	60												
20126	91.7	94.7			3.0	1076			1.1	45												
20127	94.7	97.7			3.0	556			1.0	24												
20128	97.7	100.7			3.0	801			0.8	31												
20129	100.7	103.7			3.0	450			0.7	40												
20130	103.7	105.7			2.0	1481			1.1	59												
20131	105.7	108.7			3.0	781			0.8	23												
20132	108.7	111.7			3.0	952			0.7	52												
20133	111.7	113.6			1.9	656			0.6	58												
20134	113.6	114.6			1.0	2117			1.7	65												
20135	114.6	117.6			3.0	577			0.3	37												
20136	117.6	121.4			2.8	677			0.4	29												
20137	121.4	123.55			2.15	63			0.8	2												
20138	123.55	126.8			3.25	559			1.3	8												

HOLE NO TM91-7

MINNOVA, INC.

DATE: October 24, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-8 (P-5) START DATE: OCT 15 END DATE: OCT 17

NORTHING: 24+00N EASTING: 12+00E ELEVATION: 1075m

AZIMUTH: 096 DIP: -60 LENGTH: 120.4m

PURPOSE: To test diorite and andesitic volcanics in an area of high chargeability, Cu/Au soil, magnetic, and rock sample anomalies.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	3.05	CASING
3.05	79.0	RECRYSTALLIZED CHERT: The chert is generally highly fractured and rubbled with local brittle fault breccia zones. The chert has a uniform texture comprised of fine grained sugary quartz. There is a minor amount of very fine grained, disseminated chalcopyrite disseminated in the chert and associated with quartz stringers. Between 56.7-57.4m there is 1% cp. Between 3.05-8.0m there is 3% malachite staining which primarily occurs along fracture surfaces. The abundance of malachite is likely the result of supergene enrichment.
79.0	89.8	QUARTZ/CARBONATE/TALC VEINED CHERT: Recrystallized chert (as above) is intermittently cut by veins which, in addition to the above minerals; contain up to 10% pyrite, and 3% chlorite/sericite. The veined intervals comprise 20% of the interval. At 83.5m there is a <1cm wide veinlet containing sphalerite?, chalcopyrite, and a microscopic, soft, grey mineral which could be either galena or molybdenite.
89.8	91.0	QUARTZ CARBONATE PYRITE VEIN: A fine grained

		quartz carbonate vein in chert hosts 30% very coarse grained pyrite (up to 2 cm cubes).
91.0	93.6	RECRYSTALLIZED CHERT: As above. Between 91.2-91.3m there is 30% pyrite.
93.6	96.3	PLAGIOCLASE/SERICITE? ALTERED CHERT: 70% of the interval has been affected by irregular white plagioclase veining and pale brown sericitic? alteration. The plag is altering to carbonate. Up to 3% pyrite clots occur with the plag.
96.3	102.4	RECRYSTALLIZED CHERT: As in the previous intervals except that there are small patches of plagioclase related to the plagioclase occurrences of the overlying unit. Plag alteration comprises 3% of the interval. A quartz vein bearing 20% medium to coarse grained pyrite occurs between 113.77-114m.
		**** END OF HOLE ****

DISCUSSION

The presence of copper soil anomalies in the area can be attributed to the supergene enriched? malachite zone seen in the uppermost portion of the hole. The main mass of the chert body should cause a marked resistivity anomaly. The pyrite rich vein seen between 89.8-91.0m may be large enough to cause a relative chargeability high. The highest chargeability zone indicated by the geophysical survey is probably caused by underlying andesitic volcanics (not intersected in the hole).

TM-91-08

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
20139	3.05	8.0			2.95	1242			6.3	12										
20140	8.0	13.1			5.1	1105			2.3	2.										
20141	13.1	15.2			2.1	553			1.8	18										
20142	15.2	18.9			3.7	878			1.3	9										
20143	18.9	22.1			3.2	1258			1.4	7										
20144	22.1	25.3			3.2	1050			1.0	4										
20145	25.3	28.0			2.7	1113			1.0	10										
20146	28.0	33.5			5.5	677			1.3	4										
20147	33.5	36.9			3.4	652			0.8	2										
20148	36.9	39.6			2.7	409			0.5	3										
20149	39.6	44.2			4.6	1205			1.5	22										
20150	44.2	46.7			2.5	1376			1.2	80										
20151	46.7	49.4			2.7	823			0.9	17										
20152	49.4	52.4			3.0	572			1.1	5										
20153	52.4	55.4			3.0	637			1.1	4										
20154	55.4	56.7			1.3	606			1.0	1										
20155	56.7	59.7			3.0	1205			1.3	104										
20156	59.7	62.7			3.0	477			1.3	186										
20157	62.7	65.8			3.1	589			1.1	26										
20158	65.8	68.9			3.1	403			1.6	20										

HOLE NO TM-91-08

PAGE 1

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au		
20159	68.9	72.9			4.0	224			1.1	4												
20160	72.9	76.0			3.1	119			0.8	12.												
20161	76.0	79.0			3.0	143			1.2	10												

HOLE NO: JM91-B

PAGE 3

MINNOVA, INC.

DATE: October 26, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: M. MCDOWELL

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-9 (P-9) START DATE: OCT 21 END DATE: OCT 23

NORTHING: 14+00N EASTING: 10+25E ELEVATION: 1116m

AZIMUTH: 090 DIP: -45 LENGTH: 152.7m

PURPOSE: To test the chlorite-magnetite alteration zone.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	3.76	CASING
3.76	20.0	SILICIFIED ANDESITE: Massive, fine grained andesite. Weak to moderate silicification is associated with patchy magnetite (to 20%). Chlorite, calcite, and hematite (after Mt) are the main alteration minerals. Minor talc occurs with calcite in veinlets. Rubbled core, strong clay alteration, and limonite staining from 13.95-14.45m indicate a fault zone. Disseminated Py (1%) and Cp (<1%) are associated with the more intensely silicified zones.
20.0	27.64	ANDESITE: Typical fine grained, green andesite. The alteration assemblage consists of chlorite, sericite, and carbonate, with patchy silicification. The unit is mainly non magnetic although Mt occurs locally to 5%. Cp, Py are minor in this interval (<1%).
27.64	60.26	TRACHYTE: This interval consists mainly of a porphyritic trachyte dyke, with chlorite-altered andesite from 34.9-35.8m, 41.3-47.5m, and 55.0-56.0m. The trachyte has a fine grained to aphanitic Kspar matrix and supports up to 25% phenocrysts of plagioclase and biotite. The nature of the phenocrysts varies gradationally throughout the interval

and it is subdivided on this basis. Mafics are chloritized and carbonate alteration is pervasive.

60.26	94.94	ANDESITE: Fine-grained, massive green andesite. The core varies from non magnetic to strongly magnetic; Mt is often altered to hematite. Carbonate alteration is pervasive throughout the matrix, and calcite veinlets locally form stockworks and vein breccia zones. Other alteration minerals are chlorite and sericite. Kspar occurs in syenitic dykelets at 84.1m and 79.1m. Less than 10% of the interval is silicified. Py, Cp <1% occur as fine grained disseminations, stringers, and in Q/C veinlets with bleached alteration envelopes. From 72.48-73.98m there is 2% vfg disseminated Py, and 1% Cp.
94.94	152.7	DIORITE: Fine grained, greyish green diorite. The core in this interval is highly fractured and rubbly, especially in the brittle fault zones from 96.93-101.19m and 102.25-103.12m. Propylitic alteration is dominant, although Kspar occurs in veinlets and patchy zones (<1%). Plag is altered to a fine grained mixture of zoisite and calcite, often in patchy bleached zones. Mafics are pervasively chloritized; in places chlorite is well developed and lamellar. The diorite is non magnetic to weakly magnetic. Hematite (after Mt) is abundant. Calcite veining occurs throughout and vein bx occurs from 121.9-122.6m,124-125.7m, and 143.3-143.5m. 1% Py occurs along fine fractures; Cp is minor (<1%). 3% molybdenite occurs with Py (5%) and Cp (1%) in a 2cm Q/C veinlet at 151.9m.

**** END OF HOLE ****

DISCUSSION

The fine grained, disseminated chalcopyrite found within the silicified and quartz veined andesite at the top of the hole is the likely source of the Cu soil anomalies. Magnetite was most abundant at the top of the hole (to 20%) where it is associated with silicification (+/- Cp). The geophysical section present at camp would seem to indicate that magnetism should be greater at depth, where only weak to non-magnetic core was seen.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
20476	3.8	7.8			4.0	858			0.1	126										
20477	7.8	10.8			3.0	1312			0.1	133										
20478	10.8	13.8			3.0	883			0.1	524										
20479	13.8	16.8			3.0	276			0.2	2										
20480	16.8	19.8			3.0	329			0.3	6										
20481	19.8	21.8			2.0	516			0.2	4										
20482	21.8	24.8			3.0	403			0.3	16										
20483	24.8	27.6			2.8	579			0.1	40										
20484	27.6	30.6			3.0	92			1.0	2										
20485	30.6	33.6			3.0	37			1.1	1										
20486	33.6	34.9			1.3	36			0.9	1										
20487	34.9	35.8			0.9	1252			0.2	98										
20488	35.8	38.8			3.0	29			1.1	2										
20489	38.8	41.3			2.5	21			1.3	1										
20490	41.3	44.3			3.0	864			0.4	61										
20491	44.3	47.6			3.3	581			0.1	35										
20492	47.6	50.6			3.0	56			1.3	1										
20493	50.6	53.6			3.0	32			2.0	1										
20494	53.6	54.6			1.0	30			2.3	2										
20495	54.6	56.1			1.5	690			1.2	149										

HOLE NO TM-91-09

PAGE 1

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm·T Ag	gm·T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
20496	56.1	58.1			2.0	32			1.9	1										
20497	58.1	60.0			1.9	80			1.9	1.										
20498	60.0	63.0			3.0	471			0.2	62										
20499	63.0	66.0			3.0	342			0.7	1040										
20500	66.0	69.0			3.0	576			0.2	42										
21426	69.0	72.0			3.0	682			1.5	72										
21427	72.0	75.0			3.0	2745			0.8	278										
21428	75.0	78.0			3.0	1448			0.9	153										
21429	78.0	81.0			3.0	624			2.2	168										
21430	81.0	84.0			3.0	342			1.1	139										
21431	84.0	87.0			3.0	354			1.2	277										
21432	87.0	90.0			3.0	545			1.3	740										
21433	90.0	93.0			3.0	407			2.2	388										
21434	93.0	94.9			1.9	1631			2.0	169										
21435	94.9	97.9			3.0	372			0.6	47										
21436	97.9	100.9			3.0	224			0.5	5										
21437	100.9	103.9			3.0	285			0.6	10										
21438	103.9	106.9			3.0	237			0.7	13										
21439	106.9	109.9			3.0	307			0.9	19										
21440	109.9	112.9			3.0	478			0.7	28										

HOLE NO TM-91-09

PAGE 2

P.05 TO MIN-UA-VANC. 11/01/1 09:11 FROM MINNOVA SAM EXPLORATION

P.06

11/01/1 09:12 FROM MINNOVA SAM EXPLORATION TO MIN A-VANC.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
21441	112.9	115.9			3.0	497			0.4	35										
21442	115.9	118.9			3.0	376			0.5	14										
21443	118.9	121.9			3.0	773			0.7	22										
21444	121.9	124.9			3.0	684			0.9	57										
21445	124.9	127.9			3.0	317			1.0	24										
21446	127.9	130.9			3.0	457			1.2	50										
21447	130.9	133.9			3.0	686			0.8	58										
21448	133.9	136.9			3.0	433			0.6	41										
21449	136.9	139.9			3.0	621			1.2	72										
21450	139.9	142.9			3.0	894			0.8	65										
18876	142.9	145.9			3.0	1043			0.7	62										
18877	145.9	148.9			3.0	572			0.6	29										
18878	148.9	151.9			3.0	409			0.9	41										
18879	151.9	152.7			0.8	1413			1.0	178										

HOLE NO TM-91-09

PAGE 3

MINNOVA, INC.

DATE: October 29, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON
FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-10 (P-11) START DATE: OCT 23 END DATE: OCT 24

NORTHING: 12+00N EASTING: 11+50E ELEVATION: 1146m

AZIMUTH: 090 DIP: -50 LENGTH: 132.28m

PURPOSE: To test chlorite-magnetite alteration, andesitic volcanics, and silicification with coincident chargeability, Cu/Au soil, magnetic, and rock sample anomalies.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	3.3	CASING
3.3	74.5	DIORITE: Typical fine grained propylitically altered diorite. Magnetism throughout the interval varies between very weak to intense (very locallized occurrences). Sulphide content consists of <= 2% pyrite and <1% very fine grained disseminated chalcopyrite. Between 18.3-70.05m there are small intervals of generally weak K-spar alteration. The K-spar alteration, while locally occurring throughout the dioritic groundmass, is frequently associated with stringers of quartz and/or magnetite. A quartz-magnetite-chlorite-tremolite? vein was intersected between 41.85-42.21m. This vein contains up to 4% chalcopyrite. 4% chalcopyrite also occurs in a quartz vein zone betwen 58.4-58.6m.
74.5	86.35	TRACHYTE: Aphanitic, K-spar rich matrix supports up to 15% plagioclase phenocrysts and 5% quartz eyes. The unit is weakly magnetic.
86.35	94.7	PROPYLITICALLY ALTERED DIORITE: The unit is non-magnetic.

94.7	105.16	CHLORITE ALTERED TRACHYTE: This rock apparently is derived from, trachytes as described above. Within the interval the typical trachyte textures rapidly grade into an intensely chlorite altered rock wherein the phenocrysts consist of altered mafics (biotite?). Chlorite also occurs as patches and fracture coatings. The matrix contains less K-spar than the previous trachyte unit. A similar rock type was seen in DDH TM91-9.
105.16	109.1	DIORITE?: The interval consists of a very fine grained, altered diorite?. Textures are generally washed out. The rock is chlorite altered and moderately calcareous. Black crosscutting chlorite/magnetite stringers comprise 15% of the unit.
109.1	117.8	TRACHYTE: The typical trachyte unit consisting of an aphanitic K-spar rich matrix and plagioclase phenocrysts. Between 116.6-117.5m a calcareous andesitic? unit was intersected.
117.8	132.28	PROPYLITICALLY ALTERED DIORITE: Fine grained diorite contains patchy weak to moderate hematite, chlorite, epidote alteration.
		**** END OF HOLE ****

DISCUSSION

The current hole again intersected enough disseminated chalcopyrite within the dioritic intrusive to account for the coper soil anomalies in the area. In the hole chalcopyrite tends to have its highest concentrations where it is associated with quartz and/or magnetite. The K-spar alteration is also commonly concentrated as envelopes around magnetite stringers, which leads me to believe that the K-spar is attributable to alteration rather than protolithic mineralogy.

P.07

11/01/ 09:13 FROM MINNOVA SAM EXPLORATION TO MIN A-VANC.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
20178	3.3	6.3			3.0	663			0.7	36										
20179	6.3	9.3			3.0	857			0.4	40										
20180	9.3	12.3			3.0	857			0.7	72										
20181	12.3	15.3			3.0	640			0.5	40										
20182	15.3	18.3			3.0	753			0.9	51										
20183	18.3	21.3			3.0	933			0.6	62										
20184	21.3	24.3			3.0	1208			0.9	109										
20185	24.3	27.3			3.0	1770			1.9	146										
20186	27.3	30.3			3.0	544			0.6	40										
20187	30.3	33.3			3.0	616			0.4	15										
20188	33.3	36.3			3.0	1012			0.7	46										
20189	36.3	39.3			3.0	1281			0.7	80										
20190	39.3	41.5			2.2	1555			0.7	97										
20191	41.5	42.5			1.0	3395			0.1	474										
20192	42.5	45.5			3.0	964			0.3	74										
20193	45.5	48.5			3.0	1356			0.7	72										
20194	48.5	51.5			3.0	1032			0.9	61										
20195	51.5	54.5			3.0	1052			0.8	79										
20196	54.5	57.5			3.0	821			0.5	70										
20197	57.5	60.5			3.0	925			0.8	57										

HOLE NO TM-91-10

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au
20198	60.5	63.5			3.0	403			0.4	17										
20199	63.5	66.5			3.0	775			0.3	20										
20200	66.5	69.5			3.0	511			0.3	4										
21401	69.5	72.0			3.0	468			0.5	16										
21402	72.0	74.5			2.5	876			0.5	48										
21403	74.5	77.5			3.0	40			0.9	2										
21404	77.5	80.5			3.0	42			1.1	1										
21405	80.5	83.5			3.0	40			1.0	1										
21406	83.5	86.35			2.85	136			1.6	1										
21407	86.35	89.4			3.05	325			0.3	15										
21408	89.4	92.4			3.0	597			0.4	42										
21409	92.4	94.7			2.3	447			0.1	20										
21410	94.7	97.7			3.0	32			1.0	5										
21411	97.7	100.7			3.0	35			1.8	2										
21412	100.7	103.7			3.0	29			1.6	1										
21413	103.7	105.16			1.46	24			0.8	2										
21414	105.16	107.1			1.94	595			0.3	39										
21415	107.1	109.1			2.0	579			0.4	40										
21416	109.1	112.1			3.0	21			0.8	9										
21417	112.1	115.1			3.0	19			0.9	2										

HOLE NO TM-91-10

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au		
21418	115.1	117.8			2.7	280			0.8	8												
21419	117.8	120.7			2.9	745			0.8	64												
21420	120.7	124.5			3.8	726			0.6	38												
21421	124.5	127.5			3.0	588			0.6	48												
21422	127.5	132.3			4.8	1085			0.8	41												

HOLE NO TM-91-10

ASSAY SHEET

Sample Number	From (M)	To (M)	Estimate Cu	Estimate Zn	Length (M)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO2	% TiO2	% Na2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
D20192	42.5	45.5			3.0																		
D21411	97.7	100.7			3.0																		
D21414	105.16	107.1			1.94																		

HOLE NO TM 91-10

PAGE 1

MINNOVA, INC.

DATE: November 2, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-11 (P-10) START DATE: OCT 24 END DATE: OCT 26

NORTHING: 12+00N EASTING: 8+00E ELEVATION: 1178m

AZIMUTH: 115 DIP: -45 LENGTH: 149.35m

PURPOSE: To test chlorite-magnetite alteration, andesitic volcanics, and silicification with coincident chargeability, Cu/Au soil, and rock sample anomalies.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	3.05	CASING
3.05	149.35	PROPYLITICALLY ALTERED DIORITE: The only rock type intersected in the hole was the typical fine grained, greenish, propylitically altered dioritic intrusive. Minor narrow zones of pink Kspar alteration occur throughout the hole. The core contains variable amounts of very fine grained disseminated magnetite; the core varies from non-magnetic to moderately magnetic. Between 3.05-27.4m there is a brownish alteration halo around q/c stringers consisting of microscopic pyrite, quartz, magnetite and trace molybdenite?. Chalcopyrite occurs as disseminations and patches within the greenish prop. altered diorite and with quartz veins. Cp concentrations range from trace to 4%; the overall average is <1%. There is a general decrease in Cp content with depth; at depth Cp is more frequently associated with quartz veining. The best chalcopyrite intersections are as follows: 50.6-50.9m: 1% cp, 45.14-45.34m: 2% cp, 51.7-51.95m: 1% cp, 74.6-75m: 4% cp, 103.75-105.45m: 1% cp, and

111.56-113.96m: 1% cp

**** END OF HOLE ****

DISCUSSION

The anomalous copper soil and rock samples are readily explained by the zones of relatively chalcopyrite rich diorite seen in the core. TM 91-11 has a slightly higher chalcopyrite content than hole TM 91-10 (located 350m east) and much less magnetite alteration. Both holes have chalcopyrite associated with quartz but, unlike hole TM 91-10, the current hole does not appear to have a correlation between chalcopyrite and magnetite.

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm. t Ag	gm. t Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
19818	64.3	67.3			3.0																		
19819	67.3	70.3			3.0																		
19820	70.3	73.3			3.0																		
19821	73.3	76.3			3.0																		
19822	76.3	79.3			3.0																		
19823	79.3	82.3			3.0																		
19824	82.3	85.3			3.0																		
19825	85.3	88.3			3.0																		
25001	88.3	91.3			3.0																		
25002	91.3	94.3			3.0																		
25003	94.3	97.3			3.0																		
25004	97.3	100.3			3.0																		
25005	100.3	103.3			3.0																		
25006	103.3	105.5			2.2																		
25007	105.5	108.5			3.0																		
25008	108.5	111.5			3.0																		
25009	111.5	114.0			2.5																		
25010	114.0	117.0			3.0																		
25011	117.0	120.0			3.0																		
25012	120.0	123.0			3.0																		

HOLE NO TM-91-11

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
21423	3.05	7.3			4.25																		
21424	7.3	10.3			3.0																		
21425	10.3	13.3			3.0																		
19801	13.3	16.3			3.0																		
19802	16.3	19.3			3.0																		
19803	19.3	22.3			3.0																		
19804	22.3	25.3			3.0																		
19805	25.3	28.3			3.0																		
19806	28.3	31.3			3.0																		
19807	31.3	34.3			3.0																		
19808	34.3	37.3			3.0																		
19809	37.3	40.3			3.0																		
19810	40.3	43.3			3.0																		
19811	43.3	46.3			3.0																		
19812	46.3	49.3			3.0																		
19813	49.3	52.3			3.0																		
19814	52.3	55.3			3.0																		
19815	55.3	58.3			3.0																		
19816	58.3	61.3			3.0																		
19817	61.3	64.3			3.0																		

HOLE NO TM-91-11

PAGE 1

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm. T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au		
25013	123.0	126.0			3.0																	
25014	126.0	129.0			3.0																	
25015	129.0	132.0			3.0																	
25016	132.0	135.0			3.0																	
25017	135.0	138.0			3.0																	
25018	138.0	141.0			3.0																	
25019	141.0	144.0			3.0																	
25020	144.0	147.0			3.0																	
25021	147.0	149.35			2.35																	

HOLE NO TM-91-11

MINNOVA, INC.

DATE: November 4, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: M. MCDOWELL

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-12 (P-12) START DATE: OCT 26 END DATE: OCT 29

NORTHING: 10+00N EASTING: 8+00E ELEVATION: 1226m

AZIMUTH: 090 DIP: -70 LENGTH: 97.23m

PURPOSE: To test chlorite-magnetite alteration, andesitic volcanics, and silicification with coincident chargeability, Cu/Au soil, magnetic, and rock sample anomalies.

INTERVAL FROM	TO	DESCRIPTION OF INTERVAL
0.0	0.6	CASING
0.6	66.8	DIORITE: Typical fine grained propylitically altered diorite. The interval is generally non magnetic; localized magnetism is due to occasional Mt stringers. Between 4.17-12.5m the core is intensely fractured, rubbled, and clay altered, indicative of one or more fault zones. Quartz veining is fairly intense in the interval 0.61-9.5m, although mineralization is minor. In general pyrite <= 1%, chalcopyrite <.5%, and molybdenite <.5%. The sulphides occur as very fine grained disseminations in the matrix or in fine quartz-carb veinlets. There is a gradational change from this unit to the underlying argillically altered diorite.
66.8	73.48	WEAK ARGILLIC ALTERED DIORITE: Pale greenish, leucocratic diorite. Mafics are altered to chlorite; feldspars are altered to a mixture of clays+calcite. Talc occurs as blebs and in veinlets. Banded quartz-carb veinlets with drusy crystals occur throughout. Py 1%; Cp,Mo <1% as disseminations and in quartz-carb veinlets. A similar unit is seen in TM 91-13.
73.48	76.2	CHLORITE-SERICITE ALTERED DIORITE: Strongly

73.48	76.2	CHLORITE-SERICITE ALTERED DIORITE: Strongly

		altered, greenish-grey diorite. Non-magnetic. The main alteration assemblage is chlorite-sericite-carbonate. Mineralization is minor in this interval- Py <1%; Cp occurs as rare disseminations in quartz veinlets.
76.2	87.1	INTENSE CARB-SERICITE ALTERED DIORITE: This appears to be a more intensely altered version of the diorite seen above, the main difference being an abundance of carbonate in patchy zones that are beige in colour, with up to 3% very finely disseminated pyrite. Drusy quartz-carb veinlets are common in this interval and the core has been microfractured and silica-healed.
87.1	88.6	CHLORITE-SERICITE ALTERED DIORITE: As interval from 73.48-76.2m. Pyrite is very finely disseminated throughout, approximately 2%. Cp occurs as rare disseminations, and Mo occurs in trace amounts in quartz-carb veinlets.
88.6	96.93	CHERT/QUARTZ VEIN?: This unit consists of approximately 80% fine grained, white to grey recrystallized chert, with 20% greenish-grey, chlorite-sericite altered diorite (as in the overlying unit). It is possible that the chert could in fact be a quartz vein; in either case later hydrothermal activity has occurred,as indicated by brecciation, silica-healed microfractures, and open-space filling by quartz, calcite, and fluorite crystals. Very fine grained disseminated pyrite occurs in the dioritic patches to approx. 5%, but is much less abundant in the chert. Trace molybdenite occurs in the chert; Cp is negligible.
96.93	97.23	ALTERED VOLCANIC(?): Green,aphanitic, clay-altered volcanic. The core is non-magnetic. There is 1% pyrite which occurs as disseminations and fine stringers.
		**** END OF HOLE ****

DISCUSSION

The chalcopyrite intersected in the diorite at the top of this hole is probably the source of the Cu anomalies ...

[illegible] is probably the source of the Cu anomalies seen in soils at surface. It is expected that Au values in core will DDH

correspond to the occurrence of chalcopyrite. According to GOM Stewart, this hole is located in an area that has been explored for Cu-Mo mineralization in the past; the presence of small amounts of molybdenite in the core is therefore not surprising. The geology map indicates that this hole should have collared in a zone of silicification, when in fact it was a zone of quartz-veined diorite. It is not readily apparent why the chargeability (as seen in section) should increase downhole, although there are localllized increases in the concentration of pyrite with depth.

ASSAY SHEET

FROM MINNOVA SAM EXPLORATION TO MINNOVA-VANC. 11/05/1991 09:57 P.01

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn
18880	0.6	3.6			3.0												
18881	3.6	6.6			3.0												
18882	6.6	9.6			3.0												
18883	9.6	12.6			3.0												
18884	12.6	15.6			3.0												
18885	15.6	18.6			3.0												
18886	18.6	21.6			3.0												
18887	21.6	24.6			3.0												
18888	24.6	27.6			3.0												
18889	27.6	30.6			3.0												
18890	30.6	33.6			3.0												
18891	33.6	36.6			3.0												
18892	36.6	39.6			3.0												
18893	39.6	42.6			3.0												
18894	42.6	45.6			3.0												
18895	45.6	48.6			3.0												
18896	48.6	51.6			3.0												
18897	51.6	54.6			3.0												
18898	54.6	57.6			3.0												
18899	57.6	60.6			3.0												

HOLE NO TM-91-12

Extended Page 1.1

PPM Pb	PPM Ag	PPB Au			

PAGE 2

TOTAL P.01

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au		
18900	60.6	63.6			3.0																	
18901	63.6	66.6			3.0																	
18902	66.6	69.6			3.0																	
18903	69.6	72.6			3.0																	
18904	72.6	75.6			3.0																	
18905	75.6	78.6			3.0																	
18906	78.6	81.6			3.0																	
18907	81.6	84.6			3.0																	
18908	84.6	87.6			3.0																	
18909	87.6	90.6			3.0																	
18910	90.6	93.6			3.0																	
18911	93.6	96.6			3.0																	
18912	96.6	97.23			1.63																	

HOLE NO TM-91-12

PAGE 1

MINNOVA, INC.

DATE: November 5, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: C. NAGATI

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-13 (P-13) START DATE: OCT 29 END DATE: OCT 30

NORTHING: 10+10N EASTING: 11+22E ELEVATION: 1169m

AZIMUTH: 270 DIP: -45 LENGTH: 102.4m

PURPOSE: To test chlorite-magnetite alteration, andesitic volcanics, and silicification with coincident chargeability, Cu/Au soil, and rock sample anomalies.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	3.05	CASING
3.05	53.64	ARGILLIC TO PROPYLITIC ALTERED DIORITE: The protolith consists of a fine to medium grained dioritic intrusive which has been variably altered. Between 3.05- 28.76m the core is initially weakly to moderately argillically altered; the intensity of alteration is very weak below 24.55m. The fact that the alteration is near surface in an area affected by a number of brittle fault structures and an abundance of groundwater may indicate that the alteration is surficial rather than hydrothermal; alternately, the presence of vuggy epithermal veins containing fluorite and the presence of a similar, though smaller, argillic zone at depth in hole TM 91-12, where the above ground conditions are not present, may indicate a hydrothermal origin. Fluorite bearing veins occur between 24.45-24.55m, 29.1-29.7m, and 30.7-30.8m. Below 28.76m the diorite is propylitically altered. There is 1% pyrite disseminations and stringers present in the interval. Only trace to minor chalcopyrite is present.
53.64	82.5	ALTERED ANDESITE?: The core varies between a

		massive dark green texture caused by propylitic alteration (chlorite, calcite, minor hematite) and mottled shades of green through grey caused by local bleaching, silicification and/or sericitic alteration. 59.4-62.18m: 30% of this interval is comprised of qtz-fluor veining. Up to 3% pyrite is disseminated throughout the core.
82.5	91.35	PROPYLITICALLY ALTERED DIORITE: Typical fine grained weakly altered dioritic intrusive.
91.35	97.85	ALTERED VOLCANICS: The primary rock in this interval consists of a massive, propylitically altered andesitic? volcanic which is locally silicified. Minor diorite present. Up to 4% pyrite is disseminated within the unit; trace chalcopyrite present.
97.85	101.5	ALTERED DIORITE: The diorite has been intensely affected by propylitic alteration, bleaching and localized silicification and sericite alteration. The diorite in non-magnetic.
101.5	102.4	PROPYLITICALLY ALTERED ANDESITE?: The volcanics are typical of the andesite in the area.

**** END OF HOLE ****

DISCUSSION

The difference in the amount of sulphide mineralization present in diamond drill holes TM 91-12 and TM 91-13 is striking. The rocks intersected in the holes are similar and yet TM 91-12 intersected a larger amount of chalcopyrite and molybdenite than did TM 91-13 which was nearly barren of these sulphides. One explanation for the difference may be related to the zones of argillic(?) alteration. In TM 91-12 much of the mineralization lies uphole of the argillic zone. In TM 91-13 the first intersected core consists of the argillically altered diorite. In both holes epithermal veins containing fluorite were intersected downhole of the argillic zones which may indicate that the core of a weakly mineralized system lies to the west of, and at a higher elevation than, TM 91-13. The copper mineralization intersected in TM 91-11 and the known surface mineral occurrences in the vicinity of TM 91-12 together with the mineralization in TM 91-12 form a weakly mineralized south south-westerly trending band which is coincident with Cu-Au soil geochemical anomalies. If the core assays are encouraging consideration should be given to drilling an easterly dipping hole at 8+00N, 8+00E.

MINNOVA, INC.

DATE: November 14, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: Cam Clayton

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-15 (P-23) START DATE: Nov 6 END DATE: Nov 7

NORTHING: 4+00S EASTING: 12+55E ELEVATION: 1202m

AZIMUTH: 090 DIP: -50 LENGTH: 152.70m

PURPOSE: To test diorite intruding Permian sediments with chargeability and mag highs, and weak to strong Au soil geochemistry for stockwork and/or sediment hosted disseminated mineralization.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	9.14	CASING
9.14	11.6	BROKEN CORE.
11.6	36.82	CROWDED FELDSPAR PORPHYRY. The core consists of a crowded feldspar porphyry intrusive, grey to green in colour with equant 2mm size feldpar crystals, randomly oriented. Small quartz carbonate veins occur through the interval at random orientations. From 11.6 to 17.3 the feldspars have undergone strong argillic alteration to clays. From 34.45 to 34.53 angular clasts of the porphyry are seen in a quartz carbonate hydrothermal breccia. From 21.0 to 36.82 leucoxene to 10% may be present. Trace amounts of disseminated pyrite are present for the interval, and from 24.13 to 24.24 a sequence of thin sheeted pyrite veins is present.
36.82	48.36	TRACHYTE DYKE/CROWDED FELDSPAR PORPHYRY. This interval consists of alternating units of trachyte dykes and crowded feldspar porphyry. The trachytic dykes are probably feeders to Tertiary Marron Formation and consist of 10% - 15% pyroxenes on a mm scale set in fine grained ground mass of feldspars.

		The crowded feldspar porphyry is light grey/green in colour with roughly equant grains. No sulphides appear through this interval.
48.36	49.68	FAULT ZONE. This is a clay rich fault zone ranging from fault gouge to fault breccia with quartz carbonate healing.
49.68	54.00	LITHIC WACKE?. This is a moderately sorted wacke with grain sizes of approximately 1 mm but containing fragments up to 1 cm in dimension. Occasional quartz carbonate stringers occur through the interval.
54.00	56.90	FAULT ZONE. This interval consists of several faults cutting the core at high angles.
56.90	58.1	TRACHYTIC DYKE. Tertiary feeder to Marron Fm.
58.1	66.52	CHERTY ARGILLITE. The core consists of dark grey to black fine grained cherty argillite containing stockwork fracturing throughout up to 50%. Stockwork carbonate veinlets up to 20 % occur through the zone. Trace to 1% pyrite is associated with this unit occuring as disseminations and as stockwork stringers. This unit is very graphitic.
66.52	68.88	CONGLOMERATE. This is a coarse grained unit containing subrounded to rounded elongated pebbles of cherty composition.
68.88	71.32	FAULT GOUGE. Clay rich.
71.32	152.70	INTERBEDDED GRAPHITIC ARGILLITE, SANDSTONE, AND CONLOMERATE. Occasional trace amounts of disseminated pyrite are associated with these sediments. From 84.79 to 88.7 a trachytic dyke cross cuts these units.

**** END OF HOLE ****

DISCUSSION

The lack of sulphides encountered throughout the hole suggests that the induced polarization anomaly is caused by the graphitic sediments intersected. The weak mag anomaly is not explained by the geology found in the hole.

MINNOVA, INC.

DATE: November 17, 1991

TO: I. PIRIE, D. HEBERLEIN, C. CLAYTON

FROM: Cam Clayton

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-16 (P-18) START DATE: Nov 8 END DATE: Nov 10

NORTHING: 2+00N EASTING: 7+75E ELEVATION: 1360m

AZIMUTH: 270 DIP: -45 LENGTH: 166.12m

PURPOSE: To test strong magnetic anomaly beneath siliceous topographic high with associated anomalous soil and rock geochemistry and chargeability anomaly.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.0	3.05	CASING
3.05	7.00	BROKEN CORE. Oxidized bedrock up to 10% Py.
7.00	15.22	SILICIFIED ANDESITE. This is a fine to medium grained silicified andesitic unit containing small sections of hydrothermal breccias cemented by quartz carbonate. The interval contains 10% Py on average with up to 30% locally. The dominant sulphide appears to be marcasite. From 13.89 to 13.92 is an interval of 70% pyrite. Some trace amounts of arsenopyrite are observed. Alteration through the interval is chloritic with one zone from 11.47 to 11.7 of 20% sericite.
15.22	19.13	CROWDED FELDSPAR DYKE. This a fine to medium grained dyke with 70%-80% euhedral feldspars. The feldspars are altered to clay. chlorite and epidote. Pyrite occurs in trace amounts finely disseminated throughout. A fault zone occurs from 16.6 to 17.86.
19.13	25.15	HYDROTHERMAL BRECCIA. This is a grey green crowded feldspar porphyry dyke that has been hydro-brecciated. Trace to 1% pyrite occurs throughout. It is weakly magnetic in areas.

25.15	39.00	SILICEOUS ANDESITE/CROWDED FELDSPAR DYKE. This is an interval of alternating siliceous andesite and crowded feldspar porphyry dykes. Pyrite averages 5-10% throughout the interval with local highs of 20%. Trace amounts of Cp are seen locally. Chloritic alteration and quartz-carbonate veinlets are common throughout. Some talc veining is also observed.
39.00	42.40	MAGNETITE/SULPHIDE VEIN. This vein is stongly oxidized and contains 20 to 30% Mt as patchy blotches throughout. The remainder is pyrite. Some local stockwork silicification is observed.
42.40	54.78	SILICEOUS ANDESITE/CROWDED FELDSPAR DYKE. This is similar to the interval from 24.15 to 39.00. Alteration appears to be increasing down hole with greater presence of chlorite, epidote, sericite, and albite. Again Py averages about 10% through this interval with local highs of 25%.
54.78	55.4	SILICA/PYRITE STOCKWORK. This is a fine grained zone of silica and pyrite stockworking. The density of stockworking is 70 to 80%. Stockwork pyrite occurs up to 30% locally with trace amounts of Cp.
55.40	60.66	SILICA/CHLORITE ALTERATION. The protolith is most likely andesite but generally this unit is indistinguish-able. Talc veinlets occur locally. Pyrite averages 10 to 20% through the interval occuring as disseminations and fracture filling veinlets.
60.66	64.31	STOCKWORK SILICIFICATION. The interval consists of 70 to 90% stockwork fracturing with subsequent introduction of silica. Trace amounts of Cp are seen and Py is present averaging 10%. From 64.11 to 64.31 is a semi-massive pyrite vein.
64.31	66.13	SILICIFIED ANDESITE. This interval is moderately silicified with Py averaging 10%. From 65.53 to 66.13 is a shear zone containing 20 to 30% disseminated Py and trace Cp.

66.13	73.14	CHLORITE/MAGNETITE ALTERATION. Magnetite throughout this interval averages 20% with local highs of 30 to 40% occuring as patchy blotches. Py averages 5 to 10% through the interval with local highs of 20 to 30%. Ocassional quartz carbonate veins are seen and have a vuggy appearance with bladed calcite replaced by silìca.
73.14	75.15	CROWDED FELDSPAR DYKE.
75.15	80.75	PYRITIC CHERT. This unit shows a weak stockwork silicification and 5% pyrite.
80.75	96.36	STOCKWORK SILICIFICATION. As described previously, a unit of high fracture density (to 90%) that has seen subsequent introduction or remobilization of silica. Pyrite averages 5% occuring as disseminations and stockwork mineral-ization. Trace Cp is seen.
96.36	99.07	BRECCIA ZONE. This is a brecciated zone containing fragments of the overlying stockwork silicification. Pyrite averages 15 to 20% with trace amounts of Cp, and occurs as stockwork and disseminated mineralization.
99.07	104.23	PYRITIC CHERTY TUFF. Minor chlorite and sericite alteration occur through this siliceous unit which averages 2 to 5% pyrite.
104.23	108.51	STOCKWORK SILICIFICATION. As described previously, this interval also contains local sericitization along fractures. Pyrite averages 2 to 5% as disseminations and veinlets.
108.51	110.10	ALTERED ANDESITE. Alteration of this unit varies from strong silicification to sericitization to chloritization of foliation. Pyrite averages 30%.
110.1	144.5	STOCKWORK SILICIFICATION. As described previously, up to 90% stockwork fracturing with subsequent introduction of silica. Pyrite occurs as disseminations and as fracture filling veinlets averaging 5 to 10%. Local highs of 20% are seen, as are trace amounts of Cp. Sericite occurs up to 20% locally.

144.5	151.90	ANDESITE TUFF/FLOW. This interval consists of interlayered sericitically altered tuff and silicified andesite. Pyrite averages 2-5%.
151.90	153.5	FAULT.
153.50	155.71	STOCKWORK SILICIFICATION. As previously described. THis interval contains Py averaging 15% occuring as fine grained disseminations and veinlets.
155.71	156.82	SILICIFIED ANDESITE. The interval contains 2 to 5% disseminated pyrite.
156.82	164.5	CHERTY SILICIFICATION. This interval is clearly a chert in areas while elsewhere it resembles the stockwork silicification previously described. Pyrite occurs up to 10% as veinlets and disseminations.
164.50	166.12	TUFF. This medium grained tuffaceous unit has undergone strong sericite alteration (20 to 30% sericite) and contains only trace amounts of Py.

**** END OF HOLE ****

DISCUSSION

The magnetic anomaly is easily explained by the presence of both the magnetite/pyrite vein, and the zone of chloritic/magnetitic alteration. The disseminated pyrite content through the hole undoubtedly resulted in the broad zone of chargeability shown by the I.P. anomaly. The zone of stockwork silification and minor stockwork mineralization is the most interesting aspect of this hole. If this zone carries gold values it may be a very attractive future exploration target.

MINNOVA, INC.

DATE: November 17, 1991

TO: I. PIRIE, D. HEBERLEIN

FROM: Cam Clayton

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-17 (P-16) START DATE: Nov 10 END DATE: Nov 11

NORTHING: 4+00N EASTING: 8+00E ELEVATION: 1370m

AZIMUTH: 270 DIP: -45 LENGTH: 122.53m

PURPOSE: To test diorite, and silicification near southern contact with Permian cherts and andesites with local hydrothermal breccias. Coincident chargeability highs, resisitivity lows, magnetometer highs and anomalous rock and soil geochemistry occur in area.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.00	4.27	CASING.
4.27	6.62	ANDESITE. This unit is a medium grained silicified andesite which has undergone local argillic alteration. Pyrite averages 1-2% disseminated.
6.62	7.62	ARGILLIC ALTERATION. The original rock was feldspar porphyritic and has undergone strong clay alteration of feldspars.
7.62	10.23	DIORITE. This is a medium grained feldspar porphyritic diorite that has been chloriticly altered. Leucoxene and/or sericite may be present as an alteration mineral. Pyrite occurs disseminated.
10.23	11.53	ANDESITE TUFF. This is a bedded tuffaceous unit containing 2% Py occuring as disseminations and veinlets.
11.53	13.48	BRECCIATED FELSIC INTRUSIVE. This is a grey white brecciated unit that is moderately silicified. The felsic intrusion is white, crystalline with little to no mafic minerals

		(possibly alaskite). Mineralization consists of 10-15% Py, trace Cp, and possibly trace arsenopyrite.
13.48	15.85	ALTERED ANDESITE. The unit is chloriticly altered andesite occasionally cut by feldspar porphyritic dykes. Pyrite occurs to 15% and arsenopyrite may be present in trace amounts.
15.85	23.23	FELSIC INTRUSIVE. This a grey white granular unit with little to no mafic minerals. Pyrite occurs to 5%. From 20.6 to 21.80 a semi-massive sulphide vein (30-40% Py, trace As) occurs. Quartz-carbonate veins are vuggy.
23.23	25.07	ANDESITE TUFF. This fine grained tuffaceous unit is hydrothermally brecciated in areas and contains several small Py veins associated with quartz carbonate veins.
25.07	50.94	DIORITE PORPHYRY. This diorite ranges from leuco-diorite to melano-diorite. Both argillic and propylitic alteration is seen. Magnetite occurs to 40%, pyrite occurs to 15% locally, and Cp is seen in trace amounts locally.
50.94	73.65	INTERLAYERED ANDESITE TUFF AND FLOWS. Chloritic alteration is the predominant alteration type with local silicification. Pyrite is disseminated to 15% from 51.21 to 54.25. Chalcopyrite occurs in trace amounts locally. Occasional talc veins cross cut the interval.
73.65	74.80	FELSIC DYKE. This is a fine grained felsic intrusive that has been argillicly altered and contains 1% pyrite disseminated throughout.
74.80	113.08	ANDESITIC TUFFS CUT BY DIORITE. This interval consists of chloriticly altered tuffaceous units intruded by argillicly to propyliticly altered diorite. Occasional small semi-massive pyrite veins cross cut the andesitic units. The diorite generally contains 5 to 10% Py with trace amounts of Cp. The Cp usually occurs with epidote and quartz-carbonate veinlets. The diorite contains up to 40% magnetite locally.

113.08	118.5	SILICIFIED ANDESITE. The interval is chloritic and overprinted by moderate silica alteration. Occasionaly quartz carbonate veinlets are seen. Pyrite occurs to 10% disseminated throughout.
118.5	122.53	LEUCODIORITE. This is a chloriticly altered leucodiorite with cmall zones of stockwork silicification. Pyrite occurs to 20% finely disseminated throughout.

****END OF HOLE****

DISCUSSION

Geology and mineralization seen in this hole explain geophysical and geochemical anomalies at surface. The magnetite content associated with dioritic rocks is responsible for the magnetic anomaly over this area. This alteration may be a northern, weaker, extension of the chlorite/magnetite alteration seen in hole TM91-16. Disseminated pyrite content of the hole explains the good chargeability and resistivity responses of the geophysical survey.

MINNOVA, INC.

DATE: November 17, 1991

TO: I. PIRIE, D. HEBERLEIN

FROM: Cam Clayton

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-18 (P-15) START DATE: Nov 12 END DATE: Nov 14

NORTHING: 6+00N EASTING: 8+75E ELEVATION: 1292m

AZIMUTH: 270 DIP: -45 LENGTH: 199.34m

PURPOSE: To test diorite, and silicification near southern contact with Permian cherts and andesites. The hole is to be collared in cherty stockwork silicified Permian sediments and is designed to drill through an inferred east-west trending fault zone into diorite. Local hydrothermal breccias are seen in the area, and coincident chargeability, resistivity, magnetometer, and soil and rock geochemical anomalies are present.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.00	3.05	CASING.
3.05	14.1	CHERT/STOCKWORK SILICIFICATION. This is a strongly oxidized interval that has been brecciated. The extent of oxidation suggests pyrite may be present in high concentrations and up to 15% disseminated and stockwork pyrite is seen with trace amounts of chalcopyrite.
14.1	28.90	INTERBEDDED ANDESITIC FLOWS AND TUFFS. The interval shows evidence of flow banding and bedding. Alteration is primarily chloritic and sericitic. Only trace to 5% pyrite is seen through the interval.
28.90	30.45	BANDED FELSIC ASH AND FELSIC INTRUSIVE. The ash unit is very fine grained consisting of alternating bands of grey, white, red and green. The felsic intrusive is fine grained primarily feldspars with no mafics. Trace pyrite throughout.

30.45	33.14	ANDESITIC TUFF. The unit is chloriticly altered with only trace pyrite.
33.14	34.78	PYRITIC INTRUSIVE. This may be the same as felsic intrusive described previously but contains up to 30% pyrite and is extremely oxidized.
34.78	38.48	ANDESITE TUFF. This is a chloriticly altered and silicified unit with occasional pyrite, quartz, and talc veinlets. A small hydrothermal breccia cross cuts at 37.9m.
38.48	40.3	BRECCIA/INTRUSIVE. This interval contains brecciated fragments of intrusive and andesite with 10% Py occuring as small lenses along a shear fabric.
40.3	44.0	ANDESITE TUFF. This is a chloriticly altered unit with 10% talc occuring as veinlets. Small hydrothermal breccias cross cut the core in a number of areas.
44.0	44.84	HEMATITE BRECCIA ZONE. This may have been an intrusive originally but is now 40% hematized with approximately 20% talc. Pyrite occurs to 15% throughout with trace amounts of Cp.
44.84	56.4	ALTERED ANDESITE FLOW OR TUFF. This is an extremely chloriticly and sericiticly altered andesite flow or tuff. Several zones of hydrothermal and tectonic brecciation cross cut the interval. From 46.9 to 47.54 up to 40% pyrite occurs. A zone of hematite alteration similar to the previous interval is seen from 48.13 to 48.7.
56.4	57.37	CHERTY SILICIFICATION. This is a highly fractured unit with subsequent introduction of silica, and pyrite along fractures. Pyrite only reaches concentrations of 2% as stockwork.
57.37	69.70	COARSE FELDSPAR HORNBLENDE DIORITE PORPHYRY. This is a coarse grained porphyritic unit that is generally silicified. From 57.37 to 63.7 pyrite occurs disseminated to 2% with trace amounts of Cp. From 58.5 to 63.7 magnetite occurs to 40% as patchy blebs throughout. From 65.0 to 65.4 pyrite occurs to 50% in a quartz vein.

69.70	85.84	PYRITIC CHERT/SILICEOUS TUFF. This fine grained interval consists of alternating pyritic chert and siliceous tuff. Pyrite occurs to 5% as disseminations and as fracture filling veinlets.
85.84	91.90	DIORITE. This interval varies compositionally from a felsic looking diorite to more mafic looking phases. The unit contains up to 30% Mt in areas, and is sericiticly altered locally. From 85.84 to 87.8 pyrite occurs to 5% with trace Cp. Generally Py and Cp occur in association with quartz carbonate veinlets.
91.90	104.6	LAPILLI TUFF. The unit consists of andesitic fragments up to 10 cm in dimension in a finer matrix. Numerous faults cross cut the unit from 92.8 to 99.36. Sulphides are absent until 101.19 to 101.54 where Py occurs to 10% with trace Cp.
104.6	151.00	ANDESITE. This unit is generally chloriticly and sericiticly altered with some silicification and talc veining. Good amygdaloidal textures are observed locally. The interval is cut by numerous faults and hydrothermal breccias. Some localised areas of up to 20% Mt are noted. Pyrite generally occurs in concentrations of up to 10% with localised areas of up to 30% (106.3 to 108.2).
151.00	153.96	DIORITE. This is a weakly propylitized unit that has been carbonatized (20%) and sericitized (10%). It is weakly magnetic. Pyrite occurs to 2% disseminated throughout and a small Cp veinlet occurs at 153.00.
153.96	186.86	SILICIFIED PORPHYRY ANDESITE. This is a propylitized, silicified porphyritic andesite showing local amygdaloidal textures. Zones of sericitization and chloritization occur locally. Minor zones of K'spar flooding are seen. It is weakly to moderately magnetic in areas. Pyrite content averages 5% for the interval with up to 20 % locally as disseminations and veinlets.

186.86	189.70	DIORITE DYKE. This is a fine grained chloriticly and sericiticly altered unit cross cut by a series of faults. Pyrite occurs locally up to 20%.
189.70	191.34	ANDESITE. This a chloritized and silicified andesite flow with chloriticly altered amygdules. The bottom 34 cm of the unit is strongly fractured (70%) and silicified. Pyrite occurs in trace amounts.
191.34	199.34	CHERTY ANDESITE TUFF. This is a fine grianed tuffaceous unit that has been silicified. Minor talc veins occur within it. Pyrite occurs in trace concentrations.

****END OF HOLE****

DISCUSSION

As stated in the purpose this hole was designed to test magnetic, chargeability, resistivity and structural targets. A number of fault zones were intersected within the zone but the main inferred fault zone was not. This may suggest that the well defined lineament seen at surface and inferred to be a fault is in actuality an intrusive contact or weakly resistant alteration zone. The chargeability, resisitivity and magnetometer anomalies were explained by the mineralization and alteration seen in the hole. Unfortunately visible economic mineralization for the most part was absent.

MINNOVA, INC.

DATE: November 17, 1991

TO: I. PIRIE, D. HEBERLEIN

FROM: Cam Clayton

RE: DRILL HOLE SUMMARY

DRILL HOLE: TM 91-19 (P-17) START DATE: Nov 14 END DATE: Nov 16

NORTHING: 1+50N EASTING: 6+00E ELEVATION: 1370 m

AZIMUTH: 090 DIP: -70 LENGTH: 108.8m

PURPOSE: To test magnetic anomaly, chargeability high, resistivity low, and anomalous soil geochemistry on flanks of topographicly high siliceous cap.

INTERVAL		DESCRIPTION OF INTERVAL
FROM	TO	
0.00	7.32	CASING
7.32	16.6	INTERBEDDED ANDESITIC TUFFS AND CHERT. This is an aphanitic ash tuff interbedded with grey chert. Dissolution along fractures gives vuggy appearance in areas. Pyrite occurs to 15% as fine disseminations.
16.6	46.9	CHERT/STOCKWORK SILICIFICATION. This is similar to the stockwork silicification described in hole TM91-16 and is highly microfractured with silica healing. Occasional zones of brecciation occur throughout. Pyrite generally occurs as disseminations and coarser blebs with some localised areas of pyrite stockwork and averages 5%. Minor Cp has been observed.
46.9	55.2	INTERBEDDED TUFF AND CHERT. This is similar to that described in the interval from 7.32 to 16.6. Chlorite and sericite alteration is commonly observed in the tuffaceous segments. Again visible mineralization consists primarily of pyrite as disseminations and occasional stockworks averaging 3 to 5% for the interval. Chalcopyrite is seen only in trace amounts.

55.2	63.4	ANDESITE. This is a fine grained to aphanitic flow with a mottled appearance in areas. Minor carbonate alteration is seen, as is chlorite and sericite. The occasional small scale fault cuts the core. Pyrite averages 8%. At 59.74 m a small feldspar porphyritic dyke cuts the core.
63.4	65.0	INTERBEDDED TUFF AND CHERT. Again this is similar to that described from 7.32 to 16.6. Pyrite occurs disseminated to 8% throughout.
65.0	65.93	ARGILLICLY ALTERED FELDSPAR PORPHYRY. The core has been strongly altered to sericite and chlorite and contains approximately 5% disseminated pyrite.
65.93	67.35	FELDSPAR PORPHYRY. This is a relatively unaltered feodspar porphyritic intrusive. Alteration that is present consisits of very weak chlorite/sericite/k'spar. No visible mineralization.
67.35	108.8	DIORITE/QUARTZ DIORITE. This interval consists of intrusive rock showing gradational compositional variations from dioritic to quartz dioritic phases. Generally the quartz rich phases are coarser grained than the dioritic phases. Occasional hydrothermal breccias are seen in the interval. Alteration varies from a weak propylitic (with epidotic veins) to argillic (alteration of feldspars to clays). Pyrite averages roughly 2% through the interval with local highs of 8%.

**** END OF HOLE ****

DISCUSSION

Weather conditions and access difficulty necessitated moving of the originally planned location for hole TM91-19 from 200N, 575E to 150N, 600E. This may have had some effect on the adequacy of testing of the targets. The chargeability and resistivity anomalies are explained by the pyrite content of both the cherts and andesitic volcanics, and of the intrusives intersected in the drilling. However, the magnetic anomaly located on line 200N was not explained.

MINERAL
• ENVIRONMENTS
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

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Assay Certificate

1V-1224-RA1

Company: MINNOVA INC.
Project: 667
Attn: I.PIRIE./C.CLAYTON

Date: OCT-08-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 1 ROCK samples submitted OCT-07-91 by G. DUSO.

Sample Number	AU g/tonne	AU oz/ton
25611	5.20	.152

Certified by _____

COMP: MINNOVA INC.
PROJ: TAM O'SHANTER 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1325-RJ1+2
DATE: 91/10/25
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25801	1.2	70	87	1121	12	19	5	25	21
BCD25802	.8	26	80	1290	11	17	2	21	37
BCD25803	.7	1	54	280	1	6	1	71	2
BCD25804	1.0	1	108	224	2	11	1	51	22
BCD25805	1.1	1	190	277	31	6	1	49	2
BCD25813	1.4	1	32	552	3	12	1	45	8
BCD25814	1.4	1	31	455	3	11	1	39	2
BCD25815	1.0	1	43	537	14	14	1	48	16
BCD25816	.7	1	100	51	3	30	1	60	1
BCD25817	.8	1	85	41	2	32	1	61	2
BCD25818	1.4	1	70	354	9	12	1	51	10
BCD25819	.7	1	17	529	9	23	1	100	9
BCD25820	1.2	1	32	975	5	15	1	53	16
BCD25821	1.0	1	98	474	1	17	1	59	3
BCD25822	1.3	1	50	468	1	19	1	42	4
BCD25823	1.3	1	68	543	7	12	1	47	2
BCD25824	1.8	1	29	372	6	12	1	48	2
BCD25825	2.0	1	24	771	3	13	1	37	28
BCD25826	2.2	1	15	616	1	7	1	34	2
BCD25827	2.0	1	24	488	9	15	1	36	11
BCD25828	1.2	1	22	469	1	9	1	57	29
BCD25829	1.6	1	37	252	1	11	1	40	6
BCD25830	1.4	1	40	671	1	10	1	45	21
BCD25831	1.3	1	63	403	26	12	1	49	13
BCD25832	1.1	63	214	41	2	31	1	65	2
BCD25833	1.2	5	73	501	1	14	1	53	98
BCD25834	.6	1	52	366	1	6	1	62	3
BCD25835	.9	1	167	421	1	13	1	53	17
BCD25836	.6	1	80	303	10	15	1	48	5
BCD25837	1.2	1	96	259	2	13	1	57	14
BCD25838	.6	3	73	234	1	22	1	43	3
BCD25839	.6	1	37	298	12	18	1	48	3
BCD25840	5.7	7	39	11547	12	33	7	58	565
BCD25841	1.1	1	106	645	1	12	1	49	19
BCD25842	1.5	1	147	335	1	13	1	50	8
BCD25843	1.6	1	53	399	1	10	1	58	87
BCD25844	1.6	1	63	371	1	10	1	47	10
BCD25845	.6	1	22	516	1	21	1	102	12

COMP: MINNOVA INC.
PROJ: TAM O'SHANTER 661
ATTN: IAN PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1318-RJ1+2
DATE: 91/10/24
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25765	1.3	94	244	814	3	16	3	52	38
BCD25766	.8	40	99	587	6	14	1	37	5
BCD25767	1.7	9	423	1038	2	10	1	42	21
BCD25768	2.9	1	235	827	2	6	1	40	43
BCD25769	1.2	6	67	701	1	12	1	31	20
BCD25770	2.5	1	108	672	7	5	1	50	7
BCD25771	2.0	1	117	521	1	12	1	38	18
BCD25772	.7	1	166	517	5	19	1	49	17
BCD25773	.9	9	51	713	3	12	1	16	5
BCD25774	.5	10	99	828	10	12	1	21	2
BCD25775	1.1	1	140	1475	6	11	1	31	48
BCD25776	.6	12	83	807	8	12	1	20	3
BCD25777	.7	10	92	636	11	11	1	24	5
BCD25778	.8	10	62	756	10	12	1	24	12
BCD25779	1.8	1	252	1341	1	14	1	50	30
BCD25780	.7	9	102	872	7	15	1	27	8
BCD25781	1.2	1	108	959	3	13	1	36	62
BCD25782	1.0	7	124	1544	7	23	1	68	68
BCD25783	1.3	5	46	1509	8	12	1	15	37
BCD25784	.8	7	89	574	12	15	1	18	12
BCD25785	.8	8	76	953	4	12	1	16	14
BCD25786	.5	5	88	922	8	18	1	36	15
BCD25787	.6	7	41	543	9	9	1	13	6
BCD25788	.8	8	79	528	11	11	1	16	10
BCD25789	.4	5	182	753	9	15	1	22	32
BCD25790	.5	7	69	398	15	12	1	19	6
BCD25791	1.0	5	57	1539	37	25	1	39	52
BCD25792	.5	9	84	437	13	11	1	23	8
BCD25793	1.0	1	240	55	2	24	1	57	6
BCD25794	1.5	1	86	564	7	11	1	31	7
BCD25795	2.3	105	64	407	1	18	1	41	5
BCD25796	.9	40	88	1108	11	15	3	19	12
BCD25797	.6	25	55	466	5	13	1	18	1
BCD25798	.5	16	124	348	5	12	1	20	1
BCD25799	1.0	16	173	566	6	14	1	19	3
BCD25800	1.4	1	124	442	5	14	1	29	14
BCD25846	1.0	8	140	809	5	18	1	41	4
BCD25847	.5	9	68	207	3	12	1	18	10
BCD25848	.5	11	107	275	5	14	1	21	14

COMP: MINNOVA INC.
PROJ: 667
ATTN: I.PIRIE./C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1224-RD1+2
DATE: 91/10/08
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	BI PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
25576	2.5	1	58	38	162	1	10	1	48	2
25577	3.3	1	25	38	1396	1	8	1	35	62
25578	1.0	10	19	1	88	21	23	1	22	254
25579	.9	1	19	1	119	3	24	1	14	7
25580	1.0	1	33	1	246	1	18	1	24	18
25581	1.7	1	4	1	727	1	14	1	13	30
25582	.9	1	29	1	168	1	12	1	21	10
25583	.6	1	42	1	91	1	10	1	15	2
25584	.8	1	13	1	286	1	11	1	12	4
25585	.8	1	27	1	186	1	9	1	15	1
25586	.6	1	7	1	189	1	12	1	15	1
25587	.7	1	21	1	187	1	15	1	17	12
25588	.5	1	67	1	246	1	8	1	13	2
25589	.7	1	12	1	180	1	12	1	13	1
25590	.5	1	9	1	123	1	17	1	15	1
25591	.7	1	136	1	77	1	9	1	10	2
25592	.2	1	16	1	167	1	19	1	15	1
25593	.4	1	9	1	126	1	19	1	15	2
25594	.6	1	31	1	131	46	15	1	13	1
25595	.9	1	19	1	182	3	19	1	13	18
25596	.7	1	38	3	246	1	22	1	46	1
25597	.8	1	24	1	166	1	13	1	14	1
25598	.7	1	381	1	463	23	18	1	36	2
25599	1.0	1	67	1	431	11	8	1	21	1
25600	.7	1	1111	5	5	1	16	1	53	1
25601	.6	1	239	10	404	1	14	1	46	3
25602	1.1	1	30	1	284	5	29	1	40	2
25603	1.6	1	54	1	4850	1	22	1	52	282
25604	.8	1	119	1	325	4	5	1	44	17
25605	.1	1	173	2	432	1	24	1	114	10
25606	.1	1	560	1	295	1	16	1	54	22
25607	.5	1	88	1	2262	1	14	1	68	183
25608	1.7	1	171	1	1461	1	21	1	42	60
25609	1.6	1	118	1	1740	22	34	1	69	157
25610	1.2	1	63	1	834	1	107	1	497	364
25611	1.7	92	44	2	719	6	19	1	64	4800
25612	.5	1	89	1	64	1	17	1	50	5
25613	3.8	95	21	1	2414	4	15	1	24	216
25614	.8	52	44	1	958	1	17	1	59	188
25615	.7	1	91	1	1231	1	15	1	51	45
25616	.9	1	33	1	551	1	14	1	29	2
25617	.3	1	22	1	975	2	13	1	26	1
25618	.1	1	90	3	343	1	11	1	62	2
25619	1.1	1	37	1	865	18	16	1	23	28
25620	.1	1	73	3	466	3	12	1	50	2
25621	1.2	1	55	1	663	9	20	1	27	24
25622	1.4	7	55	1	363	5	16	1	25	8
25623	.8	1	62	1	649	1	19	1	49	20
25624	1.9	1	37	1	534	20	12	1	11	18
25625	1.3	4	82	1	816	3	17	1	34	54
25626	1.3	1	80	13	895	1	12	1	33	16
25627	.5	1	47	2	73	1	17	1	54	1
25628	.5	1	98	9	1054	1	15	1	44	4
25629	1.0	1	50	12	1068	1	15	1	47	2
25630	.7	1	64	1	665	14	27	1	44	30
25631	.9	1	96	2	666	1	25	1	110	46
25632	.5	1	53	1	1731	3	17	1	38	28
25976	1.3	1	352	8	58	22	5	1	40	87
25977	1.4	1	279	4	205	13	14	1	19	4
25978	1.0	1	325	5	283	7	11	1	26	2

COMP: MINNOVA INC.
PROJ: 667
ATTN: I.PIRIE./C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1224-RJ3
DATE: 91/10/08
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	BI PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
25979	.2	1	115	5	1640	1	12	1	40	28
25980	1.9	1	235	3	497	12	13	1	25	19
25981	1.9	1	69	1	923	15	15	1	16	23
25982	1.4	1	194	2	332	13	12	1	20	8
25983	1.8	1	340	12	352	12	11	1	30	7

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1293-RJ1+2
DATE: 91/10/22
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
25713	.5	1	12	119	1	22	1	48	2
25714	.6	1	6	186	1	15	1	16	1
25715	.6	1	69	221	1	18	1	17	1
25716	.7	1	70	104	1	17	1	15	3
25717	.5	1	57	125	1	18	1	18	1
25718	.5	1	14	142	1	17	1	17	4
25719	.8	1	56	139	26	14	1	14	5
25720	.8	1	795	97	1	20	1	52	4
25721	1.0	1	443	67	10	17	1	36	24
25722	.7	1	91	173	3	9	1	24	4
25723	.5	1	32	279	1	15	1	40	2
25724	.3	1	97	389	1	14	1	50	22
25725	.6	1	412	125	1	23	1	62	10
25726	.7	1	241	924	1	24	1	55	76
25727	1.7	1	175	2814	1	28	1	65	245
25728	1.8	1	288	2208	1	25	1	59	244
25729	.4	1	224	137	1	21	1	65	42
25730	2.1	14	79	632	1	20	1	76	700
25731	1.6	51	237	367	1	16	1	44	285
25732	1.2	1	81	1311	1	18	1	59	100
25733	1.0	1	64	1255	1	19	1	53	80
25734	.6	1	56	966	10	21	1	45	2
25735	.9	1	76	759	1	22	1	39	1
25736	1.2	1	110	341	1	26	1	46	2
25737	1.8	1	76	304	1	21	1	53	1
25738	1.3	1	124	483	1	23	1	52	40
25739	1.0	1	84	737	1	17	1	48	52
25740	.7	1	76	2134	1	23	1	46	65
25741	.6	1	234	482	1	21	1	49	12
25742	.6	1	107	110	1	21	1	55	24
25743	.5	48	83	720	1	24	1	54	21
25744	.6	1	51	410	1	19	1	60	10
25745	.1	1	58	279	21	22	1	80	5
25984	3.3	1	62	580	1	14	1	40	6
25985	3.1	1	74	221	1	18	1	40	1
25986	3.0	1	72	191	1	27	1	49	2
25987	2.8	1	142	50	1	25	1	72	1
25988	2.0	1	152	193	1	16	1	67	1
25989	.7	1	148	224	1	20	1	88	2
25992	1.6	1	12	300	1	15	1	18	4
25993	1.5	1	4	447	1	17	1	16	16
25994	.9	1	4	100	1	10	1	12	2
25995	.7	1	84	91	1	13	1	12	4
25996	.8	1	3	119	1	12	1	13	1
25997	.8	1	8	138	1	11	1	12	1
25998	1.0	1	13	146	1	20	1	11	4
25999	.8	1	8	277	1	26	1	14	1
26000	.7	1	8	208	1	21	1	16	4

CC1

COMP: MINNOVA INC.
PROJ: TAM O'SHANTER/WILDROSE 661
ATTN: I.PIRIE/D.HEBERLEIN/C.CLAYTO

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1287-RJ1+2
DATE: 91/10/18
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
25660	1.1	43	315	655	3	18	1	37	3
25661	.9	4	205	803	6	13	1	25	22
25662	.7	1	250	461	1	15	1	32	20
25663	1.0	1	391	647	3	15	1	26	17
25664	.9	4	270	1466	10	14	1	25	19
25665	1.0	3	289	1061	1	15	1	23	12
25666	1.3	4	274	1088	4	12	1	19	20
25667	1.0	7	408	1255	9	12	1	18	3
25668	.8	1	438	822	1	17	1	25	18
25669	1.1	1	304	1099	2	14	1	22	21
25670	.9	11	190	1104	8	13	1	22	22
25671	1.2	3	202	1017	1	15	1	19	16
25672	1.2	5	214	1253	5	14	1	21	14
25673	1.0	9	232	1411	11	12	1	19	30
25674	1.5	7	208	1332	2	13	1	18	39
25675	1.5	7	332	1113	3	15	1	36	30
25676	.5	1	141	314	324	15	1	59	100
25677	1.7	8	256	945	6	12	1	24	38
25678	1.1	8	169	770	3	15	1	26	50
25679	.8	1	265	230	6	14	1	27	12
25680	.1	1	225	31	1	13	1	28	25
25681	.2	1	159	70	1	15	1	31	18
25682	.5	1	85	41	7	13	1	19	40
25683	.8	12	15	15	12	11	1	17	48
25684	.9	21	7	17	6	9	1	15	19
25685	1.1	9	213	678	8	13	1	18	17
25686	.8	5	423	739	1	14	1	20	8
25687	1.1	5	412	355	3	16	1	22	5
25688	.8	1	233	680	6	12	1	44	19
25689	1.1	1	270	664	1	8	1	50	27
25690	1.6	4	191	459	3	11	1	41	18
25691	1.8	1	10	40	5	7	1	8	2
25692	1.8	1	8	59	5	7	1	6	2
25693	1.9	3	17	103	7	6	1	16	4
25694	1.9	1	6	20	7	8	1	85	6
25695	1.9	1	24	91	8	6	1	5	3
25696	.7	1	99	7	1	15	1	25	4
25697	1.5	1	141	10	1	18	1	22	3
25698	.9	1	131	6	1	19	1	31	17
25699	.5	1	103	5	1	18	1	27	5
25700	.8	1	64	5	2	15	1	35	4
25701	1.5	1	173	614	7	13	1	19	23
25702	.6	1	88	10	1	15	1	32	14
25703	1.2	1	100	4	1	11	1	22	9
25704	1.3	1	40	3	1	15	1	19	3
25705	1.7	1	102	7	9	16	1	20	5
25706	1.7	1	155	4	2	18	1	20	6
25707	1.8	1	109	4	4	17	1	16	13
25708	1.6	1	106	4	4	20	1	17	8
25709	1.6	1	111	3	3	17	1	20	4
25710	1.6	1	108	3	2	17	1	20	9
25711	1.8	1	128	3	5	16	1	12	3
25712	1.3	1	134	2	1	15	1	18	5

COMP: MINNOVA INC.
PROJ: TAM O'SHANTER/WILDROSE 661
ATTN: I.PIRIE/D.HEBERLEIN/C.CLAYTO

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1276-RJ1
DATE: 91/10/18
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
25633	2.5	28	41	273	25	23	1	29	17
25634	2.7	1	21	998	5	22	1	35	40
25635	2.4	1	25	161	1	21	1	26	2
25636	2.2	1	23	226	1	36	1	114	3
25637	2.3	1	19	621	1	25	1	30	17
25638	1.8	1	15	554	2	30	1	49	21
25639	1.4	1	37	425	2	23	1	24	17
25640	1.4	1	25	915	1	23	1	26	22
25641	.9	1	3	2353	51	24	1	25	71
25642	1.8	1	42	396	14	22	1	30	19
25643	2.0	1	26	218	1	21	1	41	3
25644	2.0	1	32	234	1	20	1	37	15
25645	2.1	1	36	226	1	19	1	31	17
25646	2.2	1	48	299	1	20	1	37	3
25647	1.0	1	67	210	2	27	1	32	1
25648	2.2	1	52	252	1	16	1	33	1
25649	2.0	1	47	149	1	18	1	32	3
25650	2.2	1	23	234	1	16	1	41	9
25651	1.8	1	117	287	1	15	1	48	10
25652	1.5	1	17	1044	1	17	1	53	114
25653	2.0	1	27	502	1	21	1	26	22
25654	1.7	1	36	322	1	23	1	23	12
25655	1.9	1	40	332	1	21	1	20	19
25656	2.5	1	21	363	1	20	1	32	7
25657	2.7	1	40	378	1	20	1	28	8
25658	1.7	1	45	318	1	21	1	29	7
25659	2.1	1	68	463	1	22	1	29	12

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1298-RJ1
DATE: 91/10/22
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
25746	2.3	1	48	411	1	14	1	26	17
25747	2.8	1	39	433	1	16	1	115	31
25748	2.9	1	27	290	12	17	1	26	21
25749	2.8	1	38	620	51	20	1	30	56
25750	2.6	1	43	281	1	22	1	37	21
25751	2.6	1	31	534	6	21	1	33	27
25752	2.7	1	57	441	1	15	1	29	10
25754	2.4	1	45	208	1	19	1	50	22
25755	2.1	1	83	316	1	18	1	28	40
25756	.9	1	126	208	1	21	1	30	32
25757	2.1	1	65	328	1	13	1	31	27
25758	1.8	1	39	216	1	6	1	38	26
25759	1.2	1	24	309	1	15	1	49	58
25760	2.1	1	42	377	1	11	1	27	60
25761	2.0	1	45	444	1	15	1	30	59
25762	2.4	1	54	347	3	14	1	27	37
25763	2.4	1	51	286	2	14	1	31	20
25764	2.0	1	35	325	1	15	1	28	32

COMP: MINNOVA INC.
PROJ: 661 TAM O'SHANTER
ATTN: I.PIRIE.D.HEBERLEIN/C.CLAYTO

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1333-RJ1
DATE: 91/10/25
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25806	1.8	103	59	400	21	9	1	51	2
BCD25807	1.7	20	60	914	3	6	1	47	1
BCD25808	1.6	4	31	886	2	14	1	46	3
BCD25809	1.9	1	45	1102	1	12	1	43	5
BCD25810	1.6	1	41	526	1	16	1	50	1
BCD25811	1.5	1	19	960	9	19	1	53	10
BCD25812	1.6	1	28	823	1	13	1	43	4

COMP: MINNOVA INC.
PROJ: TAM O'SHANTER 661
ATTN: I.PIRIE/D.HEBERLEIN/C.CLAYTO

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1332-RJ1+2
DATE: 91/10/28
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD20101	1.2	86	59	387	4	24	1	61	6
BCD20102	.6	28	83	366	2	20	1	54	4
BCD20103	.8	5	87	446	1	19	1	53	12
BCD20104	.5	1	131	396	1	17	1	52	9
BCD20105	.6	1	65	570	5	19	1	53	5
BCD20106	.1	2	91	745	1	21	1	59	28
BCD20107	.8	7	102	1848	5	19	1	41	86
BCD20108	.3	1	69	357	1	18	1	53	14
BCD20109	.3	1	86	521	1	21	1	53	49
BCD20110	.3	1	112	438	1	21	1	51	53
BCD20111	.3	1	96	489	2	20	1	53	46
BCD20112	.3	1	115	375	1	19	1	50	8
BCD20113	.7	1	108	865	4	21	1	50	11
BCD20122	.6	3	83	519	12	21	1	80	56
BCD20123	.7	1	103	421	7	19	1	88	70
BCD20124	.6	1	101	356	7	19	1	105	51
BCD20125	1.0	1	103	696	25	22	1	93	60
BCD20126	1.1	1	76	1076	9	20	1	57	45
BCD20127	1.0	1	69	556	14	18	1	66	24
BCD20128	.8	2	81	801	11	22	1	60	31
BCD20129	.7	1	95	450	43	16	1	52	40
BCD20130	1.1	1	79	1481	20	21	1	55	59
BCD20131	.8	1	152	781	15	20	1	57	23
BCD20132	.7	2	123	952	21	19	1	59	52
BCD20133	.6	1	75	656	24	21	1	45	58
BCD20134	1.7	5	78	2117	41	20	1	20	65
BCD20135	.3	3	92	577	28	22	1	55	37
BCD20136	.4	3	70	677	57	22	1	48	29
BCD20137	.8	4	205	63	5	38	1	50	2
BCD20138	1.3	10	58	554	54	18	1	19	8
BCD25849	1.3	144	149	601	6	20	2	41	19
BCD25850	1.3	39	148	455	3	17	1	52	20

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1337-RJ1
DATE: 91/10/28
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
20114	1.6	125	67	1374	5	52	12	54	47
20115	.9	60	37	941	6	25	4	60	39
20116	1.1	16	72	1128	5	27	1	56	48
20117	1.3	3	51	1129	3	23	1	58	61
20118	1.0	1	71	676	5	26	1	55	23
20119	1.0	1	68	524	1	20	1	57	18
20120	1.0	1	78	476	3	27	1	62	16
20121	.5	1	103	641	2	25	1	67	21

COMP: MINNOVA INC.
PROJ: 661 TAM O'SHANTER
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1354-RJ1
DATE: 91/10/30
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD20139	6.3	114	82	1242	10	341	292	229	12
BCD20140	2.3	33	29	1105	17	61	51	39	2
BCD20141	1.8	33	23	553	9	27	20	28	18
BCD20142	1.3	19	20	878	6	21	11	14	9
BCD20143	1.4	18	26	1258	12	19	14	14	7
BCD20144	1.0	20	32	1050	5	18	9	19	4
BCD20145	1.0	22	29	1113	4	11	5	24	10
BCD20146	1.3	21	25	677	10	10	4	28	4
BCD20147	.8	18	17	652	8	8	3	20	2
BCD20148	.5	17	28	409	6	9	2	22	3
BCD20149	1.5	16	51	1205	9	12	4	13	22
BCD20150	1.2	15	100	1376	17	14	7	14	80
BCD20151	.9	22	68	823	8	12	3	13	17
BCD20152	1.1	14	21	572	12	10	3	12	5
BCD20153	1.1	10	22	637	12	7	3	8	4
BCD20154	1.0	18	24	606	20	11	3	15	1
BCD20155	1.3	15	48	1205	18	11	4	17	104
BCD20156	1.3	15	47	477	54	7	8	14	186
BCD20157	1.1	18	38	589	7	6	2	13	26
BCD20158	1.6	14	24	403	13	6	4	11	20
BCD20159	1.1	10	13	224	4	5	5	12	4
BCD20160	.8	26	14	119	17	10	5	23	12
BCD20161	1.2	23	17	143	22	10	11	24	10
BCD20162	2.6	36	13	60	70	11	1	18	100
BCD20163	1.3	29	9	30	18	9	2	13	21
BCD20164	15.7	80	19	88	17	110	3	14692	275
BCD20165	1.5	17	11	50	32	9	2	69	111
BCD20166	1.3	17	13	301	21	10	2	34	6
BCD20167	7.0	72	2	25	4	1	1	39	860

MIN
• EN
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

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

Assay Certificate

1V-1361-RA1

Company: **MINNOVA INC.** Date: OCT-30-91
Project: 661 Copy 1. MINNOVA INC., VANCOUVER, B.C.
Attn: I.PIRIE/C.CLAYTON

He hereby certify the following Assay of 1 CORE samples submitted OCT-26-91 by G.DUSO.

Sample Number	AU g/tonne	AU oz/ton
20499	1.22	.036

Certified by _____

MIN-EN LABORATORIES

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1361-RJ1+2
DATE: 91/10/30
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
20168	2.0	21	10	47	11	16	1	18	1
20169	1.5	13	21	14	18	14	1	11	42
20170	1.5	13	15	117	13	14	1	48	1
20171	1.1	10	17	81	6	13	1	18	1
20172	.8	15	19	57	24	12	1	15	1
20173	1.3	15	16	83	8	10	1	13	1
20174	1.3	14	14	132	14	13	1	15	3
20175	1.2	57	19	71	22	23	1	139	37
20176	1.2	14	25	151	10	12	1	15	1
20177	1.0	14	40	120	7	12	1	14	1
20476	.1	1	173	858	1	10	1	55	126
20477	.1	1	192	1312	2	15	1	63	133
20478	.1	1	206	883	7	15	1	64	524
20479	.2	1	340	276	1	12	1	57	2
20480	.3	1	795	329	67	10	1	63	6
20481	.2	1	630	516	3	15	1	86	4
20482	.3	1	36	403	2	22	1	120	16
20483	.1	16	205	579	5	24	1	98	40
20484	1.0	1	324	92	2	32	1	60	2
20485	1.1	1	337	37	2	28	1	54	1
20486	.9	1	222	36	2	43	1	71	1
20487	.2	4	809	1252	10	28	1	143	98
20488	1.1	1	206	29	2	31	1	53	2
20489	1.3	2	150	21	2	31	1	58	1
20490	.4	31	44	864	4	25	1	109	61
20491	.1	1	64	581	1	18	1	100	35
20492	1.3	1	82	56	1	16	1	66	1
20493	2.0	1	98	32	1	13	1	65	1
20494	2.3	1	106	30	1	10	1	62	2
20495	1.2	1	118	690	3	11	1	123	149
20496	1.9	1	110	32	1	15	1	67	1
20497	1.9	1	126	50	1	20	1	68	1
20498	.2	1	34	471	1	18	1	104	62
20499	.7	1	169	342	1	5	1	89	1040
20500	.2	1	34	576	1	5	1	89	42

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1376-RJ1
DATE: 91/10/31
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD18876	.7	4	228	1043	14	17	1	46	62
BCD18877	.6	1	272	512	5	15	1	43	29
BCD18878	.9	1	194	409	6	17	1	40	41
BCD18879	1.0	3	25	1413	670	18	1	42	176
BCD21426	1.5	1	148	682	1	3	1	81	72
BCD21427	.8	1	31	2745	7	20	1	84	278
BCD21428	.9	1	60	1448	3	3	1	76	153
BCD21429	2.2	1	121	624	1	3	1	76	168
BCD21430	1.1	1	909	342	1	3	1	87	139
BCD21431	1.2	1	80	354	1	3	1	81	277
BCD21432	1.3	1	87	545	2	4	1	54	740
BCD21433	2.2	1	79	907	8	3	1	62	388
BCD21434	2.0	1	97	1631	1	3	1	63	169
BCD21435	.6	1	63	372	4	19	1	47	47
BCD21436	.5	6	36	224	20	19	1	44	5
BCD21437	.6	1	41	285	5	20	1	51	10
BCD21438	.7	9	41	237	4	21	1	47	13
BCD21439	.9	1	312	307	4	18	1	47	19
BCD21440	.7	2	58	478	17	18	1	43	28
BCD21441	.4	1	39	497	23	19	1	39	35
BCD21442	.5	1	97	376	42	17	1	39	14
BCD21443	.7	1	56	773	13	19	1	40	22
BCD21444	.9	1	41	684	9	22	1	29	57
BCD21445	1.0	5	81	317	7	18	1	44	24
BCD21446	1.2	1	128	451	8	18	1	42	50
BCD21447	.8	1	48	686	20	18	1	36	58
BCD21448	.6	1	252	433	42	17	1	37	41
BCD21449	1.2	2	216	621	7	18	1	40	72
BCD21450	.8	1	109	894	8	19	1	33	65

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1390-RJ1+2
DATE: 91/11/05
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
20178	.7	1	321	663	1	75	1	64	36
20179	.4	1	409	851	4	27	1	55	40
20180	.7	1	522	857	1	27	1	71	72
20181	.5	1	1157	640	12	31	1	78	40
20182	.9	1	363	753	6	31	1	75	51
20183	.6	1	360	933	13	25	1	73	62
20184	.9	1	293	1208	8	26	1	76	109
20185	1.9	1	191	1770	3	24	1	89	146
20186	.6	1	275	544	2	20	1	66	40
20187	.4	1	559	616	17	19	1	66	15
20188	.7	1	472	1012	18	18	1	50	46
20189	.7	1	705	1281	6	22	1	52	80
20190	.7	1	762	1555	10	20	1	46	97
20191	.1	1	242	3395	9	19	1	50	474
20192	.3	7	588	964	5	22	1	38	74
20193	.7	1	532	1356	7	24	1	57	72
20194	.9	3	254	1032	14	28	1	70	61
20195	.8	1	568	1052	15	26	1	52	79
20196	.5	1	310	821	4	26	1	52	70
20197	.8	1	191	925	4	23	1	52	51
20198	.4	1	463	403	7	22	1	59	17
20199	.3	1	503	775	13	19	1	42	20
20200	.3	1	499	511	11	27	1	74	4
21401	.5	1	326	468	3	27	1	72	16
21402	.5	5	168	876	2	28	1	99	48
21403	.9	2	230	40	4	28	1	57	2
21404	1.1	2	117	42	3	30	1	68	1
21405	1.0	3	68	40	4	27	1	58	1
21406	1.6	1	140	136	2	24	1	58	1
21407	.3	4	152	325	2	20	1	69	15
21408	.4	3	372	597	14	23	1	67	42
21409	.1	8	147	447	6	30	1	82	20
21410	1.0	1	157	32	1	17	1	68	5
21411	1.8	1	113	35	1	8	1	69	2
21412	1.6	1	114	29	1	11	1	67	1
21413	.8	1	166	24	1	16	1	67	2
21414	.3	5	263	595	3	25	1	80	39
21415	.4	13	64	579	5	25	1	90	40
21416	.8	6	73	21	4	28	1	58	9
21417	.9	7	137	19	4	29	1	57	2
21418	.8	6	100	280	4	28	1	53	8
21419	.8	1	178	745	11	23	1	49	64
21420	.6	6	70	726	4	26	1	56	38
21421	.6	1	882	588	5	22	1	45	48
21422	.8	3	72	1085	12	16	1	37	41

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1653-RJ1+2
DATE: 91/12/11
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD12447	.1	49	423	97	1	15	16	46	119
BCD12448	.1	13	230	64	1	18	1	42	21
BCD12449	.1	11	147	92	1	21	1	43	40
BCS17051	1.6	13	758	236	7	18	1	20	39
BCS17052	.1	19	334	117	1	15	1	54	24
BCS17053	.1	11	214	97	1	19	1	50	16
BCS17054	.3	12	224	162	1	18	1	45	15
BCS17055	.2	7	203	77	1	20	1	46	4
BCS17056	.1	23	188	38	1	21	1	64	4
BCS17057	.2	57	178	76	2	18	1	42	18
BCS17058	.1	61	138	298	1	16	1	32	68
BCS17059	.1	17	232	74	1	18	1	43	44
BCS17060	.2	9	768	103	1	17	1	38	28
BCS17061	.6	8	271	66	2	19	1	41	19
BCS17062	.4	36	170	116	3	20	1	43	22
BCS17063	.3	26	79	63	1	14	1	59	48
BCS17064	.4	33	109	68	2	17	1	40	17
BCS17065	.8	23	57	58	3	15	1	30	21
BCS17066	.9	15	40	92	2	15	1	26	82
BCS17067	.1	24	85	36	1	21	1	46	23
BCS17068	.2	42	105	84	1	18	1	48	54
BCS17069	.6	27	65	91	1	17	1	34	44
BCS17070	.5	26	62	76	1	24	1	43	39
BCS17071	.9	16	103	148	1	19	1	45	68
BCS17072	.6	28	74	154	1	22	1	43	240
BCS17073	.2	24	70	105	1	18	1	51	60
BCS17074	.6	2	48	50	1	17	1	57	18
BCS17075	.4	28	40	149	1	17	1	56	81
BCD35101	.8	22	36	75	1	15	1	56	40
BCD35102	.3	6	42	59	1	14	1	78	22
BCD35103	.1	2	82	92	1	21	1	94	25
BCD35104	.4	23	86	80	1	17	1	81	48
BCD35105	.1	16	130	58	1	21	1	69	16
BCD35106	.8	15	141	75	1	18	1	73	42
BCD35107	.9	10	163	79	1	17	1	58	36
BCD35108	.5	5	147	78	1	18	1	49	46
BCD35109	.1	7	152	114	1	24	1	62	50
BCD35110	.1	69	307	69	1	21	1	59	17
BCD35111	1.8	39	186	52	2	21	2	61	44
BCD35112	1.0	24	116	99	1	18	1	61	38
BCD35113	.2	24	119	50	1	22	1	79	15
BCD35114	.6	34	151	72	1	26	1	105	21
BCD35115	.4	24	106	46	1	21	1	127	19
BCD35116	1.0	57	140	98	1	104	1	178	29
BCD35117	.9	32	95	55	3	294	2	330	20
BCD35118	.8	29	89	69	1	101	2	285	38
BCD35119	.6	18	250	82	2	39	1	239	25
BCD35120	.5	30	182	66	1	301	1	399	91
BCD35121	.7	20	203	67	1	99	1	390	36

91-21

DEC 18 1991

MINERAL ENVIRONMENTAL LABORATORIES

Division of Assayers Corp. Ltd.

DATE: Nov. 29/91

TO: Minnova

ATTENTION: Dan Pirie
D. Heberlein

FAX#

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SPECIAL INSTRUCTIONS:

fax - IV-1609-RJ1+2.

OFFICE AND LABORATORIES:
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

PHONE: (604) 980-5814 (604) 988-4524
TELEX: VIA USA 7601067
FAX: (604) 980-9621

COMP: MINNOVA INC.
PROJ: 661
ATTN: IAN PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1609-RJ1+2
DATE: 91/11/29
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25114	.1	20	14	333	1	140	1	68	60
BCD25115	.6	25	17	101	4	41	1	27	2
BCD25116	.1	1	25	192	1	25	1	45	1
BCD25117	.6	10	19	73	1	21	1	34	6
BCD25118	.3	6	27	71	1	28	1	58	4
BCD25119	.5	4	21	125	1	20	1	57	1
BCD25120	1.1	1	130	213	1	18	1	65	5
BCD25121	.3	1	37	421	1	18	1	52	10
BCD25122	.1	27	113	385	1	24	1	57	55
BCD25123	.7	6	185	268	1	1	1	87	36
BCD25124	1.6	1	296	299	1	12	1	33	4
BCD25125	.6	3	66	36	4	16	1	28	1
BCD25151	.7	1	302	47	1	12	1	22	1
BCD25152	.5	1	76	41	1	16	1	25	2
BCD25153	1.1	1	101	70	1	9	1	41	1
BCD25154	.7	14	26	25	34	13	1	17	1
BCD25155	.7	16	20	34	4	12	1	18	5
BCD25156	1.1	1	78	223	1	12	1	35	10
BCD25157	1.3	1	195	128	6	5	1	45	2
BCD25158	.3	13	11	203	3	15	1	22	12
BCD25159	.5	1	68	61	1	18	1	36	2
BCD25160	.1	14	18	812	1	20	1	50	56
BCD25161	.6	1	81	194	1	20	1	63	15
BCD25162	.1	2	40	137	1	21	1	106	5
BCD25163	1.0	1	140	133	1	15	1	53	1
BCD25164	.2	1	211	184	1	19	1	64	2
BCD25165	.1	5	228	115	1	20	1	58	1
BCD25166	.7	7	105	116	1	17	1	57	2
BCD25167	1.4	1	110	64	1	13	1	50	1
BCD25168	1.5	1	144	207	1	10	1	33	4
BCD25169	1.6	10	55	96	1	29	5	57	2
BCD25170	.4	1	61	50	1	20	1	32	2
BCD25171	1.0	1	88	281	1	10	1	64	6
BCD25172	.7	1	110	43	1	14	1	42	1
BCD25173	1.4	1	61	87	1	8	1	40	4
BCD25174	1.4	1	51	198	1	10	1	36	9
BCD25175	1.5	1	114	63	1	10	1	38	3
BCD25176	1.1	1	65	101	1	13	1	47	8
BCD25177	.7	6	60	520	1	12	1	39	67
BCD25178	1.2	1	127	108	1	13	1	48	10
BCD25179	.2	4	38	184	1	19	1	54	51
BCD25180	.4	1	38	27	1	12	1	32	2
BCD25181	.2	1	27	115	1	20	1	58	1
BCD25182	.6	1	81	128	4	14	1	50	7
BCD25183	.2	4	33	405	1	18	1	59	12
BCD25184	.5	2	144	151	1	13	1	49	3
BCD25185	.2	1	38	66	1	16	1	37	1
BCD25186	.6	5	28	39	4	14	1	24	8
BCD25187	.5	3	31	16	1	16	1	21	2

80 125
79 124 50
45

COMP: MINNOVA INC.
PROJ: 661
ATTN: IAN PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1609-RJ1+2
DATE: 91/11/29
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25114	.1	20	14	333	1	140	1	68	60
BCD25115	.6	25	17	101	4	41	1	27	2
BCD25116	.1	1	25	192	1	25	1	45	1
BCD25117	.6	10	19	73	1	21	1	34	6
BCD25118	.3	6	27	71	1	28	1	58	4
BCD25119	.5	4	21	125	1	20	1	57	1
BCD25120	1.1	1	130	213	1	18	1	65	5
BCD25121	.3	1	37	421	1	18	1	52	10
BCD25122	.1	27	113	385	1	24	1	57	55
BCD25123	.7	6	185	268	1	1	1	87	36
BCD25124	1.6	1	296	299	1	12	1	33	4
BCD25125	.6	3	66	36	4	16	1	28	1
BCD25151	.7	1	302	47	1	12	1	22	1
BCD25152	.5	1	76	41	1	16	1	25	2
BCD25153	1.1	1	101	70	1	9	1	41	1
BCD25154	.7	14	26	25	34	13	1	17	1
BCD25155	.7	16	20	34	4	12	1	18	5
BCD25156	1.1	1	78	223	1	12	1	35	10
BCD25157	1.3	1	195	128	6	5	1	45	2
BCD25158	.3	13	11	203	3	15	1	22	12
BCD25159	.5	1	68	61	1	18	1	36	2
BCD25160	.1	14	18	812	1	20	1	50	56
BCD25161	.6	1	81	194	1	20	1	63	15
BCD25162	.1	2	40	137	1	21	1	106	5
BCD25163	1.0	1	140	133	1	15	1	53	1
BCD25164	.2	1	211	184	1	19	1	64	2
BCD25165	.1	5	228	115	1	20	1	58	1
BCD25166	.7	7	105	116	1	17	1	57	2
BCD25167	1.4	1	110	64	1	13	1	50	1
BCD25168	1.5	1	144	207	1	10	1	33	4
BCD25169	1.6	10	55	96	1	29	5	57	2
BCD25170	.4	1	61	50	1	20	1	32	2
BCD25171	1.0	1	88	281	1	10	1	64	6
BCD25172	.7	1	110	43	1	14	1	42	1
BCD25173	1.4	1	61	87	1	8	1	40	4
BCD25174	1.4	1	51	198	1	10	1	36	9
BCD25175	1.5	1	114	63	1	10	1	38	3
BCD25176	1.1	1	65	101	1	13	1	47	8
BCD25177	.7	6	60	520	1	12	1	39	67
BCD25178	1.2	1	127	108	1	13	1	48	10
BCD25179	.2	4	38	184	1	19	1	54	51
BCD25180	.4	1	38	27	1	12	1	32	2
BCD25181	.2	1	27	115	1	20	1	58	1
BCD25182	.6	1	81	128	4	14	1	50	7
BCD25183	.2	4	33	405	1	18	1	59	12
BCD25184	.5	2	144	151	1	13	1	49	3
BCD25185	.2	1	38	66	1	16	1	37	1
BCD25186	.6	5	28	39	4	14	1	24	8
BCD25187	.5	3	31	16	1	16	1	21	2

COMP: MINNOVA INC.
PROJ: 672
ATTN: IAN PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1624-RJ1
DATE: 91/12/03
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25251	.5	25	37	158	2	53	1	76	3
BCD25252	.4	22	48	135	2	30	1	70	1
BCD25253	.5	30	36	260	6	19	1	61	6
BCD25254	1.7	111	22	431	15	36	3	69	56
BCD25255	1.1	60	15	151	6	36	1	74	4
BCD25256	.8	31	16	107	6	21	1	37	1
BCD25257	1.0	72	11	280	4	121	2	185	8
BCD25258	.9	58	8	282	17	20	3	32	13
BCD25259	1.3	83	9	301	38	66	3	197	22
BCD25260	1.5	79	9	387	13	58	3	136	11
BCD25261	.7	77	12	325	13	46	3	117	53
BCD25262	1.0	34	11	192	11	33	1	86	10
BCD25263	1.4	42	16	229	14	65	1	239	78
BCD25264	.5	21	25	88	4	16	1	38	59
BCD25265	.7	18	36	80	4	15	1	36	9
BCD25266	1.0	24	77	129	5	15	1	34	60
BCD25267	.2	1	139	245	1	13	1	30	266
BCD25268	.1	1	33	196	3	16	1	47	304
BCD25269	.2	5	25	270	2	12	1	33	642
BCD25270	.8	14	18	250	4	16	1	22	115
BCD25271	.1	1	30	92	1	8	1	64	91
BCD25272	1.8	1	63	93	1	4	1	45	74
BCD25273	.8	12	146	51	1	3	1	59	458
BCD25274	1.6	1	59	197	1	8	1	61	114
BCD25275	1.1	6	50	160	1	20	1	382	122
BCD12376	1.8	26	61	103	1	9	1	53	108
BCD12377	2.8	1	60	49	1	3	1	39	63
BCD12378	1.4	1	80	204	1	4	1	57	112
BCD12379	.7	1	200	350	1	6	1	67	119

COMP: MINNOVA INC.
PROJ: 661
ATTN: D.HEBERLEIN/I.PIRIE

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1632-RJ1
DATE: 91/12/04
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD12380	2.6	1	85	319	1	8	1	52	639
BCD12381	2.0	1	59	98	1	9	1	55	133
BCD12382	1.2	1	47	97	1	8	1	49	788
BCD12383	2.2	1	43	99	1	10	1	48	368
BCD12384	.1	17	17	51	1	16	1	74	376
BCD12385	.1	1	20	79	1	13	1	87	158
BCD12386	2.2	1	36	65	1	2	1	36	23
BCD12387	.9	1	63	92	1	2	1	52	22
BCD12388	.3	1	45	97	1	11	1	64	19
BCD12389	.3	1	62	154	1	2	1	53	6
BCD12390	.5	1	39	26	1	8	1	33	12
BCD12391	.4	1	19	86	1	16	1	13	20
BCD12392	1.9	1	46	186	1	2	1	28	47
BCD12393	.8	1	42	119	1	10	1	81	39
BCD12394	1.1	1	38	77	1	4	1	40	43
BCD12395	1.7	1	32	247	1	2	1	33	80
BCD12396	1.3	1	23	410	1	8	1	28	86
BCD12397	2.4	1	27	101	1	3	1	29	39
BCD12398	2.7	1	50	67	1	2	1	44	27
BCD12399	1.4	1	55	52	1	5	1	28	18
BCD12400	2.1	1	101	399	1	2	1	31	133
BCD12401	.6	5	26	58	4	18	1	9	19
BCD12402	.2	5	34	196	1	19	1	23	60

91-20A.

DEC 5 19

MINERAL
• ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

DATE: Dec 6/91

TO: Minnova

ATTENTION: D. Heberlein
I. Pirie

FAX#

THE TOTAL NUMBER OF PAGES BEING SENT IS 3 INCLUDING THIS COVER LETTER.

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SPECIAL INSTRUCTIONS:

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OFFICE AND LABORATORIES:
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

PHONE: (604) 980-5814 (604) 988-4524
TELEX: VIA USA 7601067
FAX: (604) 980-9621

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

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

Assay Certificate

1V-1646-RA1

Company: MINNOVA INC.
Project: 661
Attn: D.HEBERLEIN/I.PIRIE

Date: DEC-06-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.
2. MINNOVA INC., GREENWOOD, B.C.

We hereby certify the following Assay of 1 CORE samples submitted DEC-04-91 by D. HEBERLEIN.

Sample Number	AU g/tonne	AU oz/ton
BCD13440	7.30	.213

Certified by _____

COMP: MINNOVA INC.
PROJ: 661
ATTN: D.HEBERLEIN/I.PIRIE

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1646-RJ1+2
DATE: 91/12/06
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD12403	.2	34	31	437	1	14	1	21	40
BCD12404	.1	1	35	380	1	15	1	22	10
BCD12405	.3	9	15	382	1	17	1	18	21
BCD12406	.1	1	38	299	1	16	1	46	12
BCD12407	1.0	1	55	115	1	8	1	53	101
BCD12408	1.2	1	27	74	1	8	1	47	9
BCD12409	.1	6	15	113	1	19	1	52	22
BCD12410	1.8	1	71	130	1	4	1	45	41
BCD12411	.1	1	26	295	1	13	1	59	40
BCD12412	.1	1	42	161	1	14	1	53	25
BCD12413	.1	1	52	303	1	7	1	56	59
BCD12414	.7	15	13	158	2	12	1	13	5
BCD12415	.9	12	13	94	3	9	1	8	4
BCD12416	.9	14	22	106	2	10	1	12	3
BCD12417	.8	7	63	64	1	14	1	13	4
BCD12418	.9	17	39	122	4	14	1	12	5
BCD12419	.9	19	35	87	3	13	1	10	2
BCD12420	.9	11	38	112	2	15	1	15	1
BCD12421	.9	10	30	71	5	15	1	11	2
BCD12422	.1	6	39	384	1	15	1	36	36
BCD12423	1.0	1	108	332	1	3	1	38	10
BCD12424	.6	4	53	329	2	17	1	38	22
BCD12425	.1	1	71	535	1	11	1	45	248
BCD12426	.3	1	232	252	1	15	1	58	28
BCD12427	1.0	6	60	263	2	18	1	40	42
BCD12428	.3	1	84	209	1	16	1	53	40
BCD12429	.5	1	39	218	1	7	1	47	88
BCD12430	1.8	1	52	180	1	4	1	34	129
BCD12431	.1	3	41	157	1	13	1	59	42
BCD12432	.1	1	38	52	1	17	1	61	29
BCD12433	1.1	1	74	94	1	3	1	46	50
BCD12434	1.7	1	103	151	1	7	1	45	100
BCD12435	.5	1	106	92	1	5	1	49	60
BCD12436	.3	1	45	313	1	9	1	39	80
BCD12437	2.2	49	18	1663	1	16	1	46	425
BCD12438	.6	28	46	668	1	14	1	70	160
BCD12439	.5	3	72	616	1	13	1	25	280
BCD12440	6.2	40	40	8321	10	20	3	130	5900
BCD12441	.8	21	54	726	4	9	1	32	220
BCD12442	.6	10	153	254	4	14	1	24	412
BCD12443	.4	1	370	228	12	8	1	22	120
BCD12444	.4	2	83	170	1	11	1	19	81
BCD12445	.2	1	80	148	1	11	1	24	57
BCD12446	.2	2	87	291	1	13	1	22	339

TM 91-20A

COMP: MINNOVA INC.
PROJ: 672
ATTN: I. PIRIE/D. HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1657-RJ1+2
DATE: 91/12/11
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD21286	.7	28	542	112	16	14	1	25	38
BCD21287	.6	17	826	280	9	14	1	19	2
BCD21288	.2	6	1196	193	5	16	1	30	1
BCD21289	.6	6	71	211	3	15	1	23	1
BCD21290	.8	6	148	412	7	16	1	21	3
BCD21291	.9	7	284	382	11	27	1	20	5
BCD21292	1.2	5	313	751	20	19	1	26	6
BCD21293	.7	3	390	386	6	45	1	46	3
BCD21294	.2	1	528	443	1	15	1	44	71
BCD21295	1.0	11	236	218	5	10	1	8	15
BCD21296	.9	10	34	157	9	10	1	15	6
BCD21297	.8	7	24	118	3	10	1	11	12
BCD21298	1.1	13	26	163	11	9	1	6	3
BCD21299	.2	1	113	348	2	13	1	39	4
BCD21300	.9	9	34	534	26	13	1	13	40
BCD21301	.8	2	116	313	2	17	1	77	5
BCD21302	.4	4	44	200	3	18	1	26	2
BCD21303	.3	2	21	438	2	6	1	35	4
BCD21304	.4	1	272	271	7	9	1	35	7
BCD21305	.7	8	365	153	6	18	1	33	4
BCD21306	.7	4	1298	29	2	30	1	58	2
BCD21307	.7	1	635	24	2	32	1	50	2
BCD21308	.8	4	1822	23	2	36	1	58	1
BCD21309	1.0	18	374	23	3	62	1	75	1
BCD21310	.8	1	478	21	2	29	1	55	3
BCD21311	.8	8	413	20	2	33	1	50	2
BCD21312	.7	13	1940	18	2	36	1	55	3
BCD21313	.5	1	248	18	1	28	1	74	5
BCD21314	.7	4	1270	18	1	36	1	68	2
BCD21315	.7	2	318	23	2	29	1	56	2
BCD21316	1.0	14	525	37	5	28	1	54	8
BCD21317	.5	16	581	189	7	18	1	63	5
BCD21318	.3	1	35	250	1	13	1	61	4
BCD21319	.6	1	68	802	5	14	1	41	11
BCD21320	.8	1	71	172	2	13	1	36	2
BCD21321	.4	1	25	717	3	6	1	42	3
BCD21322	.5	1	19	347	5	14	1	37	2
BCD21323	.3	1	28	147	1	9	1	47	1
BCD21324	1.1	6	53	343	10	16	1	28	2
BCD21325	.6	6	178	113	5	15	1	19	1
BCD44401	.7	6	143	329	9	14	1	24	3
BCD44402	.7	1	60	338	30	18	1	45	13
BCD44403	.5	1	117	380	4	20	1	57	39
BCD44404	.9	1	73	461	7	18	1	37	2
BCD44405	.8	3	93	363	7	13	1	33	1
BCD44406	.3	1	38	222	1	13	1	51	5
BCD44407	.6	1	26	225	19	5	1	54	2
BCD44408	.4	1	29	108	1	7	1	49	1
BCD44409	.8	1	40	150	1	10	1	34	2
BCD44410	.9	9	43	151	6	15	1	14	3

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1653-RJ1+2
DATE: 91/12/11
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD12447	.1	49	423	97	1	15	16	46	119
BCD12448	.1	13	230	64	1	18	1	42	21
BCD12449	.1	11	147	92	1	21	1	43	40
BCS17051	1.6	13	758	236	7	18	1	20	39
BCS17052	.1	19	334	117	1	15	1	54	24
BCS17053	.1	11	214	97	1	19	1	50	16
BCS17054	.3	12	224	162	1	18	1	45	15
BCS17055	.2	7	203	77	1	20	1	46	4
BCS17056	.1	23	188	38	1	21	1	64	4
BCS17057	.2	57	178	76	2	18	1	42	18
BCS17058	.1	61	138	298	1	16	1	32	68
BCS17059	.1	17	232	74	1	18	1	43	44
BCS17060	.2	9	768	103	1	17	1	38	28
BCS17061	.6	8	271	66	2	19	1	41	19
BCS17062	.4	36	170	116	3	20	1	43	22
BCS17063	.3	26	79	63	1	14	1	59	48
BCS17064	.4	33	109	68	2	17	1	40	17
BCS17065	.8	23	57	58	3	15	1	30	21
BCS17066	.9	15	40	92	2	15	1	26	82
BCS17067	.1	24	85	36	1	21	1	46	23
BCS17068	.2	42	105	84	1	18	1	48	54
BCS17069	.6	27	65	91	1	17	1	34	44
BCS17070	.5	26	62	76	1	24	1	43	39
BCS17071	.9	16	103	148	1	19	1	45	68
BCS17072	.6	28	74	154	1	22	1	43	240
BCS17073	.2	24	70	105	1	18	1	51	60
BCS17074	.6	2	48	50	1	17	1	57	18
BCS17075	.4	28	40	149	1	17	1	56	81
BCD35101	.8	22	36	75	1	15	1	56	40
BCD35102	.3	6	42	59	1	14	1	78	22
BCD35103	.1	2	82	92	1	21	1	94	25
BCD35104	.4	23	86	80	1	17	1	81	48
BCD35105	.1	16	130	58	1	21	1	69	16
BCD35106	.8	15	141	75	1	18	1	73	42
BCD35107	.9	10	163	79	1	17	1	58	36
BCD35108	.5	5	147	78	1	18	1	49	46
BCD35109	.1	7	152	114	1	24	1	62	50
BCD35110	.1	69	307	69	1	21	1	59	17
BCD35111	1.8	39	186	52	2	21	2	61	44
BCD35112	1.0	24	116	99	1	18	1	61	38
BCD35113	.2	24	119	50	1	22	1	79	15
BCD35114	.6	34	151	72	1	26	1	105	21
BCD35115	.4	24	106	46	1	21	1	127	19
BCD35116	1.0	57	140	98	1	104	1	178	29
BCD35117	.9	32	95	55	3	294	2	330	20
BCD35118	.8	29	89	69	1	101	2	285	38
BCD35119	.6	18	250	82	2	39	1	239	25
BCD35120	.5	30	182	66	1	301	1	399	91
BCD35121	.7	20	203	67	1	99	1	390	36

COMP: MINNOVA INC.
PROJ:
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1655-RJ1
DATE: 91/12/11
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD21278	.5	27	115	24	5	121	1	383	17
BCD21279	.5	130	197	30	3	202	1	632	42
BCD21280	.5	13	142	23	2	19	1	131	21
BCD21281	.4	20	133	41	4	150	1	458	6
BCD21282	.8	11	100	20	4	33	1	293	2
BCD21283	.2	10	83	25	3	12	1	96	5
BCD21284	.5	56	116	25	3	34	1	206	46
BCD21285	.6	38	53	31	5	28	1	337	22

MINERAL
• ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

DATE: Dec. 11/91

TO: Minnova

ATTENTION: I. Pirie
D. Heberlein

FAX#

THE TOTAL NUMBER OF PAGES BEING SENT IS 2 INCLUDING THIS COVER LETTER.

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SPECIAL INSTRUCTIONS:

faxing IV-1652-RJ1+2

OFFICE AND LABORATORIES.
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

PHONE: (604) 980-5814 (604) 988-4524
TELEX: VIA USA 7601067
FAX: (604) 980-9621

COMP: MINNOVA INC.
PROJ: 672
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1652-RJ1+2
DATE: 91/12/10
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD35122	.1	36	51	72	1	76	1	233	20
BCD35123	.1	48	99	42	1	54	1	262	28
BCD35124	.1	82	54	199	1	29	1	257	38
BCD35125	.5	46	53	93	1	80	1	275	10
BCD35126	.1	48	50	95	1	27	1	117	22
BCD35127	.1	53	55	56	1	21	1	123	17
BCD35128	.1	52	98	44	1	22	1	114	16
BCD35129	.3	82	65	85	1	27	1	111	29
BCD35130	.1	48	210	60	1	20	1	118	10
BCD35131	.3	44	154	45	1	23	1	82	6
BCD35132	.3	34	97	32	1	21	1	70	4
BCD35133	.5	46	141	38	1	20	1	68	8
BCD35134	.7	44	72	40	2	105	1	181	4
BCD35135	.8	57	56	45	1	134	1	357	21
BCD35136	.7	45	56	56	1	427	1	1101	2
BCD35137	1.5	51	130	46	2	734	2	1950	6
BCD35138	.8	38	57	105	1	361	1	1584	32
BCD35139	.2	49	55	44	1	264	1	700	6
BCD35140	.1	32	66	72	1	61	1	313	4
BCD35141	.1	32	140	74	1	76	1	383	7
BCD35142	.8	2	208	19	1	26	1	72	2
BCD35143	.8	8	247	17	1	23	1	63	4
BCD35144	.7	8	444	20	1	28	1	70	4
BCD35145	.5	21	115	37	6	30	1	97	3
BCD35146	.7	32	41	19	4	33	1	137	2
BCD35147	.6	28	70	28	3	123	1	377	4
BCD35148	.5	24	64	30	2	45	1	215	2
BCD35149	.8	36	69	45	3	225	1	782	28
BCD35150	.9	25	70	20	4	57	1	151	3
BCD21276	.5	32	45	25	3	22	1	111	10
BCD21277	.4	198	39	44	4	80	1	382	68

COMP: MINNOVA INC.
PROJ: 672
ATTN: I. PIRIE/D. HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1657-RJ1+2
DATE: 91/12/11
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD21286	.7	28	542	112	16	14	1	25	38
BCD21287	.6	17	826	280	9	14	1	19	2
BCD21288	.2	6	1196	193	5	16	1	30	1
BCD21289	.6	6	71	211	3	15	1	23	1
BCD21290	.8	6	148	412	7	16	1	21	3
BCD21291	.9	7	284	382	11	27	1	20	5
BCD21292	1.2	5	313	751	20	19	1	26	6
BCD21293	.7	3	390	386	6	45	1	46	3
BCD21294	.2	1	528	443	1	15	1	44	71
BCD21295	1.0	11	236	218	5	10	1	8	15
BCD21296	.9	10	34	157	9	10	1	15	6
BCD21297	.8	7	24	118	3	10	1	11	12
BCD21298	1.1	13	26	163	11	9	1	6	3
BCD21299	.2	1	113	348	2	13	1	39	4
BCD21300	.9	9	34	534	26	13	1	13	40
BCD21301	.8	2	116	313	2	17	1	77	5
BCD21302	.4	4	44	200	3	18	1	26	2
BCD21303	.3	2	21	438	2	6	1	35	4
BCD21304	.4	1	272	271	7	9	1	35	7
BCD21305	.7	8	365	153	6	18	1	33	4
BCD21306	.7	4	1298	29	2	30	1	58	2
BCD21307	.7	1	635	24	2	32	1	50	2
BCD21308	.8	4	1822	23	2	36	1	58	1
BCD21309	1.0	18	374	23	3	62	1	75	1
BCD21310	.8	1	478	21	2	29	1	55	3
BCD21311	.8	8	413	20	2	33	1	50	2
BCD21312	.7	13	1940	18	2	36	1	55	3
BCD21313	.5	1	248	18	1	28	1	74	5
BCD21314	.7	4	1270	18	1	36	1	68	2
BCD21315	.7	2	318	23	2	29	1	56	2
BCD21316	1.0	14	525	37	5	28	1	54	8
BCD21317	.5	16	581	189	7	18	1	63	5
BCD21318	.3	1	35	250	1	13	1	61	4
BCD21319	.6	1	68	802	5	14	1	41	11
BCD21320	.8	1	71	172	2	13	1	36	2
BCD21321	.4	1	25	717	3	6	1	42	3
BCD21322	.5	1	19	347	5	14	1	37	2
BCD21323	.3	1	28	147	1	9	1	47	1
BCD21324	1.1	6	53	343	10	16	1	28	2
BCD21325	.6	6	178	113	5	15	1	19	1
BCD44401	.7	6	143	329	9	14	1	24	3
BCD44402	.7	1	60	338	30	18	1	45	13
BCD44403	.5	1	117	380	4	20	1	57	39
BCD44404	.9	1	73	461	7	18	1	37	2
BCD44405	.8	3	93	363	7	13	1	33	1
BCD44406	.3	1	38	222	1	13	1	51	5
BCD44407	.6	1	26	225	19	5	1	54	2
BCD44408	.4	1	29	108	1	7	1	49	1
BCD44409	.8	1	40	150	1	10	1	34	2
BCD44410	.9	9	43	151	6	15	1	14	3

TM 91-23

COMP: MINNOVA INC.
PROJ: 672
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1652-RJ1+2
DATE: 91/12/10
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD35122	.1	36	51	72	1	76	1	233	20
BCD35123	.1	48	99	42	1	54	1	262	28
BCD35124	.1	82	54	199	1	29	1	257	38
BCD35125	.5	46	53	93	1	80	1	275	10
BCD35126	.1	48	50	95	1	27	1	117	22
BCD35127	.1	53	55	56	1	21	1	123	17
BCD35128	.1	52	98	44	1	22	1	114	16
BCD35129	.3	82	65	85	1	27	1	111	29
BCD35130	.1	48	210	60	1	20	1	118	10
BCD35131	.3	44	154	45	1	23	1	82	6
BCD35132	.3	34	97	32	1	21	1	70	4
BCD35133	.5	46	141	38	1	20	1	68	8
BCD35134	.7	44	72	40	2	105	1	181	4
BCD35135	.8	57	56	45	1	134	1	357	21
BCD35136	.7	45	56	56	1	427	1	1101	2
BCD35137	1.5	51	130	46	2	734	2	1950	6
BCD35138	.8	38	57	105	1	361	1	1584	32
BCD35139	.2	49	55	44	1	264	1	700	6
BCD35140	.1	32	66	72	1	61	1	313	4
BCD35141	.1	32	140	74	1	76	1	383	7
BCD35142	.8	2	208	19	1	26	1	72	2
BCD35143	.8	8	247	17	1	23	1	63	4
BCD35144	.7	8	444	20	1	28	1	70	4
BCD35145	.5	21	115	37	6	30	1	97	3
BCD35146	.7	32	41	19	4	33	1	137	2
BCD35147	.6	28	70	28	3	123	1	377	4
BCD35148	.5	24	64	30	2	45	1	215	2
BCD35149	.8	36	69	45	3	225	1	782	28
BCD35150	.9	25	70	20	4	57	1	151	3
BCD21276	.5	32	45	25	3	22	1	111	10
BCD21277	.4	198	39	44	4	80	1	382	68

TM 91-22

DEC 13 1991

COMP: MINNOVA INC.
PROJ:
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1655-RJ1
DATE: 91/12/11
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD21278	.5	27	115	24	5	121	1	383	17
BCD21279	.5	130	197	30	3	202	1	632	42
BCD21280	.5	13	142	23	2	19	1	131	21
BCD21281	.4	20	133	41	4	150	1	458	6
BCD21282	.8	11	100	20	4	33	1	293	2
BCD21283	.2	10	83	25	3	12	1	96	5
BCD21284	.5	56	116	25	3	34	1	206	46
BCD21285	.6	38	53	31	5	28	1	337	22

TOL 91-22

MINNOVA

3rd Floor - 311 Water St.
Vancouver, B.C. V6B 1B8
Phone: (604) 681-3771
Fax: (604) 681-3360

For Immediate Delivery

Date: Dec 13, 1991

To: George Stewart.

Company: KRR.

Fax No.: 445-6177

From: C. Clayton

Message:

Number of Pages to forward (incl. cover page):

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• EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

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705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

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

Assay Certificate

1V-1586-RA1

Company: MINNOVA INC.
Project: 672
Attn: IAN PIRIE/DAVE HEBERLEIN

Date: NOV-25-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 4 CORE samples submitted NOV-20-91 by I.PIRIE.

Sample Number	AU g/tonne	AU oz/ton
BCD25277	1.00	.029
BCD25282	1.78	.052
BCD25286	2.85	.083
BCD25287	1.82	.053

Certified by

MIN-EN LABORATORIES

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1390-RJ1+2
DATE: 91/11/05
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
20178	.7	1	321	663	1	75	1	64	36
20179	.4	1	409	851	4	27	1	55	40
20180	.7	1	522	857	1	27	1	71	72
20181	.5	1	1157	640	12	31	1	78	40
20182	.9	1	363	753	6	31	1	75	51
20183	.6	1	360	933	13	25	1	73	62
20184	.9	1	293	1208	8	26	1	76	109
20185	1.9	1	191	1770	3	24	1	89	146
20186	.6	1	275	544	2	20	1	66	40
20187	.4	1	559	616	17	19	1	66	15
20188	.7	1	472	1012	18	18	1	50	46
20189	.7	1	705	1281	6	22	1	52	80
20190	.7	1	762	1555	10	20	1	46	97
20191	.1	1	242	3395	9	19	1	50	474
20192	.3	7	588	964	5	22	1	38	74
20193	.7	1	532	1356	7	24	1	57	72
20194	.9	3	254	1032	14	28	1	70	61
20195	.8	1	568	1052	15	26	1	52	79
20196	.5	1	310	821	4	26	1	52	70
20197	.8	1	191	925	4	23	1	52	51
20198	.4	1	463	403	7	22	1	59	17
20199	.3	1	503	775	13	19	1	42	20
20200	.3	1	499	511	11	27	1	74	4
21401	.5	1	326	468	3	27	1	72	16
21402	.5	5	168	876	2	28	1	99	48
21403	.9	2	230	40	4	28	1	57	2
21404	1.1	2	117	42	3	30	1	68	1
21405	1.0	3	68	40	4	27	1	58	1
21406	1.6	1	140	136	2	24	1	58	1
21407	.3	4	152	325	2	20	1	69	15
21408	.4	3	372	597	14	23	1	67	42
21409	.1	8	147	447	6	30	1	82	20
21410	1.0	1	157	32	1	17	1	68	5
21411	1.8	1	113	35	1	8	1	69	2
21412	1.6	1	114	29	1	11	1	67	1
21413	.8	1	166	24	1	16	1	67	2
21414	.3	5	263	595	3	25	1	80	39
21415	.4	13	64	579	5	25	1	90	40
21416	.8	6	73	21	4	28	1	58	9
21417	.9	7	137	19	4	29	1	57	2
21418	.8	6	100	280	4	28	1	53	8
21419	.8	1	178	745	11	23	1	49	64
21420	.6	6	70	726	4	26	1	56	38
21421	.6	1	882	588	5	22	1	45	48
21422	.8	3	72	1085	12	16	1	37	41

NOV

MINERAL
• ENVIRONMENTS
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
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VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

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

Assay Certificate

1V-1587-RA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRIE/D.HEBERLEIN

Date: NOV-25-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 1 ROCK samples submitted NOV-20-91 by I.PIRIE.

Sample Number	AU g/tonne	AU oz/ton
BCD25317	1.08	.032

Certified by _____

MIN-EN LABORATORIES

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1587-RJ1+2
DATE: 91/11/25
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25300	3.9	61	23	839	1	37	1	62	530
BCD25301	.9	19	16	210	3	15	1	136	230
BCD25302	.8	14	11	122	8	16	1	22	122
BCD25303	.8	12	20	83	5	14	1	21	117
BCD25304	.8	21	14	143	7	15	1	18	108
BCD25305	.9	19	11	199	6	14	1	17	71
BCD25306	.8	31	15	284	6	34	1	84	112
BCD25307	1.0	16	15	198	4	14	1	17	338
BCD25308	1.0	18	6	165	11	10	1	14	296
BCD25309	1.3	32	7	223	6	10	1	12	214
BCD25310	1.6	27	42	158	8	14	1	16	105
BCD25311	2.7	36	5	161	3	280	1	1125	113
BCD25312	1.8	45	5	125	8	35	1	141	119
BCD25313	2.0	8	11	140	1	192	1	569	57
BCD25314	1.2	1	43	50	1	13	1	43	6
BCD25315	1.2	13	30	86	1	16	1	30	13
BCD25316	.2	1	28	117	1	20	1	51	8
BCD25317	.2	1	23	229	1	24	1	56	1360
BCD25318	.6	7	9	56	6	14	1	22	4
BCD25319	1.2	1	58	59	1	15	1	33	59
BCD25320	.8	6	13	74	4	13	1	28	10
BCD25321	.7	12	16	110	1	22	1	46	205
BCD25322	.2	1	27	157	1	22	1	72	52
BCD25326	.6	1	106	103	1	15	1	55	7
BCD25328	.6	6	37	98	1	18	1	59	59
BCD25329	.2	1	12	119	1	5	1	72	2
BCD25330	.6	3	20	72	15	16	1	21	9
BCD25331	.4	1	15	89	4	19	1	43	1
BCD25332	.3	1	14	58	3	20	1	29	3
BCD25333	.2	3	14	210	4	20	1	37	8
BCD25334	.4	30	25	81	1	23	1	49	2
BCD25335	.1	19	16	122	1	27	1	96	1
BCD25336	.8	1	334	98	1	15	1	55	2
BCD25337	1.1	1	126	134	1	15	1	43	1
BCD25338	.7	1	157	139	1	16	1	50	1
BCD25339	1.2	1	336	136	1	15	1	44	1
BCD25340	1.2	1	262	116	2	13	1	42	2
BCD25341	.7	1	120	137	1	17	1	50	3
BCD25342	.1	1	130	248	1	23	1	68	15
BCD25343	.1	1	59	203	1	24	1	102	6
BCD25344	.1	2	25	314	1	22	1	102	8

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FAX (604) 980-9621

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

TM91-3

Assay Certificate

1V-1276-PA1

Company: MINNOVA INC.
Project: TAM O'SHANTER/WILDROSE 661
Attn: I.PIRIE/D.HEBERLEIN/C.CLAYTON

Date: NOV-14-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 2 PULP samples submitted OCT-14-91 by C.NAGATI.

Sample Number	NA2O %	MGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	TIO2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
25637	1.99	5.69	14.6	46.0	.14	.63	15.0	1.45	266	.18	9.98	29	332	26	82	13
25647	4.07	2.34	17.0	56.2	.25	1.85	6.57	.532	108	.07	6.61	54	441	22	51	<10

Certified by _____

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FAX (604) 847-3005

TM 91-3

Assay Certificate

1V-1276-PA1

Company: MINNOVA INC. Date: NOV-14-91
Project: TAM O'SHANTER/WILDROSE 661 Copy 1. MINNOVA INC., VANCOUVER, B.C.
Attn: I.PIRIE/D.HEBERLEIN/C.CLAYTON

We hereby certify the following Assay of 2 PULP samples submitted OCT-14-91 by C.NAGATI.

Sample Number	BA PPM	LOI %	SUM %
25637	241	2.77	98.6
25647	1290	3.39	99.1

Certified by _____

TOTAL P.05

• EN LABORATORIES
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SPECIALISTS IN MINERAL ENVIRONMENTS
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FAX (604) 847-3005

TM 91-4

Assay Certificate

1V-1287-PA1

Company: MINNOVA INC.
Project: TAM O'SHANTER/WILDROSE 661
Attn: J.PIRIE/D.HEBERLEIN/C.CLAYTON

Date: NOV-15-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

He hereby certify the following Assay of 1 PULP samples submitted OCT-15-91 by C.NAGATI.

Sample Number	NA2O %	MGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	TIO2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
25692	.05	.16	.66	96.1	.05	.16	.46	.055	594	.02	.62	<10	45	<10	18	<10

Certified by Robin Inwards

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

TM 91-4

SPECIALISTS IN MINERAL ENVIRONMENTS
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SMITHERS LAB.:
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SMITHERS, B.C. CANADA V0J 2N0
TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-1287-PA1

Company: MINNOVA INC.
Project: TAM O'SHANTER/WILDROSE 661
Attn: I.PIRIE/D.HEBERLEIN/C.CLAYTON

Date: NOV-15-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 1 PULP samples submitted OCT-15-91 by C.NAGATI.

Sample Number	BA PPM	LOI %	SUM %
25692	283	.65	99.3

Certified by

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

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FAX (604) 847-3005

TM91-1
TM91-2

Assay Certificate

1V-1224-PA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRIE/ C.CLAYTON/ C.NIGATI

Date: NOV-15-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.
2. MINNOVA INC., GREENWOOD, B.C.

We hereby certify the following Assay of 9 PULP samples submitted OCT-07-91 by G.DUSO.

Sample Number	NA2O %	MGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	TIO2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
25576	2.38	5.97	13.4	48.6	.25	.72	10.8	2.23	186	.20	13.4	28	257	34	170	23
25583	.06	33.3	.70	36.5	.03	<.01	1.29	.042	2690	.17	6.64	<10	47	<10	<10	15
25587	.05	32.4	1.05	37.6	.02	.02	2.45	.040	3660	.19	7.78	<10	85	<10	<10	20
25593	.07	31.9	.74	37.7	.02	<.01	2.21	.036	2630	.23	7.11	12	56	<10	<10	<10
25600	.06	23.3	6.01	47.5	.37	.33	4.09	.607	1290	.22	6.56	23	64	23	75	24
25612	2.91	4.04	14.7	50.6	.40	2.98	7.38	.833	87	.18	7.78	63	225	20	90	16
25627	3.70	2.81	15.6	52.3	.40	4.36	6.77	.810	93	.12	6.78	78	462	<10	81	27
25632	2.13	3.26	13.0	40.5	.41	2.26	9.92	1.94	165	.12	12.4	59	179	<10	136	38
25976	.64	9.25	8.19	65.4	.48	2.89	2.47	.865	335	.10	5.39	104	118	24	85	20

Certified by _____

TM 91-1
TM 91-2

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FAX (604) 847-3005

Assay Certificate

1V-1224-PA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRIE/ C.CLAYTON/ C.NIGATI

Date: NOV-15-91
Copy 1. MINNOVA INC., VANCOUVER. B.C.
2. MINNOVA INC., GREENWOOD. B.C.

We hereby certify the following Assay of 9 PULP samples submitted OCT-07-91 by G.DUSO.

Sample Number	BA PPM	LOI %	SUM %
25576	528	3.00	98.1
25583	203	20.1	99.3
25587	205	16.6	98.8
25593	181	19.0	99.4
25600	1370	9.39	98.8
25612	1500	7.93	100.0
25627	1830	5.39	99.3
25632	1790	4.39	90.6
25976	2530	3.39	99.0

Certified by _____

TOTAL P.03

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TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-1437-PA1

Company: MINNOVA INC.
Project: 661 TAM O'SHANTER
Attn: I.PIRIE/C.CLAYTON/M.MCDOWELL

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 1 PULP samples submitted NOV-09-91 by M.MCDOWELL.

Sample Number	NA2O %	NGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	T1O2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
BCD25026	.01	2.12	18.9	61.0	.30	3.05	.61	.553	108	.09	6.93	108	27	16	71	<10

Certified by

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FAX (604) 847-3005

Assay Certificate

1V-1437-PA1

Company: MINNOVA INC.
Project: 661 TAM O'SHANTER
Attn: I.PIRIE/C.CLAYTON/M.MCDOWELL

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 1 PULP samples submitted NOV-09-91 by M.MCDOWELL.

Sample Number	BA PPM	LOI %	SUM %
BCD25026	769	6.85	100.5

Certified by _____

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Assay Certificate

1V-1587-PA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRE/D.HEBERLEIN

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

He hereby certify the following Assay of 1 PULP samples submitted NOV-16-91 by I.PIRIE.

Sample Number	NA2O %	MGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	TIO2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
BCD25332	.09	1.58	11.3	66.9	.09	1.37	.33	.531	177	.18	7.87	65	<10	28	251	17

Certified by _____

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Assay Certificate

1V-1587-PA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRE/D.HEBERLEIN

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

He hereby certify the following Assay of 1 PULP samples submitted NOV-16-91 by I.PIRIE.

Sample Number	BA PPM	LOI %	SUM %
BCD25332	264	8.39	98.7

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Assay Certificate

1V-1390-PA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRIE/C.CLAYTON

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 3 PULP samples submitted NOV-01-91 by G.DUSO.

Sample Number	NA2O %	MGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	TIO2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
21411	2.14	7.09	13.3	52.3	.60	3.39	5.82	1.03	307	.14	7.95	92	1040	15	242	44
21414	3.84	2.66	17.3	52.6	.31	2.39	4.65	.608	56	.15	9.04	101	538	<10	70	10
20192	2.34	2.43	16.9	51.2	.28	2.64	6.33	.536	51	.09	10.8	78	469	<10	59	<10

Certified by _____

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SMITHERS LAB.:
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SMITHERS, B.C. CANADA V0J 2N0
TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-1390-PA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRIE/C.CLAYTON

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 3 PULP samples submitted NOV-01-91 by G.DUSO.

Sample Number	BA PPM	LOI %	SUM %
21411	2250	5.23	99.5
21414	1090	5.31	99.1
20192	1450	5.85	99.6

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SMITHERS LAB.:
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TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-1325-PA1

Company: MINNOVA INC.
Project: TAM O'SHANTER 661
Attn: I.PIRIE/C.CLAYTON

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 2 PULP samples submitted OCT-21-91 by M.MCDOWELL.

Sample Number	NA2O %	MGO %	AL2O3 %	SIO2 %	P2O5 %	K2O %	CAO %	TIO2 %	CR PPM	MNO %	FE2O3 %	RB PPM	SR PPM	Y PPM	ZR PPM	NB PPM
BCD25816	3.46	2.24	17.2	56.0	.46	6.31	2.95	.940	89	.08	5.26	190	914	16	284	41
BCD25817	3.39	2.16	16.9	56.1	.46	6.39	3.58	.907	78	.08	5.06	195	1050	12	266	43

Certified by

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SMITHERS LAB.:
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SMITHERS, B.C. CANADA V0J 2N0
TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-1325-PA1

Company: MINNOVA INC.
Project: TAM O'SHANTER 661
Attn: I.PIRIE/C.CLAYTON

Date: DEC-20-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 2 PULP samples submitted OCT-21-91 by M.MCDOWELL.

Sample Number	BA PPM	LOI %	SUM %
BCD25816	3930	3.47	99.0
BCD25817	3480	3.93	99.5

Certified by _____

COMP: MINNOVA INC.
PROJ: 661/672 ?
ATTN:

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1595-RJ1+2
DATE: 91/11/26
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25101	1.0	28	7	3125	7	42	1	26	192
BCD25102	.2	38	48	1492	9	29	1	52	32
BCD25103	.6	12	48	340	2	20	1	26	3
BCD25104	.5	7	44	198	1	22	1	30	16
BCD25105	.6	15	40	21	2	20	1	27	18
BCD25106	.5	5	43	158	1	19	1	29	9
BCD25107	.7	5	21	123	1	22	1	41	4
BCD25108	.5	8	25	95	1	10	1	22	5
BCD25109	.5	3	28	141	5	19	1	30	2
BCD25110	.6	14	68	549	13	11	1	41	17
BCD25111	.7	10	17	242	10	18	1	46	1
BCD25112	.6	96	11	184	7	21	1	47	18
BCD25113	.6	19	25	72	2	18	1	24	3
BCD25345	.5	1	292	119	2	22	1	45	22
BCD25346	.2	1	13	202	1	22	1	65	21
BCD25347	.3	6	30	91	1	28	1	56	21
BCD25348	.6	2	28	27	4	48	1	41	7
BCD25349	.6	16	26	82	22	23	1	32	22
BCD25350	.2	1	39	52	1	2	1	104	4
BCD25351	.4	1	58	48	1	22	1	52	17
BCD25352	.6	6	30	21	2	19	1	22	20
BCD25353	.5	9	19	30	1	22	1	23	15
BCD25354	.1	1	14	296	8	2	1	43	62
BCD25355	.3	1	30	46	1	16	1	49	19
BCD25356	.1	18	15	115	1	23	1	68	60
BCD25357	.2	1	25	223	1	20	1	91	18
BCD25358	.6	4	72	37	1	18	1	38	19
BCD25359	.6	1	136	65	3	34	1	54	12
BCD25360	1.2	1	452	226	1	43	1	70	24
BCD25361	.1	1	118	170	1	24	1	78	21
BCD25362	.6	6	161	183	1	19	1	66	12
BCD25363	.2	1	20	73	1	22	1	64	2
BCD25364	.4	1	29	62	1	22	1	58	1
BCD25365	.2	1	118	235	1	17	1	108	4
BCD25366	.1	1	194	62	1	3	1	89	1
BCD25367	.1	1	59	66	1	3	1	129	7
BCD25368	.1	1	7	302	1	3	1	153	12
BCD25369	.5	1	47	131	1	13	1	45	19
BCD25370	.8	5	27	121	2	18	1	23	2
BCD25371	.5	1	91	177	1	14	1	33	15
BCD25372	1.6	8	9	360	6	7	1	5	81
BCD25373	1.0	15	25	218	16	10	1	8	60
BCD25374	1.3	19	12	1298	11	14	2	13	74
BCD25375	.9	2	32	2563	6	26	1	68	61

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
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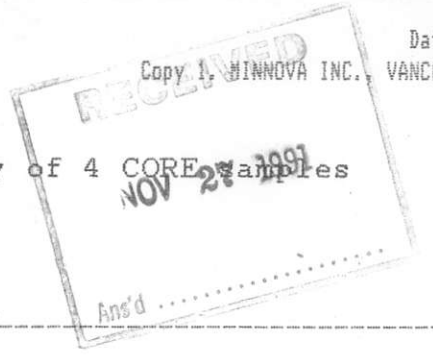
SMITHERS LAB.:
3176 TATLOW ROAD
SMITHERS, B.C. CANADA V0J 2N0
TELEPHONE (604) 847-3004
FAX (604) 847-3005

Assay Certificate

1V-1586-RA1

Company: MINNOVA INC.
Project: 672
Attn: IAN PIRIE/DAVE HEBERLEIN

Date: NOV-25-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.



We hereby certify the following Assay of 4 CORE samples submitted NOV-20-91 by I.PIRIE.

Sample Number	AU g/tonne	AU oz/ton
BCD25277	1.00	.029
BCD25282	1.78	.052
BCD25286	2.85	.083
BCD25287	1.82	.053

Certified by _____

MIN-EN LABORATORIES

COMP: MINNOVA INC.
PROJ: 672
ATTN: IAN PIRIE/DAVE HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1586-RJ1+2
DATE: 91/11/25
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25137	.9	22	46	66	1	10	1	47	22
BCD25138	2.2	1	40	96	1	4	1	38	1
BCD25139	2.2	1	54	87	1	4	1	39	2
BCD25140	.1	1	28	61	1	17	1	66	1
BCD25141	.1	1	15	58	1	16	1	60	8
BCD25142	1.1	1	38	86	1	13	1	44	4
BCD25143	2.5	1	50	59	1	5	1	41	5
BCD25144	.1	1	40	59	1	15	1	56	2
BCD25145	2.3	1	44	41	1	7	1	31	1
BCD25146	.3	1	79	39	1	19	1	56	4
BCD25147	.1	1	27	54	1	20	1	48	3
BCD25148	.2	1	31	41	1	5	1	46	42
BCD25149	.3	1	14	28	1	9	1	54	40
BCD25150	1.6	1	61	49	1	11	1	39	2
BCD25276	1.1	6	42	136	1	15	1	33	1
BCD25277	1.4	11	36	244	1	24	1	35	1000
BCD25278	.2	1	9	32	6	20	1	62	44
BCD25279	1.2	1	24	196	1	32	1	137	86
BCD25280	2.1	1	12	156	1	36	1	162	266
BCD25281	4.4	19	18	94	9	499	3	1644	130
BCD25282	16.2	934	2	1317	4	155	1	172	1500
BCD25283	.5	1	10	30	1	29	1	239	183
BCD25284	10.5	298	8	1303	1	178	1	291	310
BCD25285	2.7	69	11	69	1	247	1	1088	610
BCD25286	2.9	8	15	98	1	44	1	211	2600
BCD25287	2.5	1	23	18	1	1	1	127	1500
BCD25288	1.2	19	22	39	2	39	1	80	219
BCD25289	1.1	13	33	34	2	19	1	43	60
BCD25290	1.4	21	18	60	4	11	2	25	15
BCD25291	1.3	25	23	104	5	25	1	33	40
BCD25292	1.2	56	7	44	7	16	3	38	1
BCD25293	1.1	21	17	36	6	9	1	21	61
BCD25294	1.2	20	46	224	12	57	2	176	94
BCD25295	2.1	57	39	606	29	47	2	114	570
BCD25296	1.2	15	49	138	7	14	1	19	19
BCD25297	1.1	17	51	117	8	18	1	20	40
BCD25298	1.3	33	16	104	10	19	1	42	60
BCD25299	3.1	61	11	221	9	30	2	66	85

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

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

Assay Certificate

1V-1587-RA1

Company: MINNOVA INC.
Project: 661
Attn: I.PIRIE/D.HEBERLEIN

Date: NOV-25-91
Copy 1. MINNOVA INC., VANCOUVER, B.C.

We hereby certify the following Assay of 1 ROCK samples submitted NOV-20-91 by I.PIRIE.

Sample Number	AU g/tonne	AU oz/ton
BCD25317	1.08	.032

Certified by _____

MIN-EN LABORATORIES

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/D.HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1587-RJ1+2
DATE: 91/11/25
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25300	3.9	61	23	839	1	37	1	62	530
BCD25301	.9	19	16	210	3	15	1	136	230
BCD25302	.8	14	11	122	8	16	1	22	122
BCD25303	.8	12	20	83	5	14	1	21	117
BCD25304	.8	21	14	143	7	15	1	18	108
BCD25305	.9	19	11	199	6	14	1	17	71
BCD25306	.8	31	15	284	6	34	1	84	112
BCD25307	1.0	16	15	198	4	14	1	17	338
BCD25308	1.0	18	6	165	11	10	1	14	296
BCD25309	1.3	32	7	223	6	10	1	12	214
BCD25310	1.6	27	42	158	8	14	1	16	105
BCD25311	2.7	36	5	161	3	280	1	1125	113
BCD25312	1.8	45	5	125	8	35	1	141	119
BCD25313	2.0	8	11	140	1	192	1	569	57
BCD25314	1.2	1	43	50	1	13	1	43	6
BCD25315	1.2	13	30	86	1	16	1	30	13
BCD25316	.2	1	28	117	1	20	1	51	8
BCD25317	.2	1	23	229	1	24	1	56	1360
BCD25318	.6	7	9	56	6	14	1	22	4
BCD25319	1.2	1	58	59	1	15	1	33	59
BCD25320	.8	6	13	74	4	13	1	28	10
BCD25321	.7	12	16	110	1	22	1	46	205
BCD25322	.2	1	27	157	1	22	1	72	52
BCD25326	.6	1	106	103	1	15	1	55	7
BCD25328	.6	6	37	98	1	18	1	59	59
BCD25329	.2	1	12	119	1	5	1	72	2
BCD25330	.6	3	20	72	15	16	1	21	9
BCD25331	.4	1	15	89	4	19	1	43	1
BCD25332	.3	1	14	58	3	20	1	29	3
BCD25333	.2	3	14	210	4	20	1	37	8
BCD25334	.4	30	25	81	1	23	1	49	2
BCD25335	.1	19	16	122	1	27	1	96	1
BCD25336	.8	1	334	98	1	15	1	55	2
BCD25337	1.1	1	126	134	1	15	1	43	1
BCD25338	.7	1	157	139	1	16	1	50	1
BCD25339	1.2	1	336	136	1	15	1	44	1
BCD25340	1.2	1	262	116	2	13	1	42	2
BCD25341	.7	1	120	137	1	17	1	50	3
BCD25342	.1	1	130	248	1	23	1	68	15
BCD25343	.1	1	59	203	1	24	1	102	6
BCD25344	.1	2	25	314	1	22	1	102	8

COMP: MINNOVA INC.
PROJ:
ATTN:

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1595-RJ1+2
DATE: 91/11/26
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
BCD25101	1.0	28	7	3125	7	42	1	26	192
BCD25102	.2	38	48	1492	9	29	1	52	32
BCD25103	.6	12	48	340	2	20	1	26	3
BCD25104	.5	7	44	198	1	22	1	30	16
BCD25105	.6	15	40	21	2	20	1	27	18
BCD25106	.5	5	43	158	1	19	1	29	9
BCD25107	.7	5	21	123	1	22	1	41	4
BCD25108	.5	8	25	95	1	10	1	22	5
BCD25109	.5	3	28	141	5	19	1	30	2
BCD25110	.6	14	68	549	13	11	1	41	17
BCD25111	.7	10	17	242	10	18	1	46	1
BCD25112	.6	96	11	184	7	21	1	47	18
BCD25113	.6	19	25	72	2	18	1	24	3
BCD25345	.5	1	292	119	2	22	1	45	22
BCD25346	.2	1	13	202	1	22	1	65	21
BCD25347	.3	6	30	91	1	28	1	56	21
BCD25348	.6	2	28	27	4	48	1	41	7
BCD25349	.6	16	26	82	22	23	1	32	22
BCD25350	.2	1	39	52	1	2	1	104	4
BCD25351	.4	1	58	48	1	22	1	52	17
BCD25352	.6	6	30	21	2	19	1	22	20
BCD25353	.5	9	19	30	1	22	1	23	15
BCD25354	.1	1	14	296	8	2	1	43	62
BCD25355	.3	1	30	46	1	16	1	49	19
BCD25356	.1	18	15	115	1	23	1	68	60
BCD25357	.2	1	25	223	1	20	1	91	18
BCD25358	.6	4	72	37	1	18	1	38	19
BCD25359	.6	1	136	65	3	34	1	54	12
BCD25360	1.2	1	452	226	1	43	1	70	24
BCD25361	.1	1	118	170	1	24	1	78	21
BCD25362	.6	6	161	183	1	19	1	66	12
BCD25363	.2	1	20	73	1	22	1	64	2
BCD25364	.4	1	29	62	1	22	1	58	1
BCD25365	.2	1	118	235	1	17	1	108	4
BCD25366	.1	1	194	62	1	3	1	89	1
BCD25367	.1	1	59	66	1	3	1	129	7
BCD25368	.1	1	7	302	1	3	1	153	12
BCD25369	.5	1	47	131	1	13	1	45	19
BCD25370	.8	5	27	121	2	18	1	23	2
BCD25371	.5	1	91	177	1	14	1	33	15
BCD25372	1.6	8	9	360	6	7	1	5	81
BCD25373	1.0	15	25	218	16	10	1	8	60
BCD25374	1.3	19	12	1298	11	14	2	13	74
BCD25375	.9	2	32	2563	6	26	1	68	61

COMP: MINNOVA INC.
PROJ: 672
ATTN: IAN PIRIE/DAVE HEBERLEIN

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1586-RJ1+2
DATE: 91/11/25
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB	
BCD25137	.9	22	46	66	1	10	1	47	22	
BCD25138	2.2	1	40	96	1	4	1	38	1	
BCD25139	2.2	1	54	87	1	4	1	39	2	
BCD25140	.1	1	28	61	1	17	1	66	1	
BCD25141	.1	1	15	58	1	16	1	60	8	
BCD25142	1.1	1	38	86	1	13	1	44	4	
BCD25143	2.5	1	50	59	1	5	1	41	5	
BCD25144	.1	1	40	59	1	15	1	56	2	
BCD25145	2.3	1	44	41	1	7	1	31	1	
BCD25146	.3	1	79	39	1	19	1	56	4	
BCD25147	.1	1	27	54	1	20	1	48	3	
BCD25148	.2	1	31	41	1	5	1	46	42	
BCD25149	.3	1	14	28	1	9	1	54	40	
BCD25150	1.6	1	61	49	1	11	1	39	2	
BCD25276	1.1	6	42	136	1	15	1	33	1	
BCD25277 — 52.0	1.4	11	36	244	1	24	1	35	1000	2.78m (20% Py)
BCD25278	.2	1	9	32	6	20	1	62	44	0.62m
BCD25279	1.2	1	24	196	1	32	1	137	86	3.12m (20% Py)
BCD25280	2.1	1	12	156	1	36	1	162	266	2.14m (Cl alt)
BCD25281	4.4	19	18	94	9	499	3	1644	130	3.45m (5:1+10% Py stwk:1)
BCD25282	16.2	934	2	1317	4	155	1	172	1500	0.2m (5m Py vein)
BCD25283	.5	1	10	30	1	29	1	239	183	1.2m (5% Py)
BCD25284	10.5	298	8	1303	1	178	1	291	310	0.6m (Shear 30% Py)
BCD25285	2.7	69	11	69	1	247	1	1088	610	3.5m (Mt-Cl alt) 10% Py
BCD25286	2.9	8	15	98	1	44	1	211	2600	3.5m " 20-30% Py
BCD25287	2.5	1	23	18	1	1	1	127	1500	2.0m Dyke FP
BCD25288 — 78.15.	1.2	19	22	39	2	39	1	80	219	3.0m Chert Tr-5% Py
BCD25289	1.1	13	33	34	2	19	1	43	60	
BCD25290	1.4	21	18	60	4	11	2	25	15	
BCD25291	1.3	25	23	104	5	25	1	33	40	
BCD25292	1.2	56	7	44	7	16	3	38	1	
BCD25293	1.1	21	17	36	6	9	1	21	61	
BCD25294	1.2	20	46	224	12	57	2	176	94	
BCD25295	2.1	57	39	606	29	47	2	114	570	- 2.0m Breccia 15-20% Py (5%)
BCD25296	1.2	15	49	138	7	14	1	19	19	
BCD25297	1.1	17	51	117	8	18	1	20	40	
BCD25298	1.3	33	16	104	10	19	1	42	60	
BCD25299	3.1	61	11	221	9	30	2	66	85	

26m @ 754 ppb Au

Includes 5.5m 1449 ppb Au.

COMP: MINNOVA INC.
PROJ: 661
ATTN: I.PIRIE/C.CLAYTON

MIN-EN LABS — ICP REPORT

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

FILE NO: 1V-1400-RJ1
DATE: 91/11/06
* CORE * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	MO PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB
21423	2.0	6	98	1322	17	54	6	107	117
21424	.7	1	156	938	16	25	1	83	108
21425	.7	1	432	832	3	25	1	93	47
19801	.8	1	202	1013	4	27	1	85	103
19802	.7	1	90	549	8	17	1	62	156
19803	.4	1	456	568	33	16	1	62	59
19804	.5	1	342	555	5	16	1	49	56
19805	.6	1	149	680	11	16	1	46	68
19806	.7	1	101	803	3	16	1	46	60
19807	.5	1	122	856	7	19	1	54	80
19808	.5	1	332	541	8	15	1	63	47
19809	.7	1	81	911	28	17	1	57	108
19810	.5	1	85	652	30	15	1	70	74
19811	.9	1	100	1218	10	17	1	70	144
19812	.7	1	186	793	6	14	1	38	78
19813	1.0	6	142	2050	5	17	1	39	264
19814	.8	1	71	963	6	14	1	51	141
19815	1.3	14	65	988	5	18	1	47	139
19816	.8	1	58	1042	8	16	1	53	113
19817	.5	1	130	539	3	18	1	55	67
19818	.5	1	101	386	33	21	1	51	64
19819	.9	1	106	1340	8	21	1	49	78
19820	.9	1	204	998	5	45	1	99	70
19821	1.3	1	243	1491	8	16	1	50	62
19822	.6	1	206	501	8	20	1	45	64
19823	.6	1	96	862	17	16	1	45	76

MINERAL
• ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

DATE: November 6/91

TO: Minnova Inc.

ATTENTION: J. Pirie /
C. Clayton

FAX# 681-3360

THE TOTAL NUMBER OF PAGES BEING SENT IS 2 INCLUDING THIS COVER LETTER.

IF YOU DO NOT RECEIVE ALL OF THE PAGES, PLEASE CONTACT OUR FAX OPERATOR IMMEDIATELY AT (604) 980-5814.

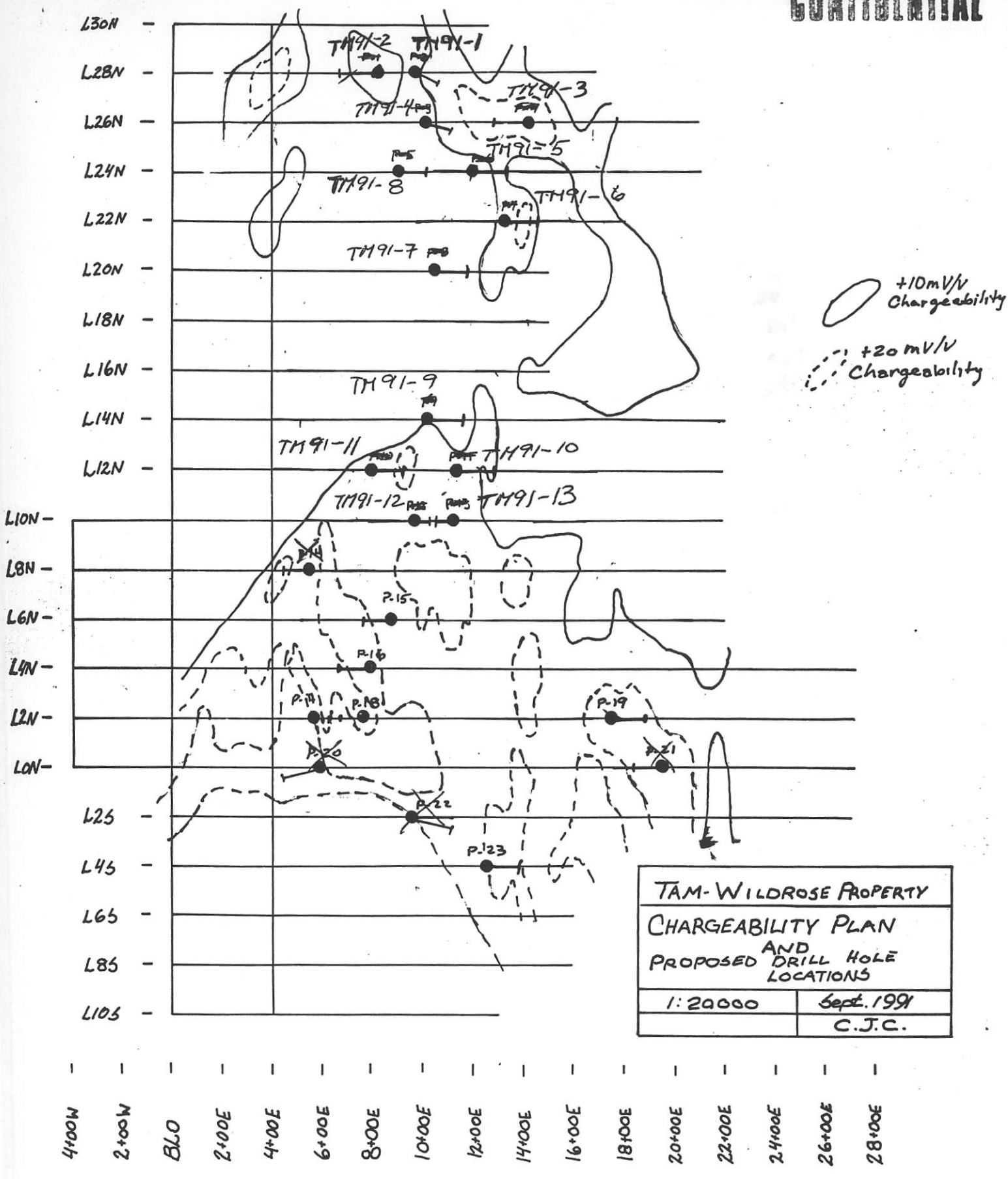
SPECIAL INSTRUCTIONS:

faxing - IV - 1400 - RJI.

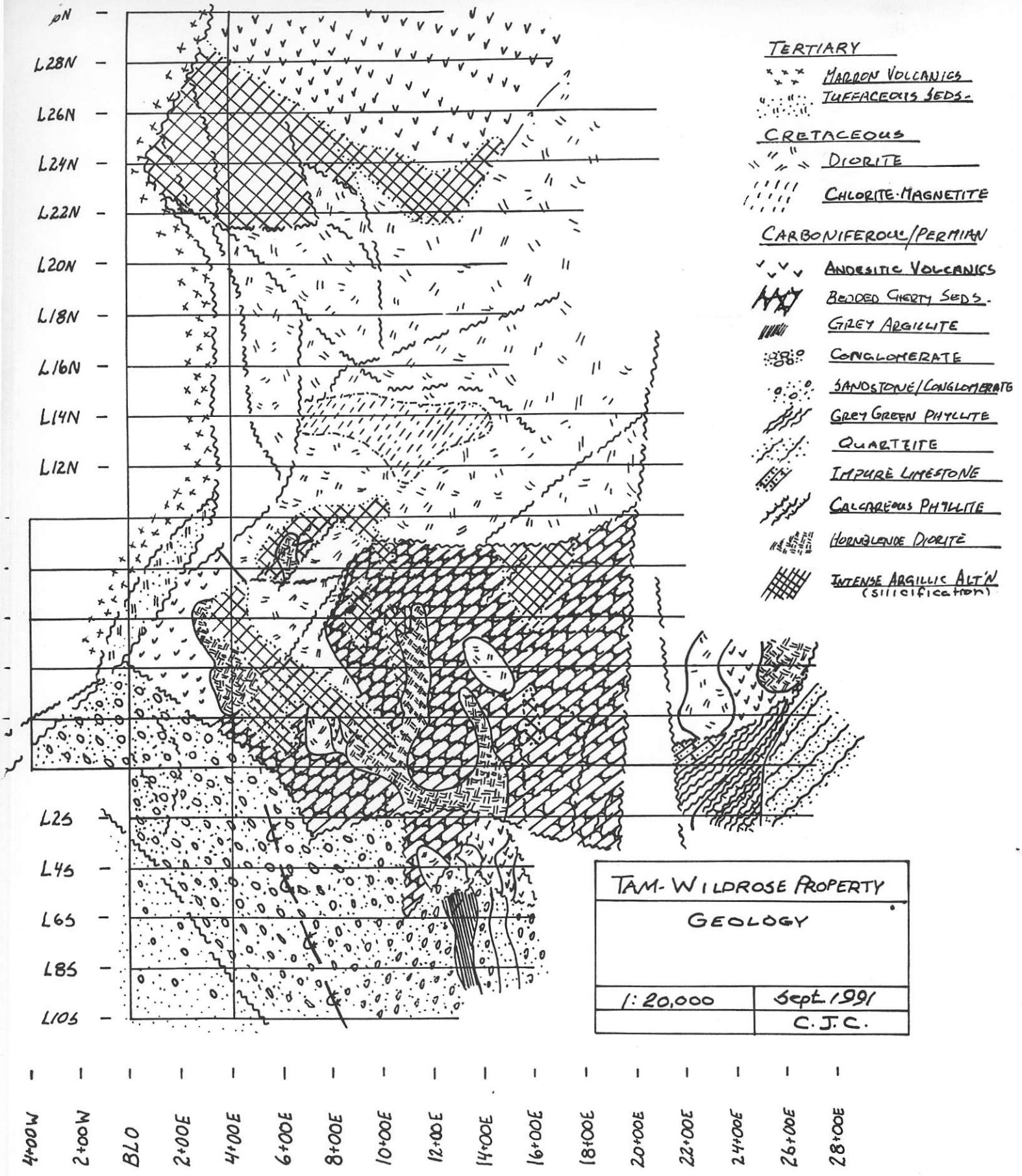
OFFICE AND LABORATORIES:
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

PHONE: (604) 980-5814 (604) 988-4524
TELEX: VIA USA 7601067

CONFIDENTIAL



TAM-WILDROSE PROPERTY	
CHARGEABILITY PLAN AND PROPOSED DRILL HOLE LOCATIONS	
1:20000	Sept. 1991
	C.J.C.


TERTIARY
MAROON VOLCANICS
TUFFACEOUS SEDS.
CRETACEOUS
DIORITE
CHLORITE-MAGNETITE
CARBONIFEROUS/PERMIAN
ANDESITIC VOLCANICS
BEDDED CHERTY SEDS.
GREY ARGILLITE
CONGLOMERATE
SANDSTONE/CONGLOMERATE
GREY GREEN PHYLLITE
QUARTZITE
IMPURE LIMESTONE
CALCAREOUS PHYLLITE
HORNBLENDE DIORITE
INTENSE ARGILLIC ALT'N (silicification)
TAM-WILDROSE PROPERTY
GEOLOGY
1:20,000
Sept. 1991
C.J.C.
L30N
L28N
L26N
L24N
L22N
L20N
L18N
L16N
L14N
L12N
L2S
L4S
L6S
L8S
L10S
4+00W
2+00W
BLO
2+00E
4+00E
6+00E
8+00E
10+00E
12+00E
14+00E
16+00E
18+00E
20+00E
22+00E
24+00E
26+00E
28+00E

MINNOVA

3rd Floor - 311 Water St.
Vancouver, B.C. V6B 1B8
Phone: (604) 681-3771
Fax: (604) 681-3360

For Immediate Delivery

Date: Oct 30, 1991

To: George Stewart.

Company: Kettle River Resources.

Fax No.: 445-6177

From: Cam Clayton -

Message:

Dear George: Here is a copy of my monthly report for October summarizing results obtained to date. This is confidential information at the moment. I may be up at some point next week, and will give you a call beforehand.

Thanks. Cam.

Number of Pages to forward (incl. cover page):

If any problems occur, please call Cam. *@ (604) 681-3771*

MINNOVA

cc

Minnova Inc.
3rd. Floor
311 Water Street
Vancouver, British Columbia
V6B 1B8
Telephone (604) 681-3771
Telecopier (604) 681-3360

October 18, 1991

Kettle River Resources Ltd.
Dentonia Resources Ltd.
P.O. Box 130
Greenwood, B.C.
V0H 1J0

Attention: George Stewart

Re: Third Quarterly Progress Report - Rainbow-Tam O'Shanter Property

Dear George:

Here is a summary of work done during the third quarter of 1991 on the Rainbow-Tam O'Shanter property.

Efforts at the beginning of the quarter were to extend the Tam 91 grid further to the east at its northern end to cover more of the porphyry system and contact zone between the porphyry and andesites. Soil sampling was completed over this additional area with a number of anomalous results returned. Mapping was less successful in this area as outcrop is virtually non-existent.

During the latter part of August and into September an induced polarization and magnetometer survey was contracted to cover the line extensions not covered by the original survey earlier this year. The induced polarization outlined a number of broad zones of high chargeabilities (> +35 mV/V) and coincident low resistivities (> 100 ohm-m) over the grid extensions. These are in the area of the porphyry and overlap its contact to the north with andesitic volcanics. As well a number of strong magnetic features were outlined, the strongest not surprisingly defines the chlorite-magnetite alteration zone located at what is interpreted

as the central core to the system. Combining the geophysical information with geological and geochemical information yielded a number of drill targets to be tested later in the fall.

The contract for drilling was awarded to Atlas Drilling of Kamloops. Approximately 2500 m of drilling is planned. This will adequately test the best anomalies defined by the summer's work. Drilling commenced October 1st and is expected to last about six weeks.

Sincerely,

per: Cam Clayton
Project Geologist