GEOLOGY, GEOCHEMISTRY AND GEOPHYSICS REPORT

ON THE

BLACKWATER-DAVIDSON PROPERTY

Omineca Mining Division

British Columbia

NTS: 93F/2

Latitude: 53° 11'N

Longitude: 124° 48'W

For

Granges Inc.

By

Gordon J. Allen, P. Geol

November, 1992

SUMMARY

A program of geological mapping, stream sediment sampling, linecutting, soil sampling and concurrent IP, magnetic and VLF-EM surveys were conducted on the Blackwater-Davidson property between July 13 and September 4, 1992.

Exposure on the property is very poor, but it appears to be largely underlain by felsic to intermediate or mafic pyroclastic and flow rocks and argillite of the Upper Cretaceous to Tertiary Ootsa Lake Group. It is possible that in the northeast corner of the property, Ootsa Lake Group rocks are overlain by andesite to basalt flows of the Oligocene to Miocene Endako Group. Rocks of the Ootsa Lake Group generally strike northeast to east and dip gently to the northwest or north. An open northeast-trending antiform may occur in the northwest part of the property. Northeast-trending faults (right lateral strike-slip) cross the entire property.

Mineralization occurs on the property at two locations; on the Pem grid and 3.5 km west of the Pem grid on "Kaolinite" creek. The "Kaolinite" creek showing consists of traces of disseminated pyrite, sphalerite and arsenopyrite(?) in weakly altered felsic volcanic rocks adjacent to a kaolinite altered tuff. Samples contained no anomalous amounts of precious metals.

Mineralization on the Pem grid consists of sporadic zones with disseminated pyrite, sphalerite, tetrahedrite, arsenopyrite, etc. in a phyllic to potassic altered *intercalated sequence of* intermediate and felsic pyroclastic rocks.

A zone of high resistivity forms a rough bulls eye in the southwest part of the Pem grid. Chargeability highs occur peripheral to the core of the resistivity anomaly. Both the gold and silver zones occur within this ring of high chargeabilities.

A very strong chargeability anomaly on the Deb grid may be related to a graphitic argillite unit, but warrants drill testing to be sure.

Soil sampling on the Pem grid confirmed the existence of a coincident base metal and silver anomaly as outlined in previous programs. The anomaly is closed on all sides except for a narrow dispersion train down a creek to the northeast. Gold-in-soil anomalies occur sporadically within an east-west trending belt south of the multi-element anomaly described above. This non-coincident distribution of gold and other metals may indicate a zonation of metals in bedrock.

One or more types of stream sediment samples were collected from almost every significant drainage on the property. Commonly, a sieved sample for heavy mineral separation, a panned moss mat and an untreated moss mat sample were collected at the same site in order to compare the effectiveness of the techniques. It appears that the untreated moss mat samples had the highest background

levels of metals and are the most reliable and cost-effective sample type.

Anomalous levels of metals were found in the streams draining the Pem grid and on "Kaolinite" creek below the showing. A gold anomaly occurs on a small creek flowing north from the Pem grid. A sample with anomalous amounts of silver and manganese was collected from a creek draining the southeast flank of Mount Davidson. No outcrop was located in these last two areas noted and the sources of the anomalies are not known.

A work program consisting of grid expansion, soil geochemistry, geophysics and diamond drilling is recommended. Zones of high chargeability should be the first priority drill targets.

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1.0 INTRODUCTION

1.1 Program Objectives and Work Completed

The 1992 Phase I exploration program was designed to better define the zones of known mineralization on the Pem grid and to map and prospect the entire property to put the mineralized zone into a broader geological context.

A total of 58.8 km of line was cut and/or rehabilitated on the Pem and Deb grids. Subsequently, 955 soil samples ('B' horizon, where available) were collected at 50 m x 100 m spacings on all new and previously unsampled lines.

A property-wide stream sediment sampling program was conducted. A total of 14 samples for heavy mineral separation, 13 panned concentrates and 8 untreated moss mat and "standard" silt samples were collected.

Approximately 6000 hectares of the claims were mapped at a scale of 1:10,000. During the coarse of this mapping, 40 rock samples were collected for ICP analysis. A total of 20 rock samples were sent for whole rock analysis. Thin sections (18 in all) were also made from most of these samples.

A summary of all samples collected during the program is included in Appendix III.

Concurrent IP, magnetic and VLF-EM (two stations) surveys were conducted over 50 km of line on the Pem and Deb grids.

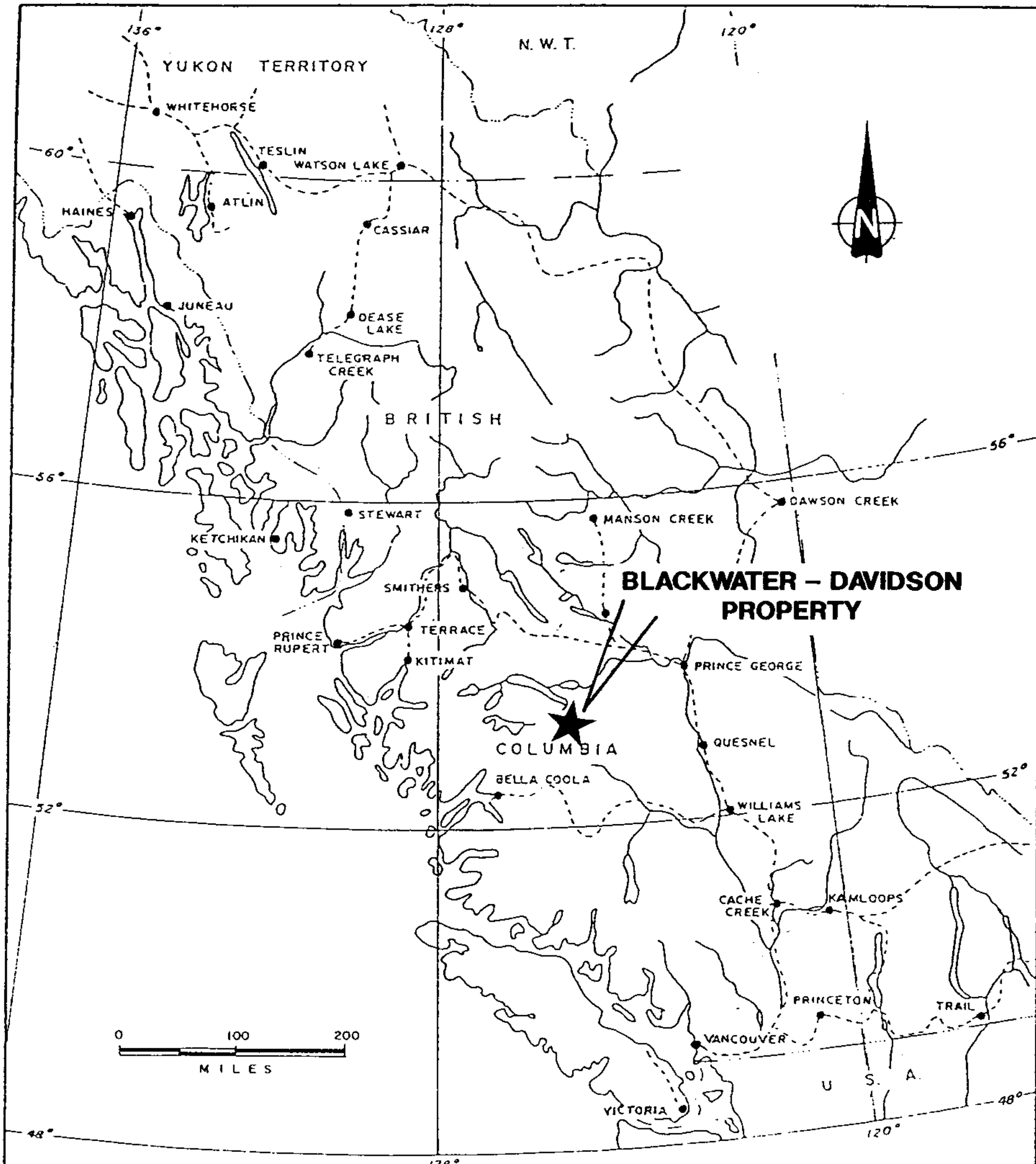
1.2 Location and Access

The property is accessed from Vanderhoof via the all-weather Kluskus main logging road (Figure 1b). At km 146.5 on the Kluskus road, a 4-wheel drive road heads off to the east for approximately 17 km to the camp. Driving time from Vanderhoof to the property is between 3 and 4 hours.

1.3 Property Ownership and Claim Information

The Blackwater-Davidson property is wholly-owned by Granges Inc. It consists of 22 claims totalling 304 units.

Claim information is summarized in the following table. Expiry dates shown are as a result of assessment work covered by this report:



BLACKWATER–DAVIDSON PROPERTY

LOCATION MAP

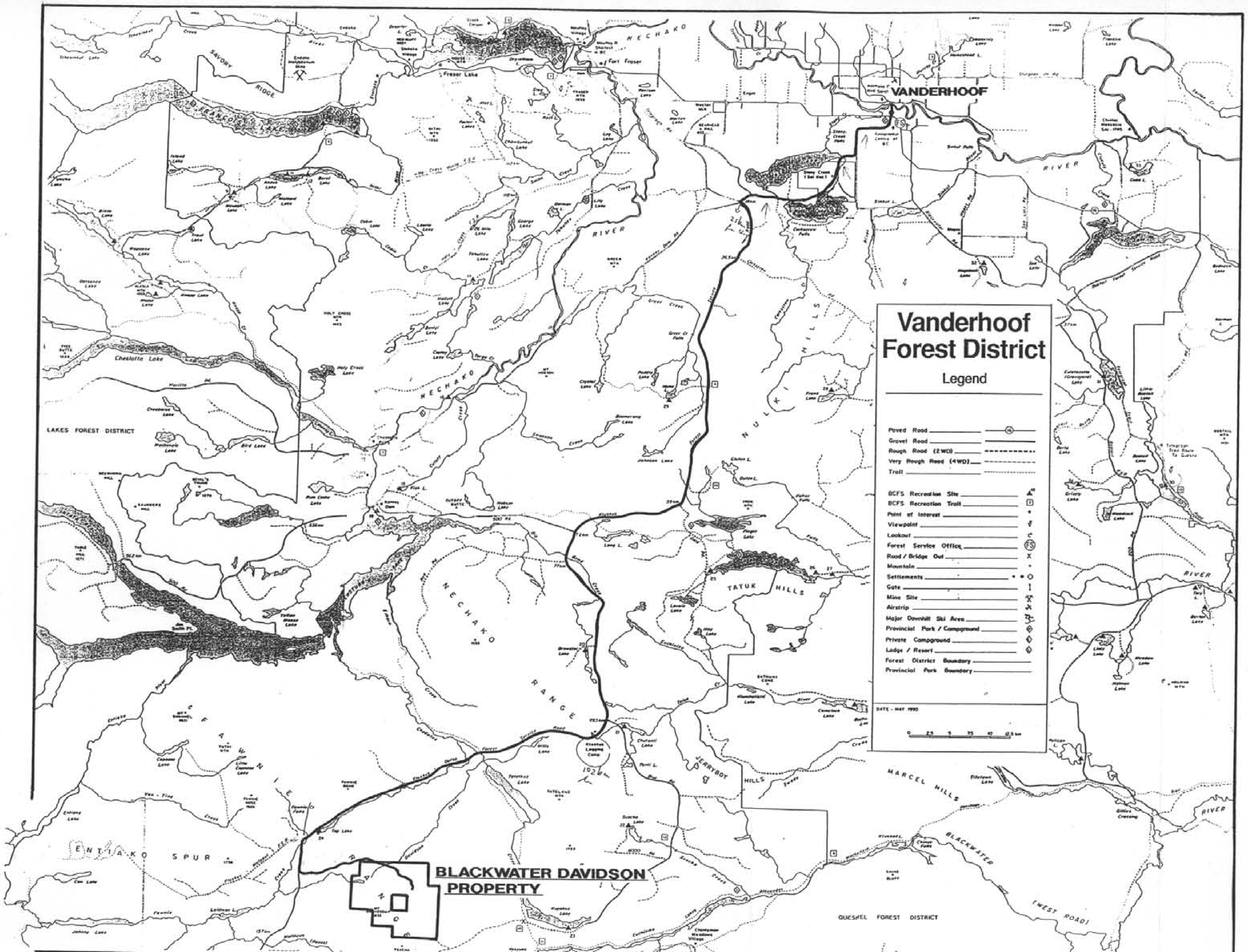
GRANGES INC.

N.T.S. 93 F/2

SCALE: as shown

DATE: NOV. 1992

FIGURE: 1 a



N

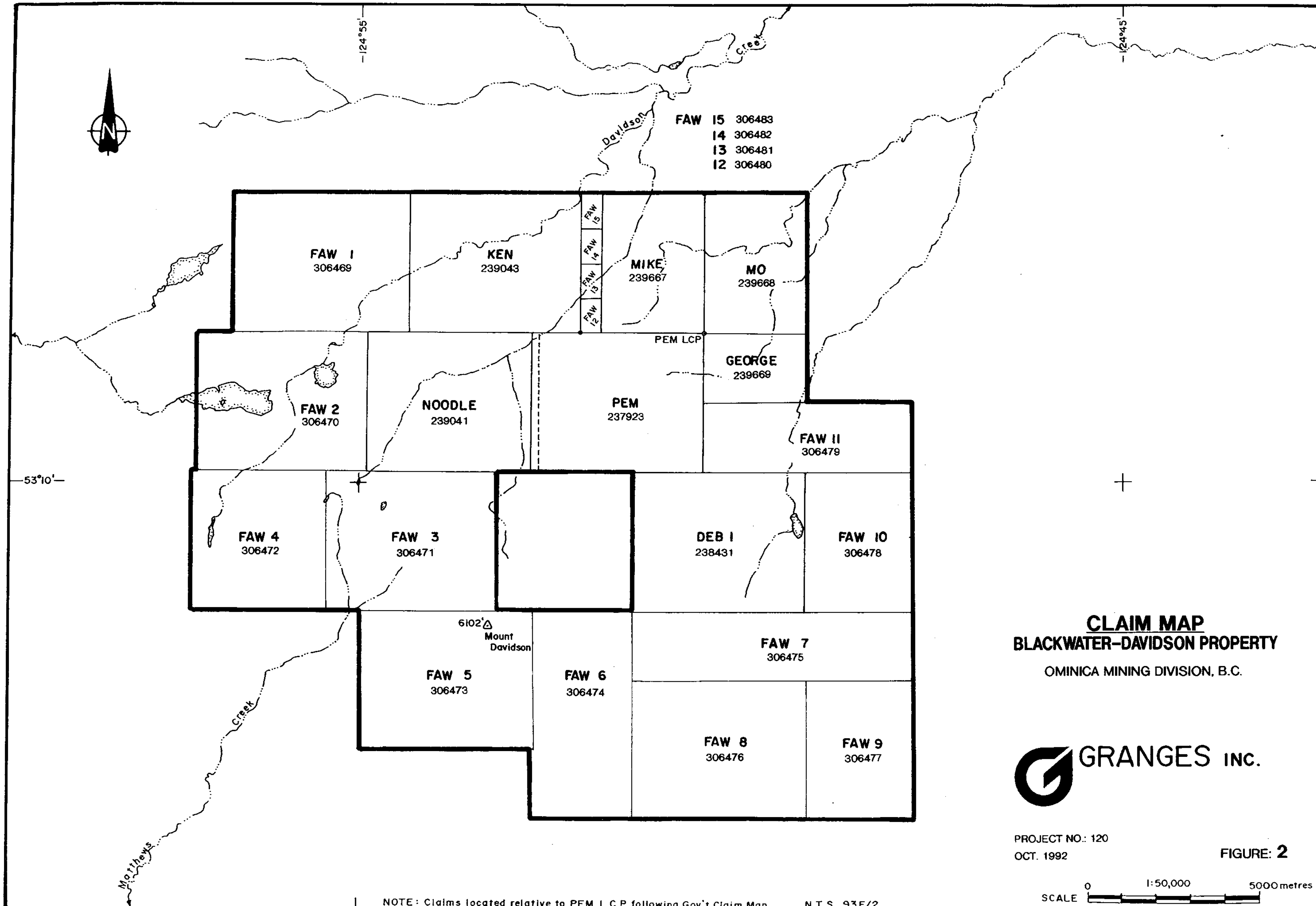
LOCATION MAP-ROAD ACCESS
BLACKWATER-DAVIDSON PROPERTY

OMINICA MINING DIVISION, B.C.

GRANGES INC.

OCT., 1992

FIGURE: **1b**



124°55'
124°45'
53°10'
N
Creek
Davidson
FAW 15 306483
14 306482
13 306481
12 306480
FAW 1
306469
KEN
239043
FAW 15
FAW 14
FAW 13
FAW 12
MIKE
239667
MO
239668
PEM LCP
GEORGE
239669
FAW 2
306470
NOODLE
239041
PEM
237923
FAW 11
306479
FAW 4
306472
FAW 3
306471
DEB 1
238431
FAW 10
306478
6102'
Mount
Davidson
FAW 5
306473
FAW 6
306474
FAW 7
306475
FAW 8
306476
FAW 9
306477
Creek
Matthews
CLAIM MAP
BLACKWATER-DAVIDSON PROPERTY
OMINICA MINING DIVISION, B.C.
GRANGES INC.
PROJECT NO.: 120
OCT. 1992
FIGURE: 2
SCALE
0
1:50,000
5000 metres
NOTE: Claims located relative to PEM L.C.P. following Gov't Claim Map.
N.T.S. 93F/2

Claim No.	Claim Name	Clm.Size Units	Due Date
238431	Deb No.1	20	June 19/95
239667	Mike	12	Aug. 31/95
239668	Mo	12	Aug. 31/95
239669	George	6	Aug. 31/95
306471	Faw 3	20	Nov. 18/95
306472	Faw 4	20	Nov. 18/95
306479	Faw 11	12	Nov. 19/95
306473	Faw 5	20	Nov. 21/95
306469	Faw 1	20	Nov. 22/95
306474	Faw 6	18	Nov. 22/95
306480	Faw 12	1	Nov. 23/95
306481	Faw 13	1	Nov. 23/95
306482	Faw 14	1	Nov. 23/95
306483	Faw 15	1	Nov. 23/95
306470	Faw 2	20	Nov. 24/95
306475	Faw 7	16	Nov. 24/95
306476	Faw 8	20	Nov. 24/95
306477	Faw 9	12	Nov. 24/95
306478	Faw 10	12	Nov. 24/95
237923	Pem	20	Mar. 18/98
239041	Noodle	20	Oct. 23/98
239043	Ken	20	Oct. 31/98
	Total Units:	304	

1.4 Previous Work

This area was included in a reconnaissance regional silt sampling program conducted by Granges in 1973. A series of anomalous lead, zinc and silver values in stream sediment samples lead to subsequent soil sampling and eventually the staking of the Pem claim in 1977. Between 1973 and 1984, several geophysical and soil geochemistry surveys were conducted on the property. Geophysical surveys did not define any obvious drill targets. Between 1985 and 1987, a total of 31 diamond drill holes and 34 reverse circulation holes were drilled targeting soil geochemistry anomalies. Two apparently separate zones of mineralization (the "gold" zone and the "silver" zone) were partially outlined by these drilling programs.

The more detailed summary of previous work programs conducted on the property shown below has been extracted from a report by Haynes (1990):

1973 Results of the Tahtsa regional silt survey for porphyry copper mineralization, located anomalous silver, lead and zinc in the Mt. Davidson area. A wide spaced soil sample survey was carried out northeast of Mt. Davidson.

Sept.'76	Soil sample and ground magnetometer surveys follow-up of 1973 soil results.
Mar. '77	Staking of the Pem claim. Pulse EM survey on the Pem claim.
Nov.-Dec. 1979	Vector Pulse EM survey on the Pem claim.
Feb. '81	Helicopter EM and magnetometer survey.
June '81	Staking of the Deb #1 claim.
Aug. '81	Horizontal Loop EM survey on the Deb #1 claim.
Nov. '81	Reconnaissance mapping Mt. Davidson area.
July '82	Soil sample and ground magnetometer surveys on the Pem claim.
July '83	Hammer seismic survey.
Sept.'84	Hand trenching and VLF survey on the Pem claim.
Aug. '85	Winkie drilling (21.64 m) on the Pem claim. Holes Dav 1-2.
Sept.'85	Diamond drilling (485.38 m) on the Pem claim. Holes Dav 3-8.
Oct. '85	Staking of the Noodle and Ken claims.
July-Aug. 1986	Construction of access road.
Sept.'86	Percussion drilling (1524 m) on the Pem claim. RC 1-34.
July-Nov. 1987	Diamond drilling (2724.61 m) on the Pem claim. Holes 9-31.
Aug. '87	Staking of Mike, Mo and George claims.

In November of 1991, the Faw 1-15 claims (194 units) were staked peripheral to the older claim blocks.

1.5 Logistics

The 1992 program was conducted out of Westar Timber's temporary Malaput camp at Kilometer 142 on the Kluskus road. Office, supply and accommodation tents were set up adjacent to

Westar's camp. Part of the crew slept in tents, and part in the camp bunkhouse trailer. All meals were taken in Westar's camp.

Travel time from the camp to the property was one hour.

2.0 GEOLOGY

2.1 Regional Geology

The Blackwater-Davidson property is in Stikinia Terrane, an allochthonous oceanic arc within the Intermontane Belt (Andrew, 1985; Monger, et al, 1982).

Only limited regional government mapping has been conducted in the property area. This overview of the regional geology is based largely on a map compiled by Tipper, Campbell, Taylor and Stott (1974; Parsnip River, Map 1424A), data from which was subsequently used to construct a geological base for the mineral inventory map (Figure 3).

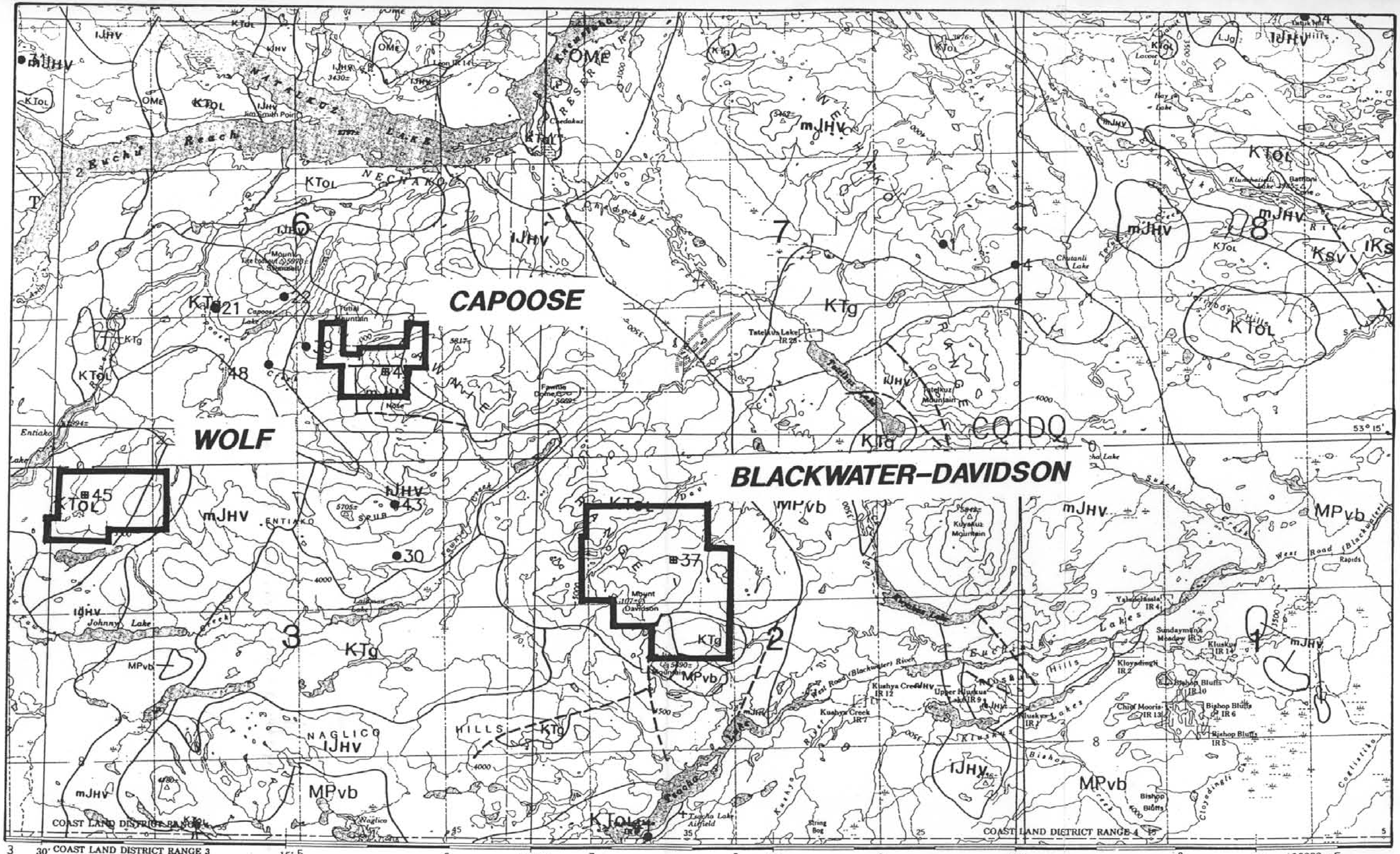
The region is largely underlain by rocks of the Lower to Middle Jurassic Hazelton Group. This group of rocks has been sub-divided into a lower sedimentary unit, a middle unit of andesitic to rhyolitic volcanic rocks, and an upper unit of intercalated mafic to intermediate volcanic and sedimentary rocks.

These rocks have been intruded by stocks of the Upper Cretaceous to Eocene (Tipper, et al, 1974) Quanchus Intrusions which range in composition from granite to diorite.

Overlying and probably in part crosscutting the Hazelton Group are rocks of the Upper Cretaceous to Tertiary Ootsa Lake Group. This group consists largely of felsic volcanic rocks intercalated with lesser amounts of intermediate volcanic and sedimentary rocks.

These rocks, which now appear to occur in isolated patches due to partial cover by younger overlying andesite flows and olivine plateau basalts, may have formed a relatively continuous cover along a northwest-trending belt over 300 km long. Volcanic rocks in the Ootsa Lake Group are probably coeval with the Quanchus Intrusions and may be their extrusive equivalents. It is felt that these volcanic rocks formed, at least in part, in caldera settings (Andrew, 1985).

Overlying all of the above mentioned rocks are andesitic to basaltic flows of the Oligocene and Miocene Endako Group.



0 5 10 15 20

KILOMETRES

SCALE: 1 : 250,000

For Legend see Figure: 3b

REGIONAL GEOLOGY

BLACKWATER-DAVIDSON PROPERTY

Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

MINFILE MAP 093F

NECHAKO RIVER

MINERAL OCCURRENCE MAP

FIGURE: **3a**

GEOLOGICAL LEGEND

STRATIFIED ROCKS

TERTIARY

MIOCENE AND PLIOCENE

MPvb	*Olivine basalt flows, breccia, tuff*

OLIGOCENE AND MIOCENE

OME	**ENDAKO GROUP:** *Andesite, basalt, dacite*

UPPER CRETACEOUS AND LOWER TERTIARY

KTOL	**OOTSA LAKE GROUP:** *Rhyolite, dacite, trachyte, sandstone, shale, conglomerate*

CRETACEOUS

Ksv	*Andesite, tuff, breccia, argillite, arkose, conglomerate*

LOWER CRETACEOUS

lKs	**SKEENA GROUP:** *Conglomerate, greywacke, shale, coal, volcanic breccia*

JURASSIC

MIDDLE JURASSIC

mJHV	**HAZELTON GROUP** *(part), undivided; basalt, andesite, tuff, breccia, greywacke, mudstone, conglomerate*

LOWER JURASSIC

lJHV	**HAZELTON GROUP** *(part): Andesitic to rhyolitic tuff, breccia, flows, sediments*
lJHS	**HAZELTON GROUP** *(part): Shale, conglomerate, greywacke*

UPPER TRIASSIC AND LOWER JURASSIC

TRJT	**TAKLA GROUP:** *Andesite, basalt, tuff, breccia, conglomerate, greywacke, shale, limestone*

TRIASSIC

UPPER TRIASSIC

uTRC	*Limestone*

PLUTONIC ROCKS

TERTIARY

Tg	*Granodiorite, quartz diorite, quartz monzonite*

CRETACEOUS AND/OR TERTIARY

KTg	**QUANCHUS INTRUSIONS:** *Granodiorite, quartz diorite, diorite, granite*

JURASSIC

LATE JURASSIC (in whole or in part)

LJg	*Granite, granodiorite, diorite*

Geological legend and base derived from:

Tipper, H.W., R.B. Campbell, G.C. Taylor and D.F. Stott (compilers)(1974): *Parsnip River, Sheet 93;* Geological Survey of Canada, Map 1424A, 1:1,000,000

Tipper, H.W. (1963): *Nechako River;* Geological Survey of Canada, Map 1131A (Memoir 324), 1:253,440

To accompany Figure: 3a

FIGURE: **3b**

The youngest rocks in the region are extensive flows of Miocene and Pliocene olivine basalt, possibly oceanic in origin.

2.2 Economic Setting

The Blackwater-Davidson property is located 15 km southwest of the Capoose prospect and 30 km east of the Wolf prospect (Figure 3). The Equity silver mine lies 145 km northwest of the property, within the same terrane.

Ages of these deposits or prospects fall within the range of ages of the Quanchus Intrusions. Much of the mineralization in the region, therefore, is probably genetically linked to this group of intrusions.

2.2.1 Capoose Prospect

The Capoose property covers a large low-grade silver prospect with an estimated reserve of 28.3 million tonnes grading 36.0 g/t silver and 0.30 g/t gold (Haynes, 1990). Mineralization in two of the three zones consists of disseminated pyrite, sphalerite, galena, chalcopyrite and arsenopyrite.

2.2.2 Wolf Prospect

The Wolf prospect is a classic near-surface (100 m) epithermal system hosted in Eocene Lutitian (50-42.1 ma) rhyolites of the Ootsa Lake Group (Andrew, 1985). Host rocks have been hydrofractured and cemented with opaline chalcedony, cut by bladed quartz veins (pseudomorphs after calcite, apparently indicative of boiling), and flooded with dark blue-grey chalcedony. "Electrum, native silver and silver sulphosalts occur as inclusions in and adjacent to pyrite" (Andrew, 1985) although no metallic minerals are visible in hand specimen. Rocks from the Wolf property are visually similar to those from the McLaughlin mine in California.

2.2.3 Equity Silver Mine

The Equity Silver deposit occurred in three zones. The main ore zone was estimated to contain 21.6 million tonnes grading 109 g/t silver, 0.35% copper and 0.85 g/t gold.

Disseminated and fracture-related sulphides occur within an argillically altered dust tuff of the Upper Jurassic to Cretaceous Gossly sequence (Pease and Schroeter, 1984). Mineralization is thought to be related to emplacement of a quartz monzonite stock (dated at 58 ma) which caused fluid circulation within favourable permeable units.

Mineralization consists primarily of pyrite, chalcopyrite, tetrahedrite, pyrrhotite, arsenopyrite, sphalerite and galena, with minor native gold, bournonite, boulangerite and jamesonite.

2.3 Property Geology

2.3.1 General Discussion

The mineralized zone and surrounding area on the Pem grid has very little outcrop. This program was designed to put the mineralized zones in some sort of geological context by mapping the surrounding area and projecting lithology and structure into the centre.

Distribution of the lithologic groups is roughly as shown on the Parsnip River map sheet (Map 1424A, Tipper, et al, 1974; and Figure 3).

West of the property, well bedded argillite, siltstone, sandstone and intermediate tuff strike north and dip moderately to the east. One graded bed located near the Kluskus road indicates stratigraphic tops are up to the east. One outcrop of sandstone with abundant belemnites and pelecypods was located on the property access road. These types of fossils are typical of the Lower to Middle Jurassic Hazelton Group.

The Ootsa Lake Group consists of intercalated felsic to intermediate flow and volcaniclastic rocks. One outcrop of argillite was located on the Deb grid.

Units are generally massive, but rare bedded tuff or tuffaceous sediment, unit contacts, and flow banding indicate that the stratigraphy is gently dipping generally to the north or northwest.

In the northeast part of the property there are a few exposures of unaltered, massive amygdaloidal, medium to coarse grained feldspar phyric andesitic to basaltic flow rocks. These may be Tertiary Endako Group or younger flows overlying the Ootsa Lake Group.

On the peak of Mount Davidson is a unit of tuff breccia with large blocks of feldspar porphyry.

On the northwest-trending ridge, including the peak of Mount Davidson, two phases of northwest-trending mafic to intermediate dykes cut quartz-feldspar crystal tuff of the Ootsa Lake Group. One phase is feldspar phyric and the other is feldspar-mafic (probably hornblende) phyric.

Unit lithology descriptions are included in Section 2.3.3.

2.3.2 Stratigraphy

A stratigraphic column of the property area is shown in Figure 5.

The oldest rocks in the area are interbedded sediments and intermediate to mafic tuff of the Middle Jurassic Hazelton Group. These rocks are exposed on the east side of the Fawnie Creek valley and are in apparent angular unconformable contact with rocks of the Ootsa Lake Group approximately 6 km west of the property boundary (Figure 4).

Exposure of the Ootsa Lake Group is largely restricted to the alpine ridges in the west part of the property and the stratigraphy is consequently unclear.

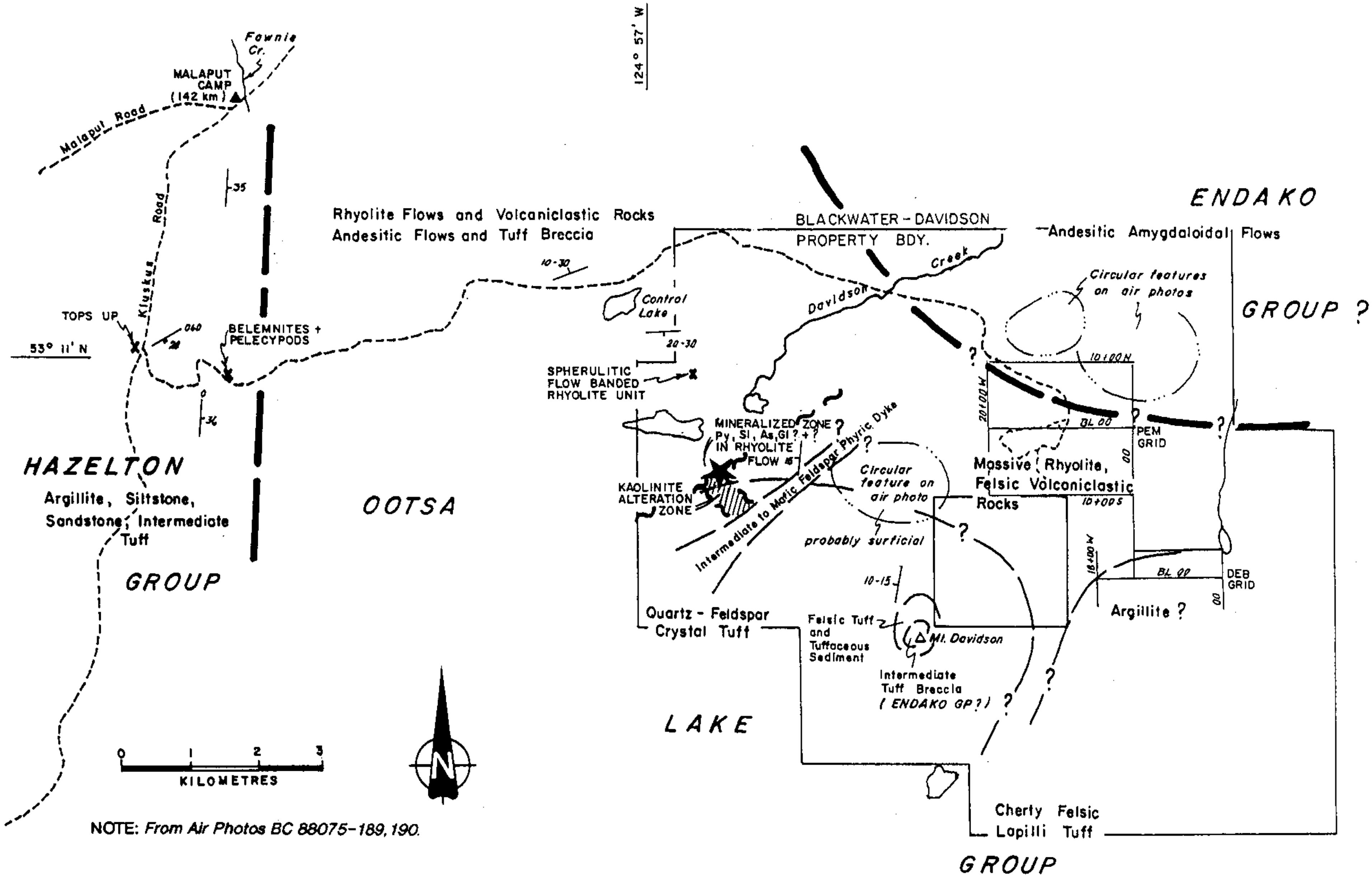
Overlying the argillite is a thick sequence of intercalated felsic (predominant lithology) to intermediate flow and volcaniclastic rocks. Felsic rocks range from massive siliceous flows to coarse volcaniclastic rocks with distinctive flow banded fragments. Intermediate rocks include massive flows, lapilli tuff and possibly flow breccia. This sequence of units hosts the mineralization on the Pem grid and the showing on "Kaolinite" Creek.

Above the sequence of volcanic rocks described above is a distinctive, thick (300 m+) massive unit of quartz-feldspar crystal to lithic tuff.

Overlying the quartz-feldspar crystal tuff near the peak of Mount Davidson, is a thin unit of subaqueous thinly bedded tuffaceous sediment and tuff.

Apparently overlying these tuffaceous sedimentary rocks on the peak of Mount Davidson, is a tuff breccia unit with large blocks of feldspar phyric andesite or basalt.

In the northeast part of the property, a unit of amygdaloidal feldspar phyric andesite or basalt flow rocks may be intruding into or overlying rocks of the Ootsa Lake Group.



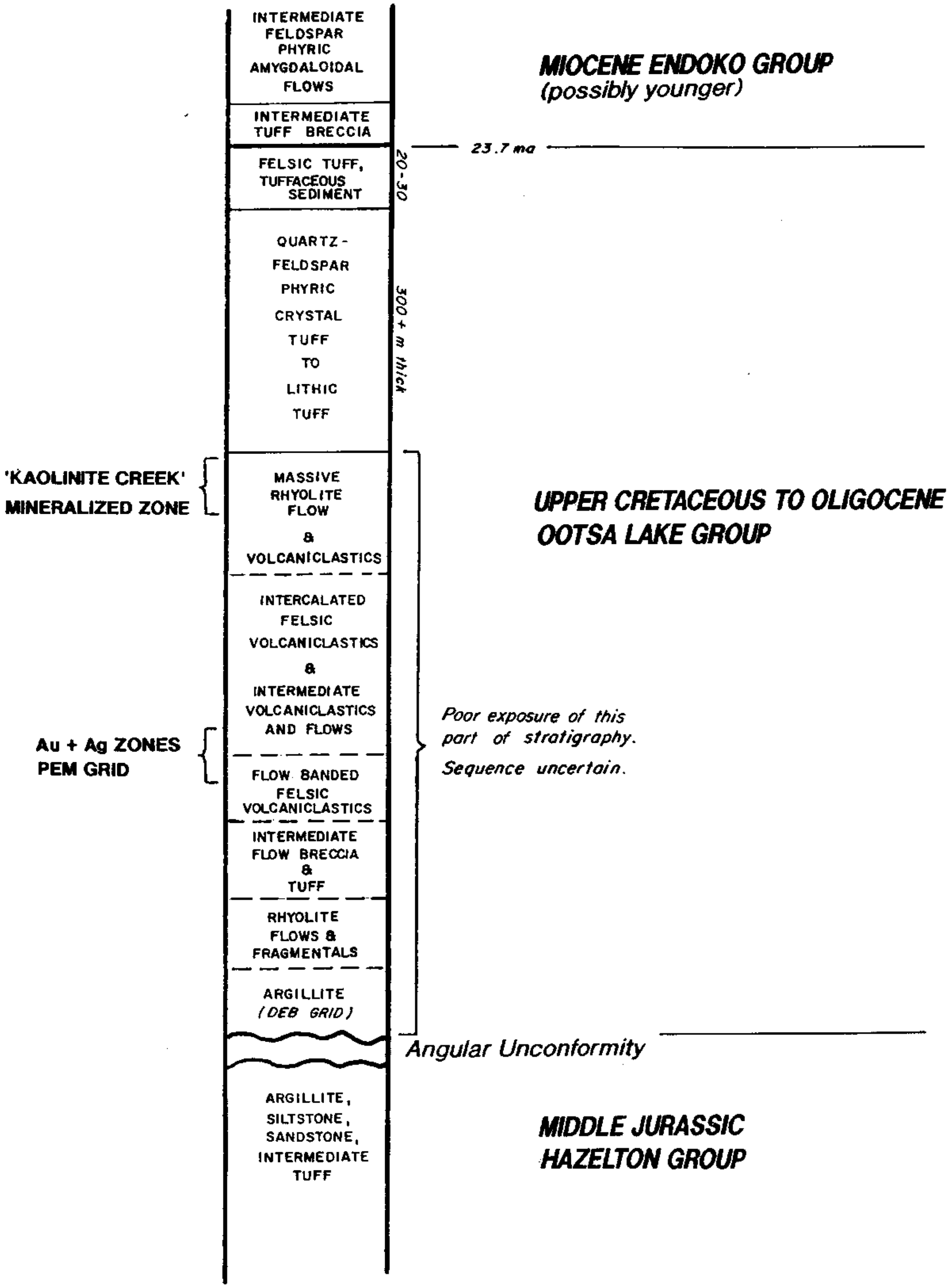
NOTE: *From Air Photos BC 88075-189, 190.*

GRANGES INC.

GENERAL GEOLOGY
BLACKWATER-DAVIDSON PROPERTY AND AREA

FIGURE: 4
G.A./OCT. 1992

STRATIGRAPHY
BLACKWATER-DAVIDSON PROPERTY AREA



GRANGES INC.

FIGURE: 5
G.A./OCT. 1992

In the southwest part of the property, several northeast-trending dykes are similar in appearance (except for the amygdules) to the flow rocks described above.

2.3.3 Lithology

The following lithologic units are listed in rough stratigraphic order, from oldest to youngest (assuming the pile is not overturned). Exposure on the property is poor and the sequence presented is undoubtedly incomplete and oversimplified. Topographic features referenced are shown in Figures 6 through 9. Numbers and letters in parentheses are unit codes used in Figures 6 through 9, 14 and 15.

Ootsa Lake Group

Intercalated Argillite And Felsic Tuff (7J, 3A)

Argillite was observed in only one location on the property, in one small outcrop on the Deb Grid. It is thought to be the lowest unit in the sequence located to date. The argillite is black, silty, poorly bedded to massive and contains up to 1% very fine-grained disseminated pyrite. Some irregular elongated bodies up to 8 mm wide by 2 cm (+) long could be worm burrows.

Immediately adjacent to the argillite is a unit of dark blue-grey massive fine-grained siliceous felsic tuff or siliceous siltstone. Some parts contain up to 5% fine-grained disseminated pyrite.

Rhyolite (?) Flow Breccia (?) And Tuff (3H, B-D)

This unit outcrops on the north slope of a steep hill south of 'Control Lake' on and west of the Faw 1 claim.

On a weathered surface the rock has a fragmental texture with an average fragment size of roughly 1 cm, but ranging up to 10 cm. Fragments are typically grey to jasper-coloured fine-grained and siliceous, hosted in a thinly laminated possibly flow-banded matrix. Parts of the unit have a dark grey to maroon hematitic silicic fine-grained groundmass with 15% subhedral feldspar prisms to 2 mm (average 1-2 mm), and up to 20% 1-2 mm quartz amygdules with jasper rims. It is not clear if these are fragments or part of the main body of the unit.

Some parts are apparently trachytic feldspar phyric flows with a hematitic groundmass. In one location irregular quartz-filled vugs up to 2 cm wide with jasper rims occur.

The unit is probably an intercalated sequence of flow breccia and lapilli tuff. (It appears to be intermediate in composition, but whole rock data indicate a rhyolite composition (sample 24622)).

Flow Banded Rhyolite Lapilli Tuff (Mineralized Unit In Grid Area) (5D.fv)

Flow banded rhyolite lapilli tuff occurs on the hill top south of 'Control Lake' on the Faw 1 claim, along 'Kaolinite Creek', and adjacent to the 'Silver Zone' on the Pem claim. It is a white weathering rhyolite lapilli tuff to tuff breccia with a grey cherty groundmass and 30-50% angular flow banded fragments up to 20 cm (average 2-5 cm). In the grid area and along Kaolinite Creek the fragments are strongly kaolinite altered although the matrix is siliceous (possibly suggesting that silicification and/or quartz flooding is a secondary alteration).

Massive To Flow Banded Rhyolite Flow (Mineralized Unit Along 'Kaolinite Creek') (5Gw(f))

Massive rhyolite on the property ranges in colour from white to light greenish-grey with an aphanitic siliceous groundmass, 5-10% less than or equal to 0.5 mm euhedral to subhedral prism-shaped feldspar phenocrysts, and rarely up to 10% 1-2 mm euhedral quartz phenocrysts (possibly a separate unit). The unit ranges from massive to distinctly flow banded.

Along 'Kaolinite Creek' the unit is weakly mineralized with disseminated pyrite, sphalerite, arsenopyrite, possibly galena, and a dark grey-black sulphide with perfect cleavage.

Spherulitic Rhyolite Flow (5Gd)

In one location south of 'Control Lake' a very distinctive light greenish-grey poorly flow banded siliceous rhyolite contains up to 70% 1-2 cm spherules composed of a radiating white mineral (probably feldspar). Spherules are not common on the property.

Cherty Felsic Lapilli Tuff (3Ds)

This unit is a white weathering grey rhyolite lapilli tuff with grey cherty angular felsic fragments averaging less than 2 cm in diameter. Flow banded fragments are locally abundant.

Andesitic Flow (2Gw(z))

Andesitic flow rocks were observed in only one location north of 'Control Lake.' The unit has a medium grey-brown siliceous aphanitic groundmass with 10% stubby to prismatic feldspar phenocrysts to 2 mm (average < 1 mm), and 5% fine-grained hornblende phenocrysts. The top of this unit has dark greenish-grey aphyric fragments in a light blue-grey matrix and could be an auto breccia.

Quartz-Feldspar Phyric Crystal Tuff To Lithic Tuff (3B-Cx)

This unit is relatively wide-spread, covering most of the southwest part of the claim block. It appears to dip gently to the west or to be flat-lying, and is at least 300 m thick.

The unit consists of a massive medium to coarse-grained crystal tuff composed of a light grey fine-grained siliceous matrix hosting 25% <1 mm stubby subhedral feldspar crystal fragments, 15% <1-3 mm subrounded to euhedral quartz crystal fragments, and <5-25% lithic fragments ranging from <1 mm to 20 cm (averaging <2 cm). Lithic fragments are generally dark grey to brown aphanitic intermediate volcanic rocks, less commonly fine to coarse-grained feldspar porphyry, and rarely flow banded felsic volcanic rock.

Interbedded Intermediate to Felsic Tuff, Tuffaceous Sediment, and Chert (2-3 Abs, T)

This unit was observed near the peak of Mt. Davidson and is probably less than 30 m thick. It is composed of interbedded white weathering feldspar crystal tuff (some with up to 20% 1-2 mm quartz grains), fine to medium-grained tuffaceous sandstone, and thinly laminated chert (rarely jasper). In some places the unit includes thin intervals of intermediate feldspar phyric tuff breccia.

These rocks are probably transitional between the preceding and following units.

Interbedded Intermediate Tuff Breccia and Tuffaceous Sediment (2E, 2T)

Blocky tuff breccia was observed only on or near the peak of Mt. Davidson. The tuff breccia consists of angular lithic fragments up to 30 cm (average 1-15 cm) in a tuffaceous matrix. Lithic fragments are of two main types. The more common lithic fragments have a brown to maroon fine-grained matrix hosting 30% 1-5 mm euhedral prismatic to anhedral rounded feldspar phenocrysts. A second type of fragment has a greenish-grey groundmass with 15-20% 1 mm - 1 cm euhedral feldspar phenocrysts and minor amounts of hornblende.

Lithic tuff in the unit is interbedded with lesser amounts of thinly bedded sandy tuff and black chert. Bedding strikes generally northerly and dips gently to the west. The sediments have been scoured by the tuff breccia.

Fragments of feldspar porphyry in the tuff breccia are similar in appearance to feldspar phyric dykes which cut the quartz-feldspar crystal tuff unit. They are also similar to feldspar phyric amygdaloidal flows which outcrop on the north part of the property and are thought to be part of the Miocene Endako Group. It is possible, therefor, that this unit is transitional between the Ootsa Lake Group and the younger Endako Group.

Endako Group (?)

Amygdaloidal Feldspar Phyric Andesite Flow (2Gaw)

This unit outcrops on 'Big Culvert Creek' and suboutcrops on the main access road east of 10+00W. It has a brown to greenish-grey fine-grained groundmass hosting distinct greenish-white euhedral prismatic phenocrysts up to 1 cm in length (averaging 4-6 mm), and 10-15% spherical to flattened chlorite and calcite-filled vesicles up to 3 mm long.

2.3.4 Structure

As mentioned in previous sections, the property is cut by a series of northeast-trending faults. The mineralized area on the Pem grid is located in a fault-bounded block roughly 5.75 km wide. The showing on Kaolinite Creek is in the same block (Figure 4).

In addition to the linear structures described above, two roughly circular features were identified in the northwest part of the Pem grid from air photos (Figures 4, 7). These features are apparently underlain by Tertiary mafic to andesitic flows, but exposure is poor in the area.

2.3.5 Mineralization

Sulphide mineralization on the Pem grid is associated with kalonitic and silicic alteration of the host felsic and intermediate volcanic rocks. These rocks also have strong manganese staining on fracture surfaces and rarely, stringers of a dark blue-grey manganese mineral. During property-wide mapping, particular attention was paid to alteration and manganese staining.

Outside of the Pem grid, only one area on the property was located with significant alteration. On the south side of "Kaolinite" Creek (Figures 4 and 6) approximately 3.5 km west of the Pem grid, limonitic weathering and manganese stained quartz crystal tuff is kaolinite altered in a roughly 400 m wide panel between two probable northwest-trending faults. The rock has a light brownish-grey, soft kaolinitic groundmass, hosting brown to white altered feldspar crystal fragments, 20% masses to 5 mm of light green waxy propylitically altered lithic fragments(?), and 10-15% unaltered quartz (Appendix II, samples 24626-24630). No sulphide mineralization was noted in the unit.

Immediately underlying this unit are rhyolite lapilli tuff and massive rhyolite flow (? hypabyssal intrusive) rocks. The flow rocks, which predominate, are white to pale bluish or greenish-grey with 5% $\leq$ 1 mm feldspar phenocrysts, 1-5% fine grained disseminated pyrite, traces to 1% disseminated fine grained, red-brown sphalerite, and traces of arsenopyrite. A few analyses of rock samples from this area are shown below:

"Kaolinite" Creek Showing

Sample No.	Au ppb	Ag ppm	Pb ppm	Zn ppm	As ppm	Mn ppm
24631	3	0.9	693	1121	2	351
24632	5	0.6	208	302	14	1321
24633	1	0.1	35	625	13	879
24634	5	0.1	131	250	8	86

Analysis confirm the presence of sphalerite and suggest that traces of galena also probably occur. A polished thin section description of 24633 (C. Leitch, Appendix V) indicate that the rock is a felsic volcanic or a high level intrusion. It also mentions the presence of sphalerite, pyrite, rutile and possibly chalcopyrite. The lack of anomalous arsenic in the sample suggests that the rutile was misidentified in the field as arsenopyrite.

The thin section study of sample 24633 indicates that the rock has undergone only mild carbonate, sericite and quartz alteration. This type of phyllic alteration is associated with the mineralization on the Pem grid, but there the intensity of alteration is much greater. The Kaolinite Creek area warrants a closer look because it could be peripheral to a stronger alteration zone.

One sample (24615) of manganese-stained rhyolite on the access road in the Faw 1 claim, did not contain anomalous amounts of precious or base metals.

2.4 Geology of the Pem Grid

2.4.1 Geology

Only a few small isolated outcrops and suboutcrops occur on the Pem grid, most of which are located between 12+00W and 16+00W peripheral to and south of the silver zone (Figure 14). These outcrops are felsic tuff to lapilli tuff and felsic flow-banded volcanic rock. No structural information was obtained from these outcrops. Glacial striae trend 044°. Glacial movement was apparently from southwest to northeast (Tipper, 1963).

J. Caelles (1991) relogged the available core.

Only minimal work was done on the drill core during the 1992 program. Drill hole Dav-11, which intersected two gold-bearing zones (14.28 Au/T over 6.3 m and 48.3 g/T over 1.3 m), was quickly relogged and samples (24601-24612) from the major units sent for whole rock analyses (Appendix IV) and thin section studies (Appendix V).

Thin section work on the core samples confirms that this area is underlain by an intercalated sequence of predominantly fragmental mafic to felsic volcanic rocks. In core the felsic rocks appear to be strongly altered and the more mafic rocks to be relatively unaltered. In thin section, however, it appears that the entire sequence is strongly altered.

Alteration is discussed in more depth in the following section.

2.4.2 Alteration in the Pem Grid Area

From the eastern side of the gold zone to the western limit of drilling is a distance of approximately 900 m. All rocks in this area as seen from drill core and the few outcrops and suboutcrops near the silver zone, are intensely altered. The limits of this zone of alteration are not defined.

Along a drill access road near 15+00W, several suboutcrops occur. The predominant rock type is a felsic lapilli tuff with distinct flow-banded fragments which are largely altered to a soft white kaolinite-rich material. The matrix appears to be composed mostly of fine-grained quartz, with rare small quartz crystal-lined vugs. In some cases, very small veinlets of quartz cut across kaolinitized fragments and merge imperceptibly with the siliceous matrix.

Dark red-brown garnets occur both in the matrix and in the fragments. In some cases, fragments up to 5 cm across are largely replaced by garnet. Similar patches of red-brown garnets occur in altered felsic rocks on the Capoose property.

Thin section studies were done on a suite of rocks from the Dav-11 drill core (samples 24601 to 24612, Appendix V). The hole is located in the gold zone roughly 600 m east of the quartz-clay-garnet altered rock described above. "Alteration in this (Dav-11) suite is generally strong to intense, mainly phyllic (sericite-quartz-chlorite) in type, but grading into mafic potassic, with the addition of significant chlorite and secondary biotite..." (Leitch, 1992). Although in drill core the more intermediate to mafic rocks appear to be less altered than adjacent felsic units, thin section studies show that all rock types have undergone moderate to intense alteration.

2.4.3 Mineralization in the Pem Grid Area

Previous drilling programs on the Pem grid have partially outlined two apparently discrete zones of mineralization. The "gold" zone as outlined by J. Caelles (1991) consists of a steeply-dipping zone up to 70 m across with sporadic intervals containing greater than 1 gram of gold per tonne.

The "silver" zone is interpreted to be a relatively flat-lying body up to 70 m thick containing an estimated 6 million tonnes grading 37 g/tonne Ag and 0.05 g/tonne Au (Caelles, 1991). It is open at depth and to the north.

Both the gold and silver zones appear to cross lithologic boundaries.

Mineralization in drill core (as noted by Harris (1987) and others) consists of up to 5% combined disseminated and fracture-related sphalerite, pyrite, tetrahedrite, galena, arsenopyrite, pyrrhotite, chalcopyrite and boulangerite. On surface in the silver zone area, the most prominent sulphide is sphalerite, with lesser amounts of very fine-grained disseminated pyrite and traces of fine-grained grey sulphides.

2.5 Geology of the Deb Grid

Only one outcrop was located on the Deb Grid. It consists of interbedded(?) argillite and felsic tuff. The argillite is black and massive with 1-2% very fine-grained pyrite. Rare 5-8 mm wide rod-like bodies distinguished by a slightly lighter colour than their host could be worm burrows.

The felsic tuff (or possibly a siliceous siltstone) has a dark blue-grey fine-grained siliceous groundmass with angular fragments to 1 mm and 3-4% fine-grained combined disseminated and lesser amounts of fracture related pyrite.

3.0 PETROGRAPHIC STUDIES

A total of 17 thin sections and 1 polished thin section were studied during this program. Of these, 10 were from drill hole Dav-11 in the Pem grid "gold" zone, 1 was from a suboutcrop of quartz-kaolinite altered rock near the silver zone, 4 were from outcrops outside of the alteration zone and 4 were from outcrops on the Capoose property. All petrographic reports were done by C. Leitch (Appendix V).

The series of samples from drill hole Dav-11, were taken to confirm the lithology of the host to the "gold" zone. Hole Dav-11 intersected a sequence of mafic to felsic fragmental volcanic rocks intercalated with minor felsic and intermediate(?) flow (non-fragmental) rocks.

All rocks have undergone strong to intense phyllitic (sericite-quartz-chlorite) alteration, with some units grading into mafic potassic (chlorite, secondary biotite and possibly secondary K-feldspar) alteration.

One sample (24607) contained clasts of massive pyrrhotite with minor chalcopyrite, suggesting the possible occurrence of a volcanogenic massive sulphide deposit somewhere on this stratigraphic horizon.

Sample 29621 was collected from an outcrop south of "Control" Lake in the northwest part of the property (Figure 10). In the field, parts of the unit appear to be grossly bedded. Amygdaloidal sections are apparent sporadically throughout. No distinct fragments were noted. It was felt that the unit was possibly a flow breccia or tuff. The thin section indicates only that it is a chalcedony and zeolite amygdular intermediate volcanic (whole rock data suggest a rhyolite composition, possibly due to quartz in amygdules).

Samples 24622 (Figure 10) and 24705 (Figure 12) were collected from units of quartz-feldspar crystal tuff with lithic fragments. The rocks are visually very similar. Sample 24622 was collected from an outcrop in the extreme northwest part of the property and sample 24705 was collected from south of the peak of Mt. Davidson, a separation of roughly 8 km. Both rocks are a felsic fragmental volcanic. In thin section they are similar in texture, but differences in feldspar composition indicate that sample 24622 may be rhyolite and 24705 may be a rhyodacite. It is probable that both rocks are from the same unit and slight compositional variations may be due to fractionation during eruption. Sample 24622 from the northwest "has undergone mild clay-sericite and carbonate alteration". Sample 24705 has undergone mafic potassic (green biotite) alteration.

Sample 24633 is from a sulphide-bearing fine-grained feldspar phyric massive rhyolite flow on the south side of "Kaolinite" Creek (Figure 10). This area has the only significant (although very low grade) sulphide mineralization located on the property to date outside of the Pem grid. The sample is a felsic (possibly dacitic) extrusive or high level intrusive rock. It has undergone only mild alteration as indicated by minor amounts of carbonate, sericite and some secondary quartz.

Samples 24635 through 24638 were collected from the main mineralized zone just north of the old camp on the Capoose property (Figure 3). They are tentatively designated units 6 through 9 from K. Andrew's map (Andrews, 1985) of the area. These samples were collected to compare lithology, alteration and mineralization with mineralized rocks from the Blackwater-Davidson property.

The most significant difference is that mineralized rocks on the Blackwater-Davidson property are felsic fragmentals, whereas those at Capoose are flows or intrusions. Both suites of rocks have undergone strong phyllic (sericite and quartz) alteration. The altered felsic rocks at Capoose contain pyrrhotite, pyrite and sphalerite, as well as euhedral to anhedral masses of brown garnet. Large masses of dark brown garnet do occur in kaolinitic silicified fragmental felsic rocks on the Blackwater-Davidson property, but not apparently within the gold (or silver?) zones. No garnets were observed in any sulphide-bearing rock on the Blackwater-Davidson property.

In her studies of the Capoose property, Andrew (1985) felt that the garnets in the felsic rocks were primary. From a brief visit to the property during this program, it appears that garnets occur as fine-grained euhedral crystals disseminated throughout a host, as well as in irregular brown masses several milimeters in diameter. These masses of garnet are similar in habit to garnet seen on the Blackwater-Davidson property, and in both cases are probably products of metasomatism. In his petrographic studies of the Capoose suite, Leitch comments that the fine-grained euhedral garnets appear to be replacing mafic phenocrysts and are probably, therefore, secondary as well.

4.0 WHOLE ROCK GEOCHEMISTRY

A total of 20 rock samples were sent for comprehensive whole rock analysis, results of which are included in Appendix IV. Twelve of these are from drill hole Dav-11, 4 are from widely separated outcrops on the Blackwater-Davidson property, and 4 are from the Capoose property. Most samples included in the thin section study have had whole rock analyses.

The following table compares field names, thin section names and some lithogeochemistry of the same samples.

Potassium levels appear to be elevated in the altered zones, supporting Leitch's observation of mafic-potassic alteration in thin sections of these rocks.

A plot of $Na_2O + K_2O$ vs SiO_2 is presented in Figure 16. The fields in this plot categorize rocks on the basis of chemistry and indicate a protolith name assuming that no alteration has taken place. Metasomatism will shift composition plots, possibly indicating an erroneous protolith name.

Preliminary results from a study by Hans Madeisky (unpublished internal report for Granges, 1992) include a few scatter plots of elements which are normally conserved during magmatic fractionation and metasomatism. A plot of TiO_2 vs Zr (Figure 17) suggest that there may be four populations of rocks in the analyzed suite.

1992 BLACKWATER–DAVIDSON WHOLE ROCK ANALYSES

SAMPLE NO.	LOCATION	DEPTH	FIELD NAME	T.S. NAME	Na2O	K2O	Na2O+K2O	SIO2	W.R. NAME
24601	DAV–11	24.99m (82')	INT. FLOW	INT. TUFF	1.72	4.54	6.26	58.7	Trachyandesite
24602	DAV–11	28.65m (94')	INT. TUFF	FELSIC VOLCANIC	0.27	6.41	6.68	69.2	Dacite
24603	DAV–11	35.05m (115')	INT. FLOW	INT–MAFIC TUFF	0.23	5.75	5.98	59.2	Andesite
24604	DAV–11	43.89m (144')	FEL. TF–LT	FELSIC? TUFF	0.18	5.09	5.27	71.1	Dacite
24605	DAV–11	58.83m (193')	INT. FLOW	MAFIC–INT FLOW?	0.88	5.74	6.62	56.7	Trachyandesite
*(Au) 24606	DAV–11	64.62m (212')	FEL. TF–LT (Au Zone)		0.01	3.81	3.82	71.9	Dacite
24607	DAV–11	80.16m (263')	INT–FEL LT	MAFIC–INT? TUFF	0.1	6.23	6.33	62.8	Andesite
24608	DAV–11	96.93m (318')	INT–FEL LT		0.11	7.48	7.59	73.8	Rhyolite
24609	DAV–11	106.38m (349')	INT. LT	MAFIC–INT LAPILLI	0.17	5.88	6.05	63.5	Dacite
*(Au) 24610	DAV–11	109.42m (359')	FEL TF (Au Zone)		0.07	4.51	4.58	72.2	Dacite
24611	DAV–11	114.15m (375')	M–INT FLOW	ALTERED VOLCANIC	0.12	7.31	7.43	58.8	Trachyandesite
24612	DAV–11	128.02m (420')	FEL. LT	INT–FELSIC LT	0.22	5.47	5.69	69.4	Dacite
24621	W OF FAW 1		INT FL–BX?	INT AMYG VOLC	4.17	2.85	7.02	71.1	Rhyolite
24622	W OF FAW 1		Q–F XL TF	FELSIC FRAGMENTAL	4.15	3.71	7.86	69.2	Rhyolite
24705	FAW 5		Q–F XL TF	FELSIC FRAGMENTAL	4.22	3.76	7.98	69.2	Rhyolite
24633	FAW 2		RHY FLOW	FELSIC FLOW (INTR?)	2.00	4.23	6.23	74.2	Rhyolite
24635	CAPOOSE		Q–G RHY FLOW	QFP	0.21	6.92	7.13	67.6	Dacite
24636	CAPOOSE		GAR. RHY FLOW	FELSIC VOLC	0.01	3.76	3.77	74.4	Rhyolite
24637	CAPOOSE		RHYOLITE	FELSIC VOLCANIC	0.12	7.80	7.92	72.6	Rhyolite
24638	CAPOOSE		Q–G RHY	FELSIC FLOW (INT?)	0.01	4.93	4.94	76.1	Rhyolite

CHEMICAL CLASSIFICATION OF VOLCANIC ROCKS

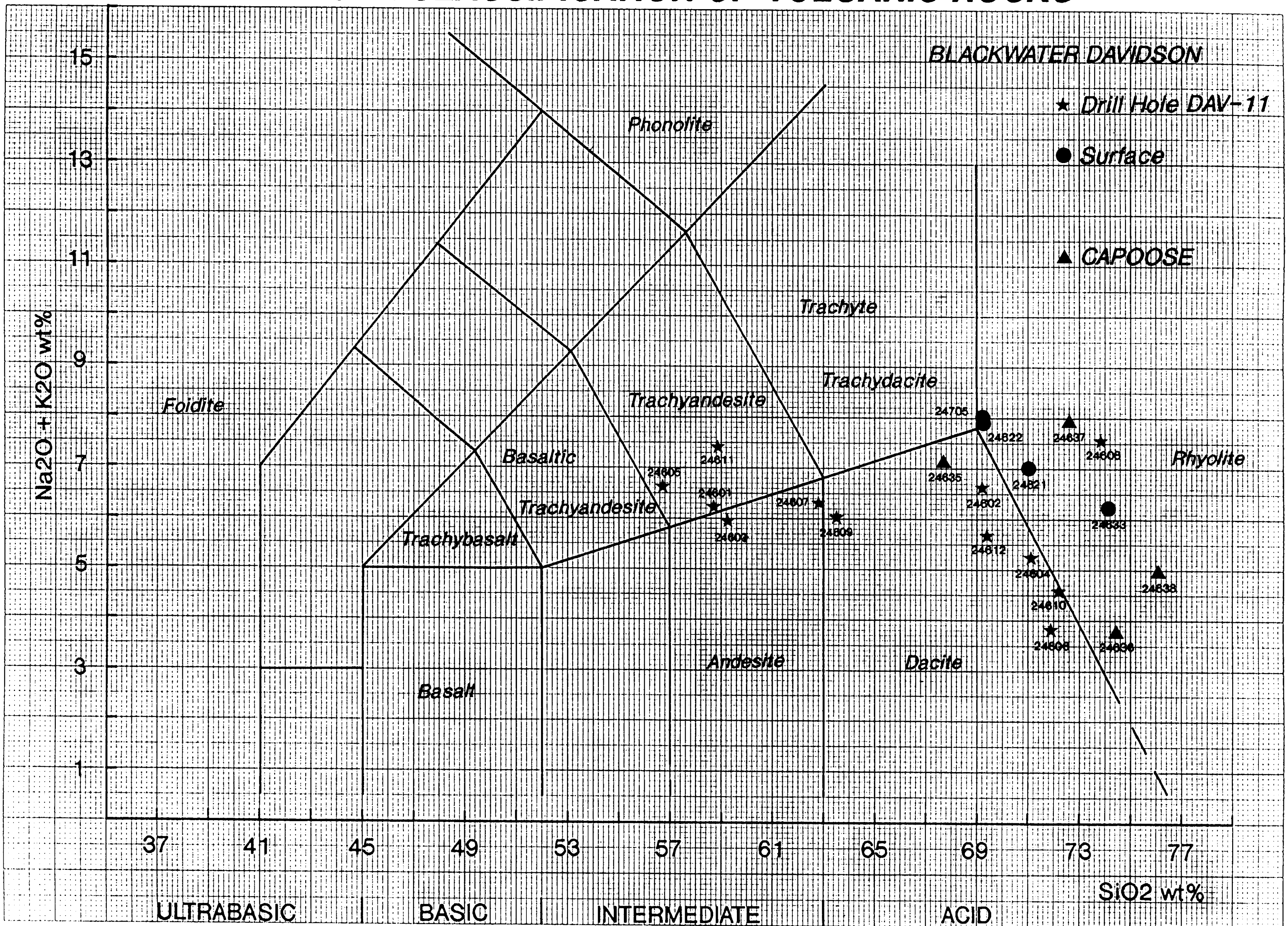
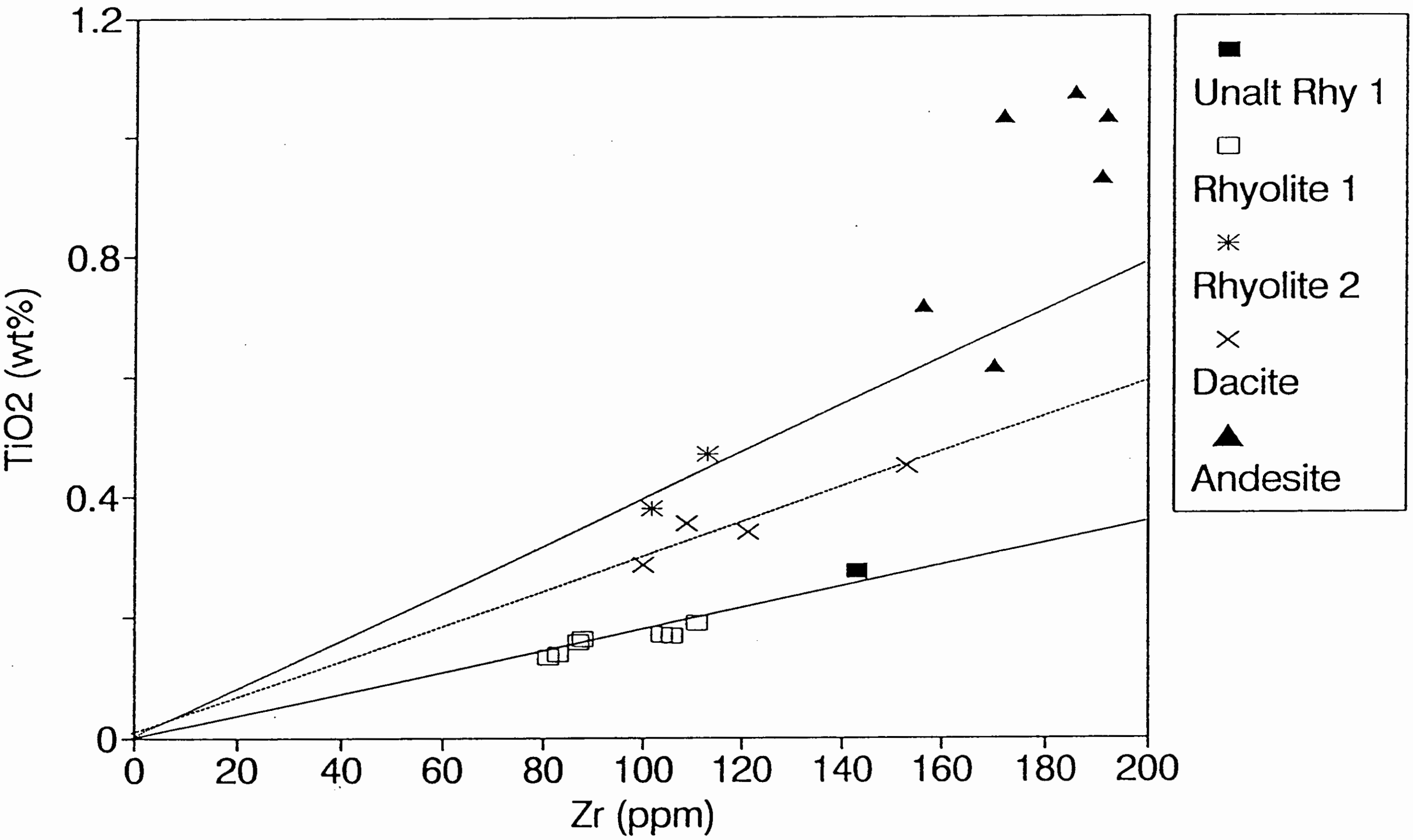


Figure 16

Blackwater - Davidson Project
Conserved Constituent Scatter Plot



H. MADEISKY
NOV. 1992

FIGURE: **17**

5.0 SOIL GEOCHEMISTRY

Results from previous exploration programs indicate that soil geochemistry is an effective tool for identifying zones of mineralization. Several geophysical surveys were conducted on the property, but no discrete targets were defined. Soil geochemistry anomalies were eventually drill tested and the gold and silver zones consequently discovered.

In preparation for an expanded soil geochemistry survey, the old grids were rehabilitated and expanded.

The previously partially cut Pem grid extended from 0+00W to 18+00W and from 5+00N to 5+00S. New cutting expanded this grid to 20+00W and from 10+00N to 10+00S, covering most of the Pem claim. A total of 48 km of crosslines, baselines and tielines were cut and/or rehabilitated on the Pem grid. An additional 10.8 km of line was cut and rehabilitated on the Deb grid to the southeast of the Pem grid. Included in the 10.8 km is a 1.2 km line extending south from the Pem grid tieline 10+00S at 0+00W to connect the two grids.

Linecutting and line rehabilitation totalled 58.8 km on the Pem and Deb grids. Crosslines were run true north-south at 100 m intervals and picketed every 25 m using a tight chain to measure intervals. East-west tie lines were cut at 10+00N and 10+00S on the Pem grid and at 3+75N on the Deb grid to get more accurate control of the shape of the grids.

A total of 955 soil samples ("B" horizon where available) were collected on the two grids. Of these, 616 were collected on the Pem grid and 339 from the Deb grid. Samples were collected at 50 m intervals along lines 100 m apart in areas not previously sampled. Three lines (9, 11 and 13W) on the Pem grid were sampled at 25 m intervals across the part of the old grid which was previously sampled as a check on outlined anomalous zones.

Samples were sent to Acme Labs in Vancouver for 30-element ICP and gold (FA/AA) analyses. Of these, 187 were also analyzed for mercury. Certificates are included in Appendix III.

5.1 Pem Grid Soil Geochemistry

Contoured plots of gold, silver, lead, zinc, manganese and arsenic-in-soil from the Pem grid are shown in Figures 18a through 18f. The larger numbers on the silver, lead and zinc plots in the central part of the Pem grid (Figures 18b, 18c and 18d) are data from soil samples collected in 1976. Lines 9, 11 and 13W were sampled at 25 m intervals to check results obtained in 1976. The results from the two surveys (at least for silver, lead and zinc) appear to be comparable and the same anomalous zones have been outlined by both data sets.

The silver, lead and zinc plots define large roughly coincidental east-west trending anomalous zones between 18+00W and 0+00W, from 4+00S to 5+00N. This zone of coincident anomalies is closed to the west, north and south and tapers to a single station anomaly on 0+00W near a creek draining the central part of the zone.

Manganese and arsenic anomalies are smaller, but coincidental with the central part of the silver-lead-zinc anomalous zone.

Gold anomalies occur sporadically distributed in an east-west trending zone predominantly south of the five element coincident anomaly discussed above.

The silver zone, which is open to the northeast, occurs in the western part of the five element soil anomaly. It is roughly coincidental with the largest and strongest part of the silver-in-soil anomaly. This may indicate that the best part of the silver zone has already been defined, but similar mineralization probably occurs sporadically throughout the broad soil anomaly, most of which has not been drill-tested.

The gold zone lies to the south of the five element soil anomaly, but is partly coincident with a gold-in-soil anomaly (Figure 35).

5.2 Deb Grid Soil Geochemistry

Contoured plots of gold, silver, lead, zinc, manganese and arsenic-in-soil from the Deb grid are shown in Figures 19a through 19f.

All elements are in substantially lower concentrations than on much of the Pem grid. Anomalies are generally one sample in extent and sporadically distributed across the grid. It is possible that overburden is effectively masking bedrock geochemistry in this area.

Some parts of the grid have elevated manganese levels suggesting that there may be some alteration of bedrock in the vicinity, however, there appear to be no exploration targets on the Deb grid as defined by soil geochemistry.

6.0 STREAM SEDIMENT GEOCHEMISTRY

6.1 Sampling Procedures

A property-wide stream sediment sampling program was conducted. At most sites several types of samples were collected to determine which method was the best at identifying drainages with anomalous metal content. Sieved (-36 mesh) samples were collected for heavy mineral separation. At the same sites, other types of samples collected included: panned concentrates of sediment from moss mat, untreated sediment from moss mat, and standard silt samples (i.e. an untreated grab of the finest sediment available in the stream channel). A total of 14 samples for heavy mineral separation, 13 panned concentrates and 5 untreated silt and moss mat samples were collected.

6.2 Comparison of Results of Different Stream Sediment Sampling Techniques

One or more types of stream sediment samples were collected from almost every significant drainage on the property. Results are presented in Figures 10 through 14. Analyses for six elements for the various types of samples are presented below:

Silt Samples

Sample No.	Type	Au	Ag	Pb	Zn	Mn	As
BD-Silt 1	Moss mat	7	0.6	19	103	1865	61
BD-Silt 2	Regular	9	0.9	21	136	711	61
BD-Silt 3	Regular	6	1.0	17	99	1343	52
BD-Silt 4	Moss mat	14	0.1	9	76	1164	22
BD-Silt 5/	Moss mat	175	0.5	29	364	941	22
5	(Rerun)	754	0.4	33	358	930	23
BD-Silt 6	Regular	3	0.1	7	53	385	7
BD-Silt 7	Moss mat	2	1.4	22	101	2413	61
BD-Silt 8	Moss mat	6	1.6	12	550	2364	77
Values considered anom.		≥10	≥1.0	≥30	≥150	≥2000	≥75

Panned Concentrates

Sample No.	Type	Au	Ag	Pb	Zn	Mn	As
BD-Pan 1		6	0.2	22	309	568	21
BD-Pan 2		1	0.1	9	52	295	2
BD-Pan 3		2	0.2	39	69	244	11
BD-Pan 4		1	0.1	9	50	517	2
BD-Pan 5		1	0.1	7	47	430	2
BD-Pan 6		1	0.1	4	49	541	2
BD-Pan 7		8	0.1	9	57	648	19
BD-Pan 8		3	0.1	9	56	981	15
BD-Pan 9		4	0.1	6	73	484	16
BD-Pan 10		2	0.1	2	50	512	7
BD-Pan 11		1	0.1	7	64	986	10
BD-Pan 12		6	0.3	8	348	3698	116
BD-Pan 13		6	0.1	5	52	626	14

Values considered anom.	≥10	≥1.0	≥30	≥100	≥750	≥20

Heavy Mineral Concentrates

BD-H1	5	0.1	19	82	942	1
BD-H2	4	0.1	8	51	949	1
BD-H3	5	0.1	23	76	636	1
BD-H4	70	0.1	5	50	704	1
BD-H5	10	0.1	18	55	846	1
BD-H6	15	0.1	122	335	1304	1
BD-H7	7	0.1	3	46	659	1

Sample No. Type	Au	Ag	Pb	Zn	Mn	As
BD-H8 (no sample)						
BD-H9	1	0.1	1	54	509	1
BD-H10	2	0.1	82	126	968	1
BD-H11	10	0.1	1	58	995	1
BD-H12	2	9.2	44	89	1728	1
BD-H13	5	0.1	1	84	1543	1
BD-H14	5	0.1	1	84	903	1
BD-H15	280	0.1	20	76	1255	1
Values considered anom.	≥15	≥0.1	≥40	≥100	≥1000	≥1

These tables were constructed to facilitate picking of threshold values. No statistical work was done to establish the listed thresholds, and they are admittedly probably somewhat high. Analyses considered anomalous have been underlined both in the tables and the figures. Sample sites with "significant" anomalies have been flagged with a star.

Samples within the groups in the following table were collected at or near the same site:

Sample No.	Type	Au	Ag	Pb	Zn	Mn	As
BD-H6	Heavy	15	0.1	122	335	1304	1
BD-Pan 1	Pan. Conc.	6	0.2	22	309	568	21
BD-Silt 5	Moss mat	175	0.5	29	364	941	22
BD-Silt 5(Re)	" "	754	0.4	33	358	930	23
BD-H7	Heavy	7	0.1	3	46	659	1
BD-Pan 2	Pan. Conc.	1	0.1	9	52	295	2
BD-Silt 6	Regular	3	0.1	7	53	385	7
BD-H9	Heavy	1	0.1	1	54	509	1
BD-Pan 4	Pan Conc.	1	0.1	9	50	517	2
BD-Pan 5	Pan Conc.	1	0.1	7	47	430	2
BD-H10	Heavy	2	0.1	82	126	968	1
BD-Pan 3	Pan Conc.	2	0.2	39	69	244	11

Sample No.	Type	Au	Ag	Pb	Zn	Mn	As
BD-H12	Heavy	2	9.2	44	89	1728	1
BD-Pan 7	Pan Conc.	8	0.1	9	57	648	19
BD-H13	Heavy	5	0.1	1	84	1543	1
BD-Pan 8	Pan Conc.	3	0.1	9	56	981	15
BD-H14	Heavy	5	0.1	1	84	903	1
BD-Pan 9	Pan Conc.	4	0.1	6	73	484	16
BD-Pan 12	Pan Conc.	6	0.3	8	348	3690	116
BD-Silt 8	Moss mat	6	1.6	12	550	2364	77
BD-H15	Heavy	280	0.1	20	76	1255	1
BD-Pan 13	Pan Conc.	6	0.1	5	52	626	14

The tables above indicate that the metal content in the various types of samples collected was highest (at least for the 6 elements listed) in the moss mat and regular silt samples, with the possible exception of gold. It appears that something in the panning and heavy mineral separation processes is removing background levels of metal from the samples. This is most notable for arsenic and silver, but is also apparent for manganese, lead and zinc. Gold is sporadic in all sample sets, but the panned concentrates failed to identify any sites with anomalous levels of gold.

It is tentatively concluded, therefore, that moss mat samples are as good as, or better than, heavy mineral concentrates for identifying drainages carrying anomalous amounts of metal.

The most outstanding stream sediment anomaly on the property is on "Moose Horn" Creek (Figure 11), which drains the Pem grid area. It was also found to be anomalous from sampling conducted in 1973 and interest in the area was initiated because of it. Samples BD-H6, Pan 1 and Silt (moss mat) 5, were collected from this creek during this program. The heavy mineral concentrate, panned concentrate and moss mat samples all contained anomalous amounts of zinc. Only the heavy and the moss mat samples were anomalous in lead and gold. Sample BD-H6 contained 15 ppb Au (marginally anomalous), but BD-Silt 5 contained 754 ppb Au. The source for this anomaly is probably on the Pem grid.

Sample BD-H4 was collected from a drainage north and west of "Moose Horn" Creek. It contained 70 ppb Au. This grid drains the extreme northwest part of the Pem grid, but no known mineralization occurs in the area.

Samples BD-H10 and BD-Pan 3 were collected from "Kaolinite" Creek (Figure 10). Both samples contained weakly anomalous amounts of lead. The heavy mineral concentrate contained marginally anomalous amounts of zinc. These samples were collected down-stream from a pyritic felsic unit with sphalerite and traces of galena. Several rock samples from this showing (24631-24634) contained anomalous amounts of lead and zinc, but no precious metals.

Sample BD-H12 was collected from a creek draining the southeast flank of Mount Davidson (Figure 13). It contained anomalous levels of silver (9.2 ppm), lead and manganese. A geological interpretation of the property (Figures 4 and 9) suggest that the area is underlain by felsic volcanic rocks (possibly the same unit hosting the Pem grid mineralization), and quartz-feldspar crystal tuff. No outcrop was found in the area and the cause of the anomaly is not known.

Samples BD-Pan 12 and BD-Silt 8 (moss mat) were collected from a creek at 20+25W, 6+85N on the Pem grid (Figure 14). Both samples were anomalous in manganese and arsenic, but only the moss mat indicated a coincident silver and zinc anomaly. Again, it appears that the moss mat is preferable to the panned concentrate sample. This anomaly is of particular interest because it drains a zone of high chargeability which is scheduled for drill-testing in an upcoming drill program (proposed hole BD92-A, Figure 35).

Samples BD-H15 and BD-Pan 13 were collected on the same creek as the samples described above at roughly 19+10W, 0+05N on the Pem grid. The heavy mineral concentrates contained 280 ppb Au and anomalous manganese. In contrast, the panned sample was not anomalous in any element. Angular float found less than 100 m upstream contained anomalous amounts of gold, silver, lead, zinc and arsenic (rock samples 24641 to 24643). Above these sample sites the creek drains along an interpreted fault and across a zone of high resistivity. Underlying lithology is not known.

7.0 GEOPHYSICAL SURVEYS

A total of 50 km of concurrent magnetic, IP and VLF-EM (two stations) surveys on the Pem and Deb grids were conducted by Pacific Geophysical Limited of Vancouver. Surveys were carried out by a six-man crew between August 17 and September 4, 1992. Paul Cartwright was the field operator.

7.1 Magnetic Susceptibility Survey

Total field magnetic susceptibility surveys were conducted on both the Pem and Deb grids. A 1:20,000 contoured plot of the magnetic data for both grids is presented in Figure 20a.

Plots of magnetic data at 1:5000 are included in Figures 28 and 34.

Magnetic susceptibilities have a range of approximately 1100 nT. It is not known what lithology corresponds to the high and low magnetic features. A prominent high magnetic susceptibility feature on the Pem grid trends east-west and could be a dyke or magnetic volcanic unit. The intercalated felsic and intermediate volcaniclastic units in the silver and gold zones have an intermediate magnetic signature. The magnetic low features on the two grids could be correlative with sedimentary rocks.

7.2 IP Survey

Line 9+00W on the Pem grid was surveyed with a time domain system using both a dipole-dipole and pole-dipole array (n = 50), to see which array produced a better response. Both defined the same chargeable and resistive zones and the rest of the survey (on both the Pem and Deb grids) was conducted using a pole-dipole array.

7.2.1 Pem Grid IP Survey

Ten point filter plans of chargeability or IP for the Pem grid are shown in Figures 21a, 21b (1:20,000) and 23 (1:5000). Resistivity plans are shown in Figures 22a, 22b (1:20,000) and 24 (1:5000). Pseudosections are included as Figures 25a-25v.

Chargeability on the Pem grid is generally higher in the southwest part. Within this area, several zones of higher chargeability occur roughly peripheral to a large zone of high resistivity.

7.2.2 Deb Grid IP Survey

In comparison to the Pem grid, almost the entire Deb grid is a very strong chargeability anomaly with values up to 212 ms, compared to a high of 36 ms on the Pem grid. This chargeable zone on the Deb grid is coincident with an area of low resistivity. It appears to strike east-west and is divided into two parts by an interpreted northwest-trending fault.

Paul Cartwright (Pacific Geophysical Ltd.) feels that such high chargeabilities are probably related to graphitic sedimentary rocks. Exposure is very poor, but argillite does occur in the vicinity. It is interesting to note, however, that the magnetic susceptibility in the area of the highest chargeability (western part) is

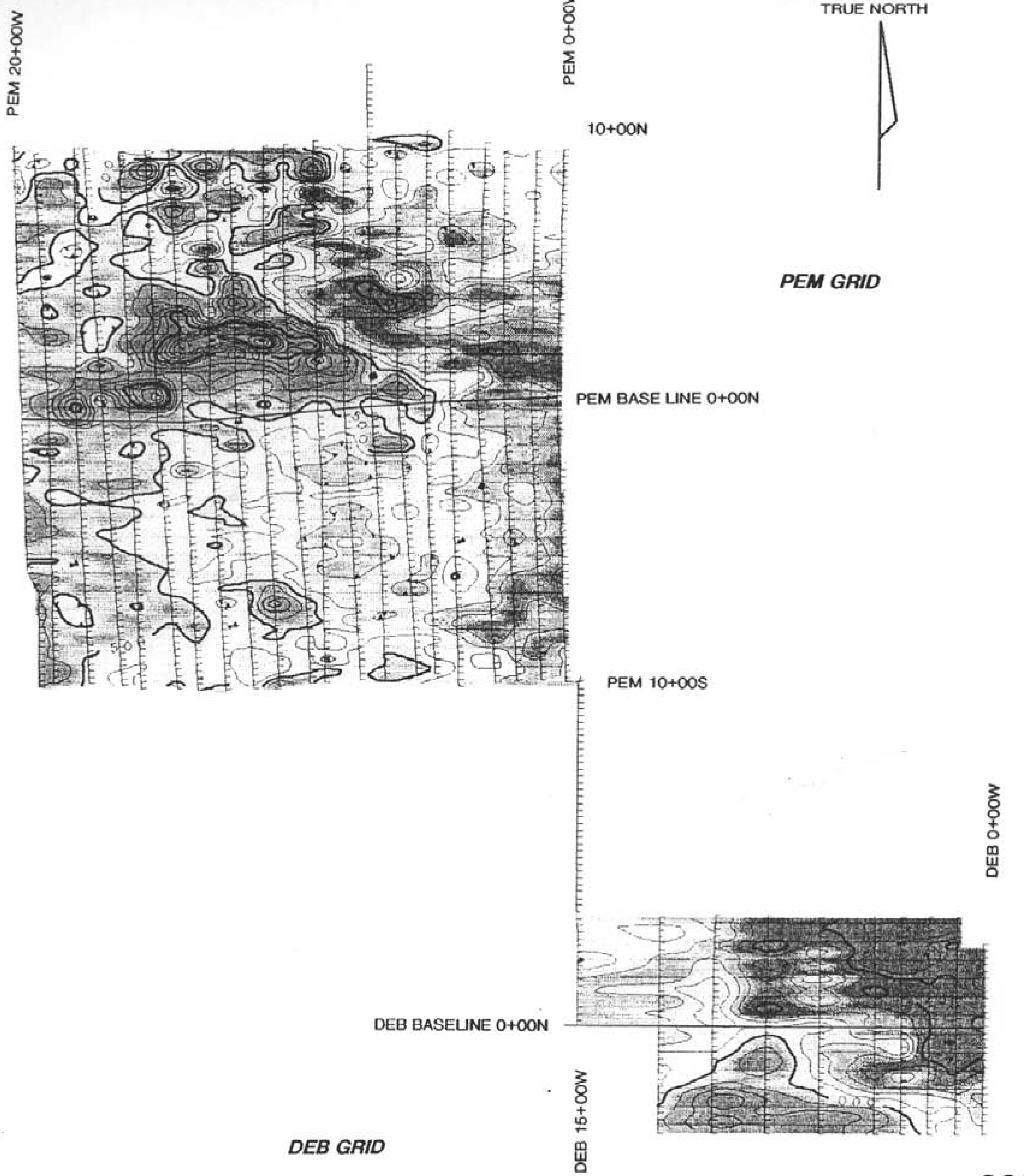


FIGURE: **20**

GRANGES INC

MAGNETOMETER SURVEY

BLACKWATER-DAVIDSON Property
PEM/DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 20000 DATE : Oct/92
SURVEY BY : PAC NTS : 93F/2
FILE: MPDMAG
Pacific Geophysical Ltd.

Instrument : GSM-19
Field : TOTAL
Datum : 56500 nT
Contour Interval : 50 nT

0m 400m

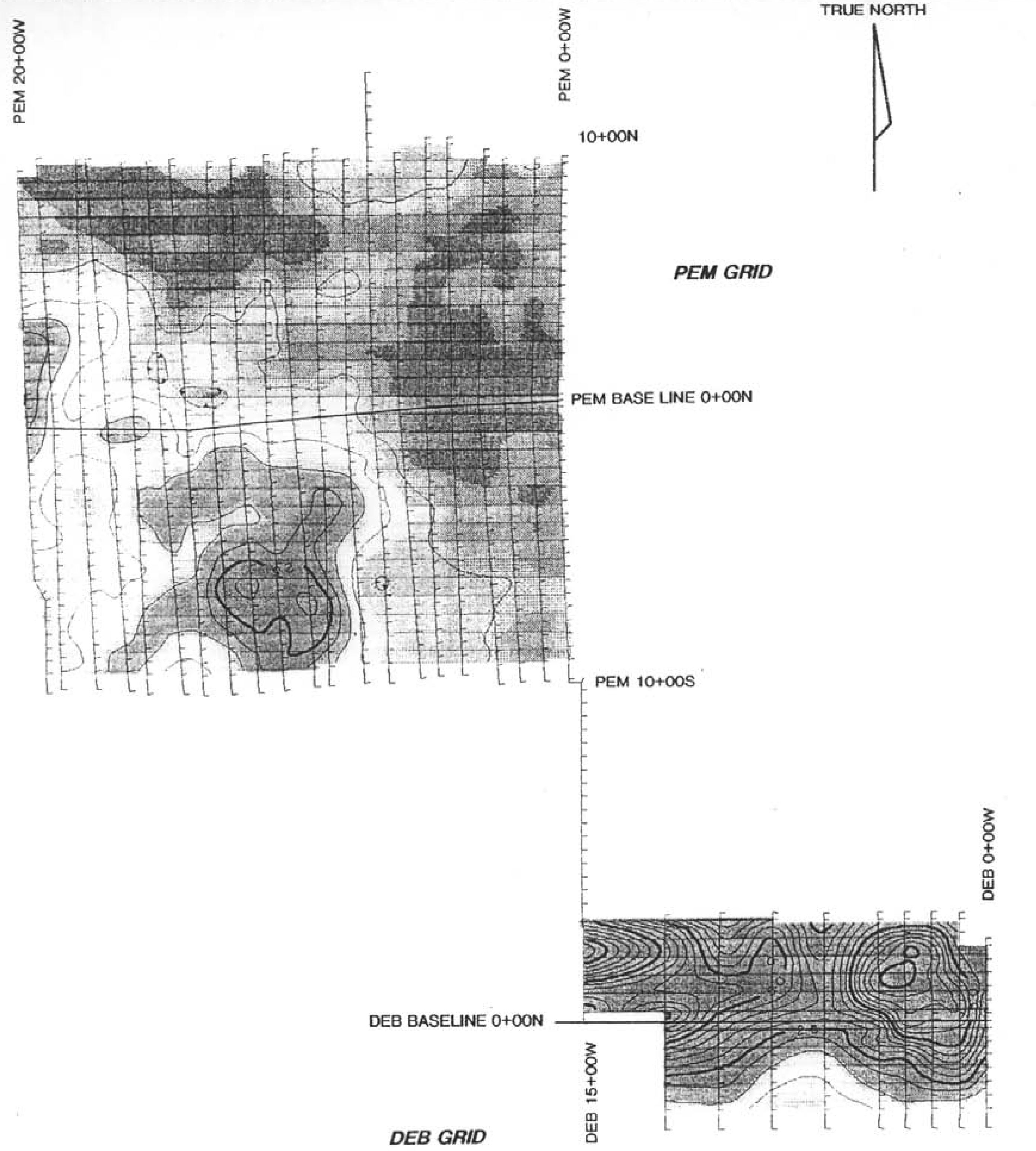


FIGURE: **21a**

Instrument : IP-6
C2 Electrodes To North
Contour Interval : 5 msec.

0m 400m

GRANGES INC

INDUCED POLARIZATION SURVEY

BLACKWATER-DAVIDSON Property
PEM/DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 20000 DATE : Oct/92
SURVEY BY : PAC NTS : 93F/2
FILE: MPDIP
Pacific Geophysical Ltd.

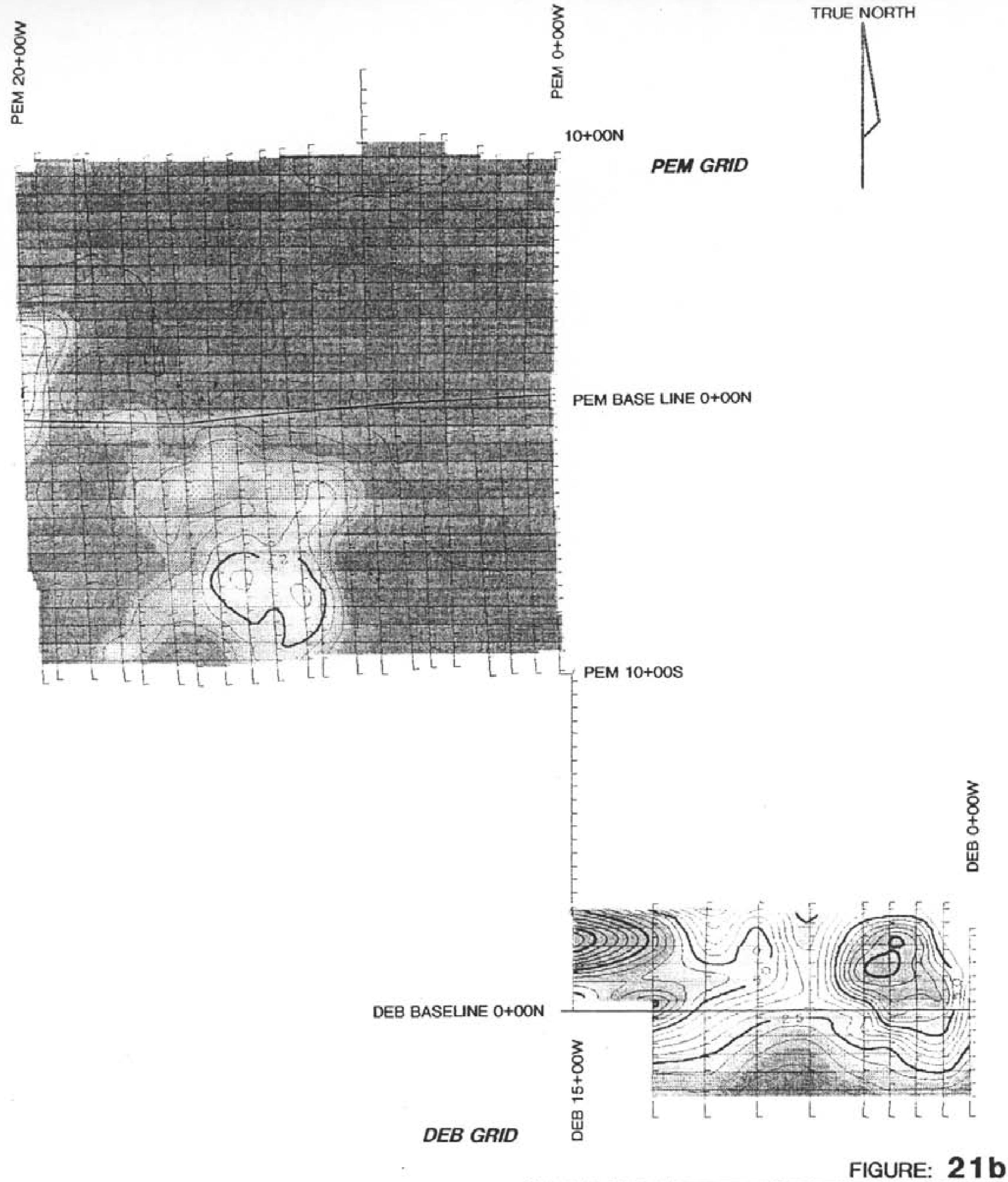


FIGURE: **21b**

Instrument : IP-6
C2 Electrodes To North
Contour Interval : 5 msec.

GRANGES INC

INDUCED POLARIZATION SURVEY

BLACKWATER-DAVIDSON Property
PEM/DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 20000 DATE : Oct/82
SURVEY BY : PAC NTS : 93F/2
FILE: MPDIP
Pacific Geophysical Ltd.

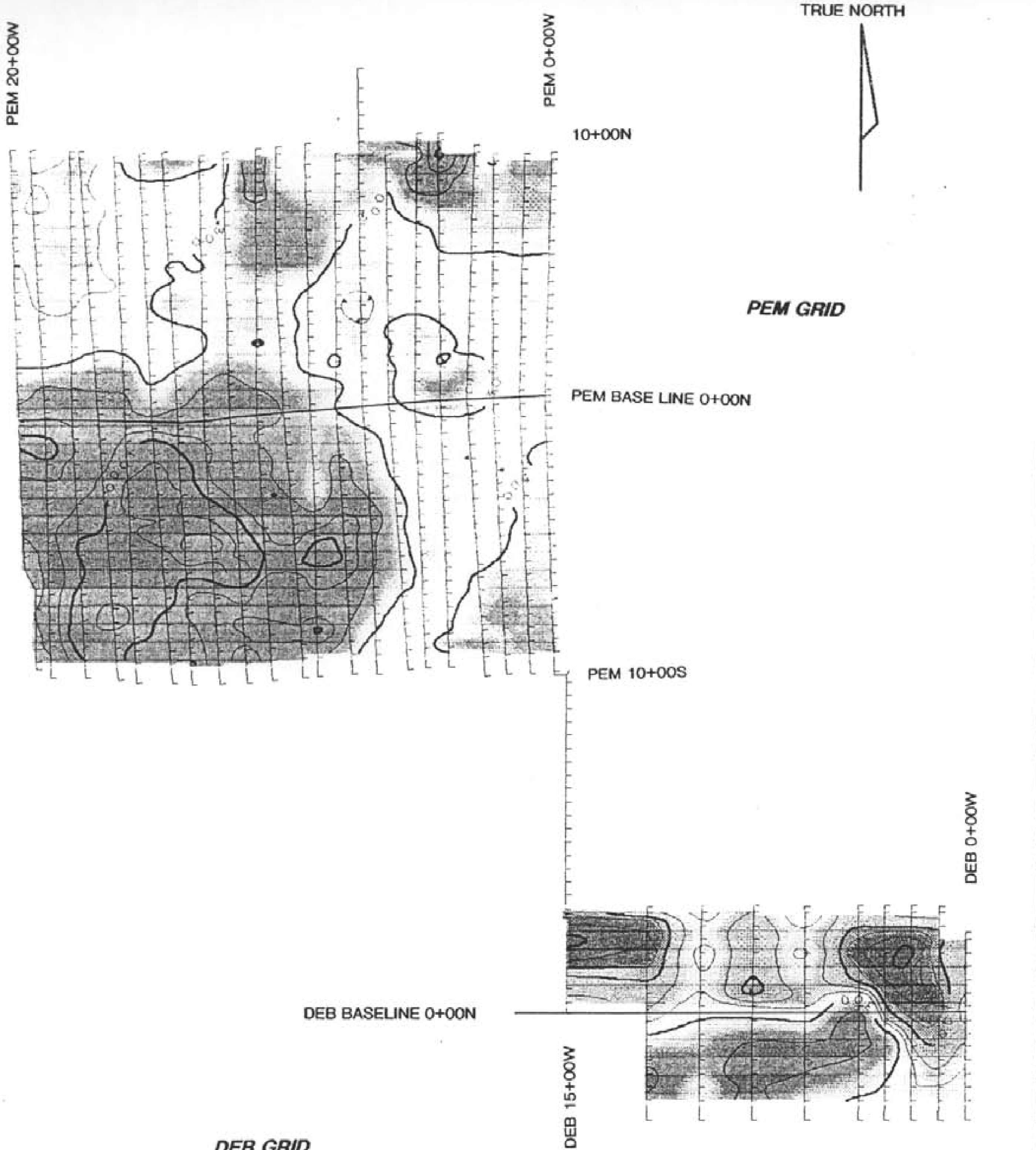


FIGURE: **22 a**

GRANGES INC

RESISTIVITY SURVEY

BLACKWATER-DAVIDSON Property
PEM/DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 20000
DATE : Oct/92
SURVEY BY : PAC
NTS : 93F/2
FILE: MPOR
Pacific Geophysical Ltd.

Instrument : IP-6
C2 Electrodes To North
Contour Interval : log.

0m 400m

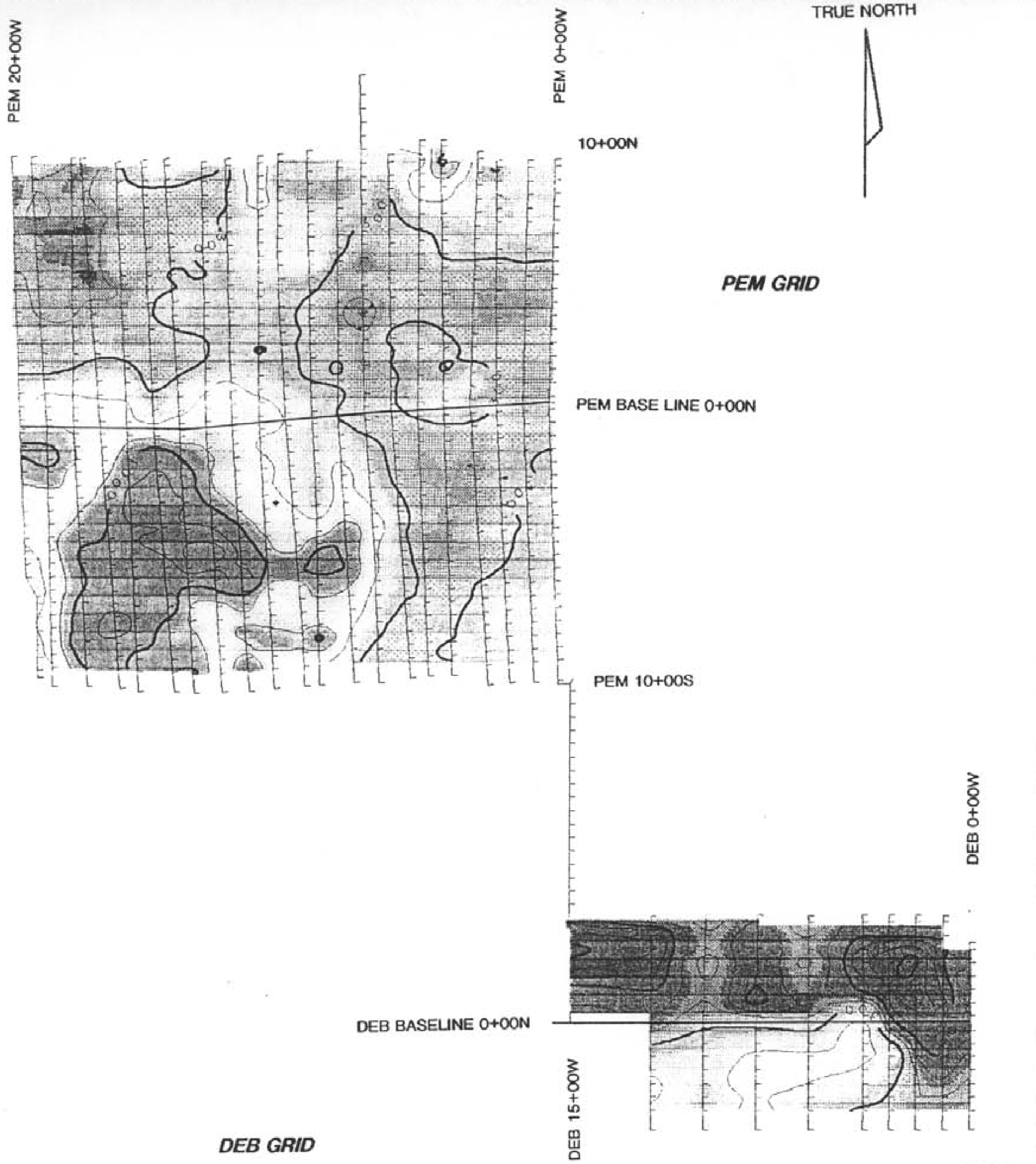


FIGURE: **22 b**

GRANGES INC

RESISTIVITY SURVEY

BLACKWATER-DAVIDSON Property
PEM/DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 20000 DATE : Oct/92
SURVEY BY : PAC NTS : 93F/2
FILE: MPDR
Pacific Geophysical Ltd.

Instrument : IP-6
C2 Electrodes To North
Contour Interval : log.

0m 400m

similar to that of the gold zone and the area could be largely underlain by volcanic rocks.

7.3 VLF-EM Survey

A VLF-EM survey was conducted on the Pem and Deb grids using two different stations in an attempt to couple with geological features in a large range of possible attitudes. The stations used were Annapolis at 21.4 KHz and Hawaii at 23.4 KHz.

Raw profile of the VLF-EM data are shown in Figures 26 and 27 for the Pem Grid and 32 and 33 for the Deb Grid.

7.3.1 Pem Grid VLF-EM Survey

On the Fraser-filtered plot of the Hawaiian frequency data, vague east-northeast trending features up to 400 m wide may be related to stratigraphic units.

Within the vague east-northeast features are more prominent east-west and northwest-trending features. It is unclear what these features are related to. Paul Cartwright (Pacific Geophysical Ltd.) warned that all of these anomalies are very weak and could be related to surficial features such as thicker deposits of water-saturated clay.

7.3.2 Deb Grid VLF-EM Survey

The VLF-EM surveys on the Deb grid show a prominent east-west trending feature roughly coincident with a chargeability anomaly. This feature may be outlining a stratigraphic unit or possibly a unit contact.

8.0 DISCUSSION AND CONCLUSIONS

In spite of paucity of outcrop, a plausible geological framework of the Blackwater-Davidson property has been established. The property is largely underlain by a generally gently east to north-dipping sequence of predominantly felsic volcanic and minor sedimentary rocks of the Ootsa Lake Group. Younger flood basalt or andesite may overlie the Ootsa Lake Group in the northeast part of the property.

The Ootsa Lake Group has been cut by a series of northeast-trending (probably steep right lateral strike slip) faults. Mineralization on the Pem grid occurs within a roughly 6.5 km wide fault-bounded block. The only other significant (although weak) mineralization on the property occurs on Kaolinite Creek, 3.5 km west of the Pem grid, within the same rough stratigraphic interval and the same northeast-trending fault block hosting the gold and silver zones.

Geophysics on the Pem grid has provided a great deal of insight into the possible structure, alteration and mineralization in the grid area.

A zone of high resistivity forms a rough bulls eye in the southwest part of the grid. Chargeability highs occur peripheral to the core of the resistivity anomaly.

A broad zone of sporadic gold-in-soil anomalies on the Pem grid is in part coincidental with a large area of high chargeability roughly 500 m across.

An IP anomaly on the Deb grid has chargeabilities almost an order of magnitude greater than those on the Pem grid. It is probably related to a different sort of geological feature than any seen in the drill-tested zones to the northwest. It may be graphitic argillite, but the area warrants a drill hole.

The most favourable exploration targets on the property as defined by the IP survey are for the most part unclosed and untested. The grids should be expanded and the anomalies drill-tested.

9.0 RECOMMENDATIONS

The following work program is recommended:

1 - 25 km of line cutting to expand coverage of the PEM and DEB grids.

2 - 22 km of IP, Mag, and VLF-EM (2 stations) surveys.

3 - Soil sampling on the new lines (total approximately 450 samples).

4 - 750 m (2500') of priority one diamond drilling.

5 - 900 m (3000') of priority two diamond drilling.

6 - Relog old core and split intervals previously unsampled.

7 - Locate and survey in all LCPs, drill holes, and several grid points (using G.P.S.).

8 - Clean-up of camp area and road right-of-way from previous programs.

Parts of this work proposal are detailed below:

GRID EXPANSION

- Lines 21, 22, 23, 24 and 25+00W on the Pem grid from 10+00S to 10+00N.
- Lines 2, 4, 6, and 8+00W on the Pem grid from the 10+00S tie line to 30+00S.
- Lines 1+00W and 1+00E on the Pem grid from the Pem 10+00S tie line to the Deb grid base line (roughly 1266 m each).
- Line 3+00E on the Pem grid from the 10+00S tie line to the northern extent of the Deb grid (roughly 866m to Deb 12+00W, 4+00N).
- Line 15+00W on the Deb grid from BL to 30+00S Pem tieline (roughly 750 m).

The lines laid out above total 22.15 km. In addition to this, a total of 2.6 km of tie lines and base lines would be needed. All of these lines total 24.75 km.

DIAMOND DRILLING

The following proposed drill holes are targeting both chargeability highs and precious metal-in-soil anomalies.

Hole Number	Location	Dip	Azimuth	Depth (m)
BD92-A	Pem; 20W, 2+50N	-60	180	150
BD92-B	Pem; 10W, 6+50S	-60	180	150
BD92-C	Pem; 11W, 4+25S	-50	180	150
BD92-D	Pem; 12W, 5+75S	-50	180	150
BD92-E	Deb; 15W, 3+50S	-60	180	150
	Total			750 m

Hole Number	Location	Dip	Azimuth	Depth (m)
BD92-F	Pem; 5W, 4+50S	-45	180	100
BD92-G	Pem; 9W, 1+50S	-45	180	150
BD92-H	Pem; 9W, 0+25N	-45	180	100
BD92-I	Pem; 9W, 6+75S	-55	180	150
BD92-J	Pem; 11W, 3+25S	-50	180	100
BD92-K	Pem; 15W, 6+00S	-55	180	150
BD92-L	Pem; 15W, 7+50S	-50	180	150
	Total			900 m

10.0 STATEMENT OF QUALIFICATIONS

I, Gordon J. Allen, do hereby certify;

1) I am a graduate in geology of the University of British Columbia (B.Sc. 1975)

2) I have practised as a geologist in mineral exploration for seventeen years.

3) I am a member in good standing of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.

4) Opinions, conclusions and recommendations contained herein are based on fieldwork and research performed by or overseen by me between June 17 and November 9, 1992.

5) I own no direct, indirect, or contingent interests in the subject property, or shares or securities of Granges Inc.

Gordon J. Allen

Vancouver, B.C.

November 9, 1992

GORDON J. ALLEN, P. GEOL.

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APPENDIX I

STATEMENT OF EXPENDITURES

APPENDIX I

STATEMENT OF EXPENDITURES TO AUGUST 31, 1992

Geological Survey	$ 22,979
Geophysical Survey (Pacific Geophysical Ltd.)	30,500
Linecutting and soil sampling	23,475
Accommodation in camp (Westar Timber Ltd.)	10,257
Analytical Costs (Acme Analytical Laboratories Ltd.)	14,136
Helicopter (Northern Mountain Helicopters)	4,757
Field Supplies (Deakin Equip., Neville Crosby Ltd.)	2,178
Equipment Rental (trucks, chain saws, radios) (Redhawk Rentals Ltd., Lone Trail Prospecting Ltd.)	7,668
Miscellaneous (mob-demob, travel, fuel, maps)	$ 8,027
Total costs to August 31, 1992:	$123,977

APPENDIX II

ROCK SAMPLE DESCRIPTIONS

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24600	G.A.	ON BLACKWATER-DAVIDSON ROAD AT KLUSKUS RD. (NOT ON CLAIM BLOCK)	JULY 17/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: 20m (+) EXPOSURE

ROCK NAME: CHERTY ARGILLITE AND SILTSTONE

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Thinly bedded (<1cm - 5cm) white and black cherty argillite and siltstone. Up to 10% fine-grained pyrrhotite in lighter-coloured beds. Graded bed indicates tops up.
Bedding: 60/25SE

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24601	G.A.	PEM CLAIM DDH DAV-11 82' (24.99 m)	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: INTERMEDIATE FLOW (?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Dark grey to greenish-grey fine-grained massive flow (?). No sulphides apparent.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

WHOLE ROCK + THIN SECTION

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24602	G.A.	DDH DAV-11 94' (28.65m) PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:

ROCK NAME: DACITIC TUFF (?) - GOUGE ZONE ?

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Silicified + clay altered. Sheared to a clay-rich rubble. Cavernous. Dull grey sulphides (1-2%) in fractures and masses to 2 mm.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK AND THIN SECTION

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: DAV-11	DATE COLLECTED:
24603	G.A.	115' (35.05m) PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [ ] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ________)

OCCURRENCE SIZE:

ROCK NAME: ANDESITE FLOW (?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Dark brownish-grey to blue-grey fine-grained massive rock. Less altered than 24602.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24604	G.A.	DAV-11 144' (43.89m) PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ________)

OCCURRENCE SIZE:

ROCK NAME: FELSIC TUFF TO LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium brown clay-rich rubble. Clay altered groundmass with fragments of fine-grained felsic volcanic material to 1 cm (rare). 0.5-2% disseminated red-brown sphalerite throughout.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK AND THIN SECTION

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: DAV-11	DATE COLLECTED:
24605	G.A.	193' (58.83 m) PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: INTERMEDIATE FLOW

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Relatively massive dark greenish-grey andesite to dacite. Some fragmental sections. 2-4% disseminated and fracture-related pyrite.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu			Other	
Geochemical								
Assay								

WHOLE ROCK + THIN SECTION

W.R. ONLY

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24606	G.A.	DAV 11 209-215' PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH 6' (m))

OCCURRENCE SIZE: UNIT 203.5-226' AU ZONE

ROCK NAME: FELSIC TUFF TO LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Light greenish - grey very broken rock. Groundmass a mixture of clay, quartz and epidote. Some parts a massive grey silica - rich material. Some parts clearly fragmental with greenish - grey fragments to 1 cm. Up to 5% disseminated pyrite. Red - brown sphalerite.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24607	G.A.	DAV-11 TS. - 263' (80.16 m) WR - 263-271' (80-82.6)	JULY 16/92

PEM CLAIM

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:
UNIT 226 - 276' (68.88 - 84.12 m)

ROCK NAME: INTERMEDIATE TO FELSIC LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

VERY DISTINCTIVE FRAGMENTAL UNIT. Light grey siliceous groundmass with: - Black angular fine-grained fragments to 1 cm
- Flow banded rhyolite fragments to 1.5 cm

Pyrrhotite in masses to 3 mm possibly replacing mafic fragments. Pyrite disseminated and in fractures. Combined sulphides 2-3%

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu			Other	
Geochemical								
Assay								

WHOLE ROCK + THIN SECTION

WHOLE ROCK +
THIN SECTION

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24608	G.A.	DAV-11 TS - 318' (96.93m) WR - 318-326' (96.93-99.36m) PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH (2.43m) CORE)

OCCURRENCE SIZE: UNIT 276-343' (84.12-104.55m)

ROCK NAME: ALTERED INTERMEDIATE TO FELSIC LAPILLI TUFF (FELSIC LAPILLI ?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Light greenish-grey fine-grained groundmass of clay, silica and epidote. Clear angular light greenish-grey fragments to ~~[illegible]~~ 5 cm. Some fragments flow banded. Some fragments with 1-2 mm quartz eyes. Sporadic 1-2% pyrite and sphalerite.

DESCRIPTION BY: G.A.

ANALYSES:

	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK + THIN SECTION

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24609	G.A.	DAV-11 T.S. - 349' (106.38m) WR - 343-354' (104.55-107.90) PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:
UNIT 343'-354' (104.55-107.90m = 3.35m)

ROCK NAME: INTERMEDIATE LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Distinct lapilli tuff. Light grey siliceous groundmass with 25-40% dark green fine-grained mafic fragments to 5cm (average 0.5-1cm). Pyrrhotite commonly replacing mafic fragments.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK AND THIN SECTION

WR

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24610	G.A.	DAV. 11 W.R. - 354-364' PEM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
UNIT 354' - 364' (107.90 - 110.95 m = 3.05 m)

ROCK NAME: FELSIC TUFF (GOLD ZONE)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
Gradational contact with above. Light greenish - grey siliceous, clay + epidote altered, with vague fragments to 1 cm. 2% pyrite and 1-2% grey sulphides, ~~trace~~ predominantly along hairline fractures. Traces disseminated sphalerite. Core badly broken. Fault?

(POLISHED THIN SECTION DESCRIBED BY HARRIS, 1987)

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

(WHOLE ROCK)

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24611	G.A.	DAV - 11 THIN SECTION: 374.5' (114.15m) WR. : 368-376' (112.17-114.61m)	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER Core
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:
UNIT 364-395' (110.95 - 114.60 = 3.66m)

ROCK NAME: MAFIC TO INTERMEDIATE FLOW (LAPILLI ?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
Dark grey-brown to purplish-grey fine-grained volcanic flow with rare quartz amygdules to 2mm; Some parts clearly fragmental with white fragments to 5mm. Trace spherulite?

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK AND THIN SECTION

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24612	G.A.	DAV 11 T.S. - 420' (128.02 m) W.R. - 406-420 (123.75-128.02) RAM CLAIM	JULY 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER CORE
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:
UNIT 395-457' E.O.H. (120.40m - 139.29m E.O.H.)

ROCK NAME: FELSIC LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Broken, rubbly core. Light grey quartz, sericite + clay groundmass with distinct fragments to 2 cm. Fragments are commonly flow-banded. Pyrite ~1%. Trace pyrrhotite and sphalerite.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK AND THIN SECTION

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24613	G.A.	~146 ON KLUSKUS ROAD	JULY 18/92

(NOT ON CLAIM BLOCK)

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ________
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ________)

OCCURRENCE SIZE:
SEVERAL METRES (+) THICK

ROCK NAME: INTERMEDIATE TO FELSIC TUFF (?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
Light grey to blue-grey siliceous medium-grained tuff interbedded with light grey very fine-grained cherty material (tuff?). 2-5% disseminated pyrrhotite. Some pyrite stringers up to 2 mm parallel to bedding. Strongly gossanous. Gabbroic sill crops out nearby. Could be contact mineralization

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24614	G.A.	PEN CLAIM	JULY 18/92

MATERIAL SAMPLED:
ROCK - OUTCROP [*] SILT [ ] SOIL [ ] OTHER
- FLOAT [*] SUBOUTCROP

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:
BLOCK ~ 30cm × 20cm × 20cm

ROCK NAME: FLOW-BANDED RHYOLITE

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Angular float near source. Light blue-grey thinly laminated flow banded rhyolite. Manganese stained.
1-2% disseminated sulphide:
- grey cubes (arsenopyrite)
- grey prisms and irregular masses (?)
- black mineral with perfect cleavage
- traces dark red-brown sphalerite

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: ON PROPERTY ACCESS ROAD, FAW 1 CLAIM	DATE COLLECTED:
24615			JULY 19

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: 75m exposure

ROCK NAME: RHYOLITE FLOW OR INTRUSION

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Manganese stained white rhyolite flow or intrusion. Massive fine-grained groundmass with 10% 1-2 mm quartz phenocrysts. 3-4% limonitic specs after ~~limonite~~ sulphides.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: RC-13 SITE, PEM CLAIM	DATE COLLECTED:
24616			JULY 19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [✓]
NEAR SOURCE

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: COARSE-GRAINED FELSIC TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

light blue-grey to ~~gr~~ greenish-grey fine-grained siliceous groundmass with white clay-altered angular fragments to 3mm (rarely to 1cm). Manganese and limonite stained. ≤1% fine-grained disseminated pyrite, ≥1% dark brown metallic mineral with good cleavage (probably sphalerite) in masses to 2mm. Traces dark grey sulphide.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: ON CAT TRAIL TO DAVE CLAIM, PEM CLAIM	DATE COLLECTED:
24617			JULY 19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [x] SILT [ ] SOIL [ ] OTHER Subooutcrop
- FLOAT [+]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ________)

OCCURRENCE SIZE:

ROCK NAME: RHYOLITE TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Rhyolite coarse-grained to lapilli tuff. Blue-grey fine-grained siliceous groundmass with 30% 1mm-2cm angular angular white kaolinitized fragments. Some flow-banding. Limonitic but no apparent sulphides.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24618	G.A.	ON ROAD, 9+88 W, 0+50S PEM CLAIM	JULY 20/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: FELSIC LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Abundant angular gossanous float probably near source. Felsic lapilli tuff with flow-banded fragments to 5cm in diameter in a fine-grained siliceous grey-brown matrix. Fragments not significantly clay altered, but not fresh. One fragment ~1.5cm wide with 15% disseminated dark grey mineral with good cleavage. Also a medium grey mineral with no cleavage (arsenide?

Most float in area manganese and limonite stained but only 2 pieces (24618+19) with significant sulphides.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24619	G.A.	ON ROAD, 9+88W, 0+50S, PEM CLAIM	JULY 20/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ________
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ________)

OCCURRENCE SIZE:

ROCK NAME: FELSIC VOLCANIC ROCK

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium blue-grey fine-grained crystalline felsic volcanic rock. Some feldspar phenocrysts apparent. Looks like an aggregate of feldspar and quartz. 8-10% disseminated very fine-grained pyrite and a grey mineral (?).

DESCRIPTION BY: C.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.: (OA92-21) 24620	TRAVERSE NO. AND/OR COLLECTOR: G.A.	LOCATION:	DATE COLLECTED:

MATERIAL SAMPLED:
ROCK - OUTCROP [*] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]
* SUBOUTCROP

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: RHYOLITE LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Light grey fine-grained siliceous groundmass hosting white clay-altered flow-banded rhyolite fragments to 10 cm (average ~1-2 cm). Dark brown glassy porphyroblasts, probably garnet, in patches to 2 cm. Sporadically gossanous.

Garnet commonly replacing felsic fragments in this area.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24621	G.A.	SOUTH OF 'CONTROL LAKE'. OFF CLAIM BLOCK (W OF FAW 1)	JULY 22/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: INTERMEDIATE FLOW BRECCIA ?, TUFF ?

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Inhomogeneous, confusing outcrop. Dark grey to maroon hematitic silicic fine-grained groundmass with 15% subhedral feldspar prisms to 2 mm (average 1-2 mm). Fragmental-like weathered surface. Some crude laminae could be flow banding. Some quartz-filled vugs with jasper rims (2 mm - 2 cm). Could be a poorly packed pyroclastic or possibly flow breccia with intercalated beds of tuff. Piece sent for thin section is amygdaloidal.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WHOLE ROCK, THIN SECTION

WR, TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24622	G.A.	NORTH OF CONTROL LAKE. OFF CLAIM BLOCK W. OF FAW 1	JULY 23/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: QUARTZ-FELDSPAR CRYSTAL TO LITHIC TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium to coarse-grained crystal tuff matrix composed of a light grey fine-grained siliceous matrix hosting 25% ≤1 mm stubby subhedral feldspar crystal fragments, 15% <1-2 mm subrounded and subhedral quartz crystal fragments, and 20-25% lithic fragments ranging from <1 mm to 10 cm (averaging ≤1 cm). Lithic fragments are generally dark grey to brown aphanitic intermediate volcanic rocks. Some ~~have~~ however are fine to coarse-grained feldspar porphyries. Same rock type seen south to northwest of Mount Davidson. Very distinctive unit.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu			Other	
Geochemical								
Assay								

WHOLE ROCK, THIN SECTION.

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.: (GA92-60) ~~GA 92-23~~ 24623	TRAVERSE NO. AND/OR COLLECTOR: G.A.	LOCATION: ON DAVIDSON CREEK ~40m UP STREAM FROM ROAD. KEN CLAIM	DATE COLLECTED: JULY 25

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: SEDIMENTARY BRECCIA ?

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium grey medium-grained feldspar crystal tuff (?) with angular black (carb) argillite fragments to 1cm (average <1cm). Some aphanitic fine-grained felsic fragments + medium-grained tuff. Moderate limonite staining. Trace pyrite. The rock could be part of a major fault zone.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24624	G. A.	IN CREEK SOUTH OF DAVIDSON CR. KEN CLAIM	JULY 25

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ____
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ____)

OCCURRENCE SIZE:
SUBROUNDED BOULDER

ROCK NAME: FELSIC LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Greenish cherty felsic lapilli tuff with limonite and manganese stain

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24625	G.A.	RIDGE NW OF MT. DAVIDSON, FAW 3 CLAIM	~~30~~ AUG. 8, '92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: 7-8m WIDE ZONE

ROCK NAME: ALTERED QUARTZ - FELDSPAR CRYSTAL TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Original rock as 24622. Groundmass bleached to a pale blue-grey; probably a kaolinite alteration. Trace pyrite. Limonitic on fracture surfaces. Some vuggy quartz stringers in area may be related to faulting.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24626	G.A.	NORTH FACING SLOPE OFF AND NW RIDGE OFF MT. DAVIDSON. FAW 2 CLAIM	AUG. 9, 1992

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ____
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ____)

OCCURRENCE SIZE:
200m × 300m zone of alteration

ROCK NAME: ALTERED QUARTZ - FELDSPAR CRYSTAL TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Intensely altered quartz - feldspar crystal tuff. Only 10-15% rounded 1-2mm quartz grains unaltered. Light brownish grey soft kaolinitic groundmass. Some feldspar cleavage faces still apparent. 20% masses to 5mm of light green waxy propylitic alteration. Sporadic manganese and limonite staining. No sulphides observed.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24627	G.A.	As 24626 FAW 2 CLAIM	Aug. 9, 1992

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
200m x 300m alteration zone

ROCK NAME: ALTERED QUARTZ - FELDSPAR CRYSTAL TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

As 24626. Propylitic patches probably altered lithic fragments.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24628	G.A.	As 24626 FAW 2 CLAIM	AUG. 9/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
200m × 300m ALTERATION ZONE

ROCK NAME: ALTERED QUARTZ-FELDSPAR CRYSTAL TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

As 24626

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24629	G.A.	NORTH SIDE OF NW RIDGE OFF MT. DAVIDSON FAW 3 CLAIM	AUG. 9/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: SPORADIC 100m WIDE ALTERATION ZONE

ROCK NAME: ALTERED QUARTZ - FELDSPAR CRYSTAL TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

As 24626. Strong kaolinite alteration. Mn stain. No sulphides.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24630	G.A.	Below 24628, FAW 2 CLAIM	AUG. 10 /92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
200m × 300m ALTERATION ZONE

ROCK NAME: ALTERED QUARTZ-FELDSPAR CRYSTAL TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

As 24626. No manganese stain.

DESCRIPTION BY: C.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24631	G.A.	SOUTH SIDE 'KAOLINITE CR.', FAW 2 CLAIM	AUG. 10/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
100m exposure

ROCK NAME: MASSIVE RHYOLITE FLOW

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Pale greenish-grey aphanitic massive cherty rhyolite with 5% ≤ 1mm feldspar phenocrysts. Trace very fine-grained pyrite. <1% @ red-brown specs (sphalerite?) and dark blue-grey sulphide. Very fine-grained, but could be galena.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu			Other	
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24632	G.A.	SOUTH SIDE OF 'KAOLINITE CREEK', FAW 2 CLAIM	AUG 10/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]
SUBOUTCROP - NEAR SOURCE

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
100 m mineralized exposure.

ROCK NAME: RHYOLITE LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
Blue-grey siliceous to white kaolinitic felsic coarse-grained to lapilli tuff with flow-banded fragments. Sporadic manganese stain. 2-3% limonitic specs after pyrite. Trace dark grey, metallic mineral with good cleavage.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

ICP
WR
TS

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24633	G.A.	S. SIDE 'KAOLINITE CR.', FAW 2 CLAIM	AUG. 10/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ____
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ____)

OCCURRENCE SIZE: 100 m exposure

ROCK NAME: RHYOLITE FLOW

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Blue-grey massive aphanitic rhyolite. Siliceous. 5% <1 mm feldspar phenocrysts. <1% fine-grained disseminated pyrite. <1% red-brown sphalerite in <<1 mm masses, traces arsenopyrite in crystals to 1 mm, traces black metallic sulphide.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24634	G.A.	S. SIDE 'KAOLINITE CR.', FAW 2 CLAIM	Aug. 10/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
100m exposure

ROCK NAME: RHYOLITE FLOW

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
Light grey massive rhyolite. Aphanitic. 3-5% fine-grained disseminated pyrite. Limonite staining

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

WR, TS

CAPOOSE
~~BLACKWATER — DAVIDSON~~ PROJECT (~~120~~) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.: 24635	TRAVERSE NO. AND/OR COLLECTOR: G.A.	LOCATION: CAPOOSE, CAMP AREA	DATE COLLECTED: AUG. 1/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: UNIT 6(?) - QUARTZ GARNET RHYOLITE FLOW

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium grey aphanitic siliceous cherty groundmass with 3-5% specs of chloritic mafics, rare feldspar phenocrysts to 1 mm, 5% rounded quartz eyes to 3 mm (average < 1 mm) and 5% red-brown garnet in mass to 1 mm. 5% fine-grained disseminated sulphides : - PYRITE
- DARK GREY SULPHIDE
- TRACES SPHALERITE

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

WR, TS

~~BLACKWATER - DAVIDSON~~ PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24636	G.A.	CAPOOSE, CAMP AREA	AUG. 1

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: UNIT 7 (?) - GARNET RHYOLITE FLOW

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Light to medium grey fine-grained sugary textured rhyolite with 7-10% red-brown garnet increase <1 mm to 1 cm. Garnet probably secondary.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WR, TS

~~BLACKWATER - DAVIDSON~~ PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24637	G.A.	CAPOOSE, CAMP AREA	AUG. 1

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: UNIT 8 (?) - RHYOLITE

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Light to medium grey aphanitic siliceous rhyolite. Trace red-brown garnet. 5% disseminated pyrite. 1-2% dark grey sulphide.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

WR, TS

~~BLACKWATER - DAVIDSON~~ PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24638	G.A.	CAPOOSE CAMP AREA	AUG. 1/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: UNIT 9 (?) - QUARTZ - GARNET PORPHYRY

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Light to medium grey aphanitic siliceous groundmass hosting 15% rounded generally ≤1 mm quartz eyes and 7-10% red-brown garnet in masses to 3mm (average 1-2 mm).

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: DEB GRID 12+07 W, 0+70 N DEB CLAIM	DATE COLLECTED:
24639	G. A.		AUG. 16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
~ 5-7m EXPOSURE (INTERMITENT ALONG STRIKE)

ROCK NAME: ARGILLITE

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Fine-grained black argillite. Vague bedding striking ~ 025°. Dip unclear. ~ 1-2% very fine-grained disseminated pyrite. Probably cause a good IP response. Some 5-8mm wide bodies - possibly worm burrows.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24640	G.A.	DEB GRID, 12+05W, 0+70N DEB CLAIM	AUG.16/92

MATERIAL SAMPLED:
ROCK - OUTCROP [✓] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: 3m EXPOSURE

ROCK NAME: FELSIC TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Unit adjacent argillite (24639). Dark blue-grey fine-grained siliceous felsic tuff. Aphanitic groundmass with angular fragments to 1mm. 3-4% fine-grained disseminated pyrite. Some pyrite on fractures also. Unit is possibly a siliceous siltstone. Sulphide content would definitely cause IP response.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24641	G.A.	PEM GRID, 19+00W, 0+92 S PEM CLAIM	AUG. 19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: 2 ANGULAR BOULDERS UP TO 30 cm x 50 cm x ?

ROCK NAME: FELSIC LAPILLI TUFF

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

At least 2 pieces of same rock type at site. Probably near source. Mottled medium grey to medium blue-grey and light grey silicified fine-grained felsite to felsic lapilli tuff. Fragments up 30% of rock, to 2 cm in diameter. Some vaguely flow-banded. Most commonly just fine-grained crystalline felsite. Mineralized with 3-5% fine-grained disseminated and fracture-related (discontinuous, 1-2mm) pyrite, and 2-3% fine-grained grey sulphides as above. Trace euhedral brassy to grey prismatic sulphide crystals to 1 mm long.

DESCRIPTION BY: G.A.

ANALYSES: Au Ag As Cu Other

Geochemical ______ ______ ______ ______ ______ ______ ______ ______

Assay ______ ______ ______ ______ ______ ______ ______ ______

Fragments commonly partly replaced by a fine-grained pinkish-brown mineral. Probably garnet.

Some brassy sulphides have a relatively good cleavage. Pyrrhotite?

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: PEM GRID, 19+00W, 0+92S PEM CLAIM	DATE COLLECTED:
24642	G.A.		AUG.19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
BOULDER 15cm x 20cm x 20cm

ROCK NAME: FELSITE (INTRUSION ?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium to dark blue-grey fine-grained crystalline felsite with 5% fine-grained submetallic black specs. Non magnetic

DESCRIPTION BY: G.A.

ANALYSES: Au Ag As Cu Other

Geochemical ______ ______ ______ ______ ______ ______ ______ ______

Assay ______ ______ ______ ______ ______ ______ ______ ______

ICP

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24643	G.A.	PEM GRID 19+05W, 1+07 S PEM CLAIM	AUG. 19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: LARGE ANGULAR BOULDER 1m x 2m x ?

ROCK NAME: FELSITE (INTRUSION ?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Medium blue-grey fine-grained crystalline felsite. 1% fine-grained disseminated pyrrhotite. 5% disseminated black metallic oxide (?). (Submetallic) Nonmagnetic. Similar to 24642.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24644	G.A.	PEM GRID 17+35W, 4+18S PEM CLAIM	AUG. 19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [✓]

ROCK SAMPLE TYPE:
GRAB [✓] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
COBBLE - SUBROUNDED, 5cm x 10cm x 20cm

ROCK NAME: FELSITE

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Similar to 24641. Only one piece in creek at this location. Most cobbles of quartz-feldspar crystal tuff.

Mottled light grey to bluish-grey fine-grained crystalline felsite. Gossanous. 1-2% fine-grained disseminated pyrite. Some irregular masses to 2mm. 3-4% fine-grained grey sulphide occurring as above. One 1cm² patch of bright yellow oxide stain could be greenockite (cadmium oxide) suggesting significant sphalerite content.

2% fine-grained pinkish-brown specs could be garnet.

DESCRIPTION BY: G.A.

ANALYSES:	Au	Ag	As	Cu			Other
Geochemical							
Assay							

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24700	Ross Zawada	35m @ 259° PEM Grid from PC 21	July 25th/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [X]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: $2m^2$

ROCK NAME: Intermediate Flow.

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

- massive intermediate volcanic rock with feldspar phenocrysts. The rock is weakly gossanous, but has no visible sulfides. Weakly magnetic. Manganese staining is quite pervasive on weathered surface, but virtually non-existant on fresh surfaces, possibly indicating a very recent manganese stain as a result of groundwater (?)

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: PEM GRID	DATE COLLECTED:
24701	ROSS ZAWADA	10m W. of sample # 24700	July 25th/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [x]

ROCK SAMPLE TYPE:
GRAB [y] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:
2m²

ROCK NAME: Felsic Lapilli Tuff

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
- Rock occurs as angular float on drill road. Exposed surfaces are completely covered with manganese staining. Fragments are weakly to moderately clay altered while the matrix maintains a relatively fresh look. Occasional weathered out sulfide (?) vugs but no visible sulfides are found in the sample. The sample is non-magnetic.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24702	Ross Zawada	PEM GRID NEAR DAV 13	July 25th

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ________
- FLOAT [X]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ________)

OCCURRENCE SIZE: $2 m^2$

ROCK NAME: Felsic coarse Tuff

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

- Rock is strongly clay altered making the rock somewhat friable. Weakly magnetic with relic pyrite and Tr(?) of a dark grey unidentifiable sulfide(?). Rock occurs as angular to sub-angular float

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24703	ROSS ZAWADA	PEM GRID 900S/900W	July 25th

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [X]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: __

ROCK NAME: Coarse Felsic Tuff.

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

The rock is a coarse felsic tuff with abundant fragments that have been re-fractured. The rock is sericite & clay altered. Trace pyrite is observed which results in a gossanous appearance to the rock. The rock is non-magnetic. The rock is most certainly float and is located on the N.E. end of a N.E. trending esker.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24704	Ross Zawada	PEM GRID 900S/900W	July 25th

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [x]

ROCK SAMPLE TYPE:
GRAB [x] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: 1 m²

ROCK NAME: Quartz-Feldspar phyric Lapilli Tuff

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

The rock sample is probably float, found as large angular-subangular blocks. The rock appears to be weakly clay altered with some fragments appearing weakly gossanous on fresh surface. No visible sulfides are present & the rock is non-magnetic

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other	
Geochemical							
Assay							

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
RZ 24705	R. Zawada	Mt. Davidson FAW5	July 27th

MATERIAL SAMPLED:
ROCK - OUTCROP [X] SILT [ ] SOIL [ ] OTHER ____
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ____)

OCCURRENCE SIZE:
See 1:10,000 map.

ROCK NAME: Quartz - feldspar phyric Tuff.

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)
RZ9204 for whole rock.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24707	Ross Zawada	FAW 3	Aug 8th

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [X]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: $5m^2$ of Angular float

ROCK NAME: Quartz-feldspar phyric Tuff

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Tuff is clay altered to give it a creamy white color with minor manganese staining. Trace sulfide, possibly bornite (?) or maybe simply weathered pyrite. Possibly some other dk grey sulfide, but very small + could be manganese. Non-Magnetic

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24708	Ross Zawada	FAW 3	Aug 8th

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [X] OTHER
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [ ] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH)

OCCURRENCE SIZE:

ROCK NAME: Soil

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

- reddish soil down slope of numerous small weakly gossans + clay altered outcrops of 3Cx. Elev. 5200 ft.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24709	Ross Zawada	FAW 3	Aug 8th

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [x]

ROCK SAMPLE TYPE:
GRAB [x] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: $10 m^2$

ROCK NAME: Quartz-feldspar Phyric Tuff

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

The rock is found as a talus fan originating from o/c at higher elevations up the valley slope. It is moderately clay altered with some probable sericite alteration as well. The rock is weakly gossanous but contains no visible sulfides.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu	Other			
Geochemical								
Assay								

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION:	DATE COLLECTED:
24710	Ross Zawada	FAW3 Kaolinite Creek	Aug 10th

MATERIAL SAMPLED:
ROCK - OUTCROP [X] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [ ]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE: $15 m^2$

ROCK NAME: Quartz - feldspar Phyric Tuff

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

Unit occurs as a small isolated outcrop in the middle of the fault valley. the rock is kaolinite (?) altered to a dull grey color. The alteration has obliterated much of the original texture with the exception of the quartz xtals. Trace sulfides that are very fine grained [illegible]

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu	Other		
Geochemical							
Assay							

BLACKWATER - DAVIDSON PROJECT (120) : ROCK SAMPLE DESCRIPTION

SAMPLE NO.:	TRAVERSE NO. AND/OR COLLECTOR:	LOCATION: PEM GRID	DATE COLLECTED:
24711	ROSS ZAWADA	1900W/125S	Aug 19/92

MATERIAL SAMPLED:
ROCK - OUTCROP [ ] SILT [ ] SOIL [ ] OTHER ______
- FLOAT [X]

ROCK SAMPLE TYPE:
GRAB [X] CHIP [ ] CHANNEL [ ] (SAMPLE WIDTH ______)

OCCURRENCE SIZE:

ROCK NAME: Fine Grained Felsic Intrusion (?)

SAMPLE DESCRIPTION: (If Rock, Include Colour, Texture, Rock Forming Minerals, Mineralization, and Etc.)

The rock is a bluish-grey in color, massive & silica rich. ±2mm euhedral fsp's It is non-magnetic but contains 5-8% sulfides that appear to be "white" pyrite.

DESCRIPTION BY:

ANALYSES:	Au	Ag	As	Cu		Other		
Geochemical								
Assay								

APPENDIX III

CERTIFICATES OF ANALYSIS

BLACKWATER–DAVIDSON

1992 SAMPLE CHECKLIST

Shipment	Date Out	Sample Numbers	Rock	Soil	Silt	Pan	Heav	WR	TS	PTS	Hg	Lab	Report No.	Date
92BD–1	July 21	24600	1									Acme	92–2043	July 28
		24613–24619	7									Acme		
92BD–2	July 21	24601–24612						12				Xral	12939	Sept. 9
		24601–24605							5			C.L.	Aug. 28	
		24607, 24609, 24611							3			C.L.	Aug. 28	
		24612, 24620 (GA92–21)							2			C.L.	Aug. 28	
92BD–3	July 27	24623, 24624	2									Acme	92–2216	Aug. 10
		24700–24704	5									Acme		
		BD Silt 1–4			4							Acme		
		9W: 0S–1000S (Pem)		39								Acme		
92BD–4	July 27	24621, 24622, 24705						3	3			Xral,C.L.	12927	Sept. 9
92BD–5	July 27	BD–H1, BD–H2					2					MinEn	2V–0739–HJ1	Aug. 31
92–BD6	July 30	BD Silt 5, 6			2							Acme	92–2333	Aug. 18
		BD–Pan 1, 2				2						Acme		
92–BD7	July 30	BD–H3 – BD–H7					5					MinEn	2V–0753–HJ1	Aug. 31
92–BD8	August 16	24625 – 24634	10									Acme	92–2642	Aug. 31
		24639, 24640	2									Acme		
		24207, 24209, 24210	3									Acme		
		BD Silt 7			1							Acme		
		BD Pan 3 – 11				9						Acme		
		Deb Grid Soils		339								Acme		
92–BD9	August 15	BD–H9 – 14					6					MinEn	2V1002	
92–BD10	August 15	24633, 24635–24638						5				Xral	13168	Sept. 9
		24633								1		C. L.	Sept. 7	
		24635–24638							4			C. L.	Sept. 7	
92–BD11	August 21	24641–24644, 24711	5									Acme	92–2739	Sept. 3
		BD–Silt 8			1							Acme		
		BD Pan 12–13				2						Acme		
		Pem Soils		577								Acme		
92–BD12	August 21	BD–H15					1					MinEn	2V–0882–HJ1	
92–BD13	August 24	24645–24649 (Nasco)	5									Acme	92–2766	Sept. 2
92–BD14	August 25	Pem Soils: 9W, 0–10S									39	Acme	92–2216R	Sept. 2
		Pem Soils: 9W, 11W, 13W									148	Acme		
		24623, 24624									2	Acme		
		24700 – 24704									5	Acme		
TOTALS			40	955	8	13	14	20	17	1	194			

ACME ANA[illegible]TICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX([illegible] 253-171[illegible]

GEOCHEMICAL ANALYSIS CERTIFICATE

Granges Inc. PROJECT 92-BD1 File # 92-2043 JUL 30 1992
2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au** ppb
24600-X	10	33	9	56	.3	17	8	380	2.77	18	5	ND	1	63	.4	2	2	31	.92	.034	4	18	.64	68	.05	3	1.98	.26	.25	1	2	1	1
24613-X	4	45	3	47	.2	6	11	219	3.42	3	5	ND	1	22	.3	2	2	43	.47	.087	5	10	.42	15	.12	4	.88	.10	.10	1	2	1	1
24614-X	2	10	236	385	7.2	5	1	2428	.51	521	5	ND	5	6	2.9	13	2	1	.02	.004	7	4	.01	28	.01	2	.17	.01	.19	1	2	1	7
RE 24616-X	5	45	348	1220	4.8	9	3	1679	.86	303	5	ND	6	8	12.0	14	2	1	.08	.028	9	18	.02	35	.01	4	.28	.01	.21	1	2	1	49
24615-X	2	4	51	94	1.1	3	1	2038	.25	70	5	ND	10	22	.4	2	2	1	.02	.004	5	5	.01	29	.01	3	.23	.01	.19	1	2	1	5
24616-X	5	47	359	1253	4.9	11	4	1706	.87	302	5	ND	6	8	12.5	14	2	2	.08	.029	9	20	.02	35	.01	5	.29	.01	.22	1	2	1	46
24617-X	1	19	28	45	1.7	3	1	47	1.06	41	5	ND	4	4	.3	2	2	1	.01	.006	10	4	.01	38	.01	3	.18	.01	.18	2	2	1	143
24618-X	4	21	1639	1526	14.4	6	1	96	1.20	40	5	ND	7	8	8.0	14	5	2	.07	.034	10	7	.01	94	.01	3	.25	.01	.23	1	2	1	463
24619-X	44	27	29	29	1.0	22	10	91	3.41	94	5	ND	1	41	.3	2	2	53	.60	.101	4	61	.11	48	.44	2	.36	.06	.09	1	2	1	95
STANDARD C/AU-R	19	56	38	131	7.5	70	32	1048	3.95	42	19	7	41	52	19.2	14	21	57	.48	.091	39	58	.88	176	.09	35	1.87	.07	.15	11	2	1	494

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

DATE RECEIVED: JUL 22 1992 **DATE REPORT MAILED:** July 28/92 **SIGNED BY** ....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

130.04009

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

GEOCHEMICAL ANALYSIS CERTIFICATE

AUG 13 1992

Granges Inc. PROJECT BLACKWATER-DAVIDSON File # 92-2216 Page 1

2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au** ppb
24623-X	3	51	5	102	.2	21	12	709	3.48	4	5	ND	4	15	.2	3	2	21	.23	.096	15	8	.06	80	.01	7	.47	.03	.26	1	2	1	6
24624-X	2	4	9	22	.1	4	1	674	.51	5	5	ND	7	103	.3	2	2	1	.95	.018	16	4	.02	36	.01	2	.26	.03	.24	1	2	1	1
24700-X	2	7	11	483	.1	18	9	828	2.71	4	5	ND	9	41	.5	2	4	46	.44	.052	9	39	.61	28	.13	2	1.31	.14	.43	1	2	1	1
24701-X	1	6	76	651	1.4	8	9	8533	2.08	13	5	ND	4	14	4.1	4	2	14	.09	.046	12	13	.25	72	.01	2	.76	.03	.19	1	2	1	1
24702-X	1	140	77	1689	17.7	43	31	9911	2.47	254	5	ND	3	21	2.6	15	2	11	.24	.135	21	7	.04	59	.02	5	.46	.01	.30	1	2	1	1
RE 24701-X	1	7	76	656	1.4	8	10	8540	2.07	14	5	ND	4	13	4.1	3	2	14	.09	.046	13	13	.25	71	.01	3	.75	.03	.19	1	2	1	1
24703-X	6	47	2310	121	3.1	1	2	135	1.94	117	45	ND	12	21	1.3	9	3	1	.01	.120	32	3	.01	104	.01	3	.45	.01	.25	1	2	1	26
24704-X	5	110	211	869	7.9	7	4	1566	5.66	111	5	ND	5	14	1.7	12	8	32	.05	.121	12	24	.16	56	.18	2	1.39	.01	.80	1	3	1	167
STANDARD C/AU-R	19	56	37	129	7.4	73	31	1031	3.92	43	20	7	39	52	18.6	15	19	56	.47	.089	38	57	.87	174	.09	34	1.85	.06	.15	11	2	2	479

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: P1 ROCK P2 TO P3 SOIL P4 SILT AU** ANALYSIS BY FA/ICP FROM 10 GM SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: JUL 30 1992 **DATE REPORT MAILED:** Aug 10/92 **SIGNED BY** C Leong ..D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au** ppb
9W 00S	1	7	79	235	.9	4	5	437	2.10	35	5	ND	2	20	.2	3	5	42	.17	.027	10	16	.22	42	.11	3	1.03	.01	.04	1	2	1	27
9W 25S	1	9	122	208	.1	5	4	648	1.81	37	5	ND	1	27	.4	2	2	37	.24	.025	14	13	.14	48	.08	2	1.05	.01	.06	1	2	1	336
9W 50S	1	11	79	208	.5	9	7	796	2.12	15	5	ND	1	34	.3	2	2	47	.30	.044	13	16	.23	64	.09	2	1.39	.01	.07	1	2	1	14
9W 75S	1	7	94	272	.2	8	8	677	2.56	26	5	ND	1	22	.2	2	6	54	.22	.026	9	22	.30	51	.14	3	1.15	.01	.08	1	2	1	79
9W 100S	1	13	39	283	1.0	10	7	529	2.21	11	5	ND	1	35	.5	2	4	43	.36	.035	13	18	.33	46	.15	2	1.56	.01	.05	1	2	1	13
9W 125S	2	24	67	396	2.1	12	13	1733	2.91	20	5	ND	1	52	1.8	2	3	50	.43	.089	18	19	.33	76	.02	2	2.88	.01	.10	1	2	1	6
9W 150S	1	13	51	183	.6	6	5	903	1.73	4	5	ND	1	33	.6	2	2	33	.26	.037	12	15	.25	54	.05	2	1.36	.01	.06	1	2	1	3
9W 175S	1	11	65	166	.8	9	5	354	1.68	6	5	ND	1	24	.5	2	2	34	.23	.027	11	16	.31	43	.09	2	1.37	.01	.05	1	2	1	36
9W 200S	1	12	224	254	1.3	6	7	520	1.73	17	5	ND	1	27	.4	2	3	35	.22	.038	10	14	.27	47	.09	2	1.48	.01	.07	1	2	1	14
9W 225S	1	9	26	121	.6	6	6	277	2.97	6	5	ND	4	12	.5	2	2	48	.11	.155	7	20	.23	42	.12	3	3.19	.01	.03	1	2	1	13
9W 275S	1	15	44	130	.5	9	8	321	2.54	9	5	ND	1	33	.3	2	2	46	.24	.062	13	21	.30	76	.13	3	2.13	.01	.06	1	2	1	34
9W 325S	1	10	25	100	.1	7	6	278	3.38	6	5	ND	2	18	.3	2	3	68	.17	.057	8	20	.27	41	.29	2	1.33	.01	.05	1	2	1	3
9W 350S	1	8	47	130	.3	9	5	315	2.07	5	5	ND	2	23	.3	2	3	42	.17	.029	9	16	.31	57	.21	3	1.32	.01	.06	1	2	1	5
9W 375S	1	7	42	61	.1	3	2	141	1.04	5	5	ND	1	13	.2	2	2	25	.11	.023	9	9	.08	37	.13	2	.94	.01	.04	1	2	1	143
9W 400S	1	10	34	122	.3	5	6	219	2.55	12	5	ND	3	15	.2	2	3	46	.13	.059	9	16	.20	44	.15	2	1.53	.01	.05	1	2	1	21
9W 425S	1	8	35	60	.1	2	2	165	1.38	2	5	ND	1	14	.2	2	2	30	.10	.028	10	11	.10	42	.16	4	.91	.01	.04	1	2	1	3
9W 450S	1	8	28	71	.3	3	4	152	1.89	7	5	ND	1	12	.2	2	2	37	.09	.052	8	15	.12	34	.13	2	1.63	.01	.04	1	2	1	45
9W 475S	2	6	26	63	.2	2	4	139	3.23	8	5	ND	1	10	.4	2	5	55	.08	.111	8	16	.12	39	.12	2	1.68	.01	.04	1	2	1	18
9W 500S	1	7	31	80	.4	5	4	235	1.92	6	5	ND	2	15	.2	2	3	36	.12	.035	9	13	.19	37	.15	2	1.06	.01	.05	1	2	1	24
9W 525S	1	9	30	63	.2	2	3	137	1.60	2	5	ND	1	14	.6	2	5	32	.10	.030	10	11	.13	43	.15	6	.99	.01	.04	1	2	1	10
9W 550S	1	9	41	170	.5	6	4	184	1.98	6	5	ND	2	12	.5	2	6	35	.10	.047	9	16	.15	47	.12	2	1.80	.01	.05	1	2	1	94
9W 575S	1	14	35	332	.5	8	6	242	3.07	11	5	ND	4	15	.8	2	6	55	.11	.065	10	19	.21	50	.17	2	2.30	.01	.04	1	2	1	7
9W 600S	2	9	21	80	.4	5	5	160	3.28	5	5	ND	2	12	1.6	2	2	50	.09	.078	8	19	.17	46	.13	2	2.27	.01	.05	1	2	1	18
9W 625S	1	9	14	52	.2	3	5	153	3.08	6	5	ND	3	12	.2	2	2	57	.08	.075	9	18	.15	42	.16	2	1.93	.01	.04	1	2	1	16
9W 650S	1	7	34	89	.1	5	4	184	2.61	5	5	ND	1	12	.2	2	2	48	.09	.048	9	15	.19	46	.15	3	1.80	.01	.04	1	2	1	1
9W 675S	2	17	22	135	.3	13	8	323	3.16	9	5	ND	1	16	.4	2	4	48	.10	.067	9	20	.42	62	.10	3	2.43	.01	.10	1	2	1	3
9W 700S	2	11	16	56	.5	5	6	197	2.52	8	5	ND	2	15	.2	2	2	47	.09	.056	10	17	.22	55	.14	7	1.69	.01	.06	1	2	1	5
9W 725S	1	13	20	62	.4	6	6	233	2.16	8	5	ND	1	16	.2	2	3	44	.11	.048	10	17	.22	57	.13	2	1.24	.01	.07	1	2	1	196
9W 750S	1	10	17	76	.1	10	6	243	2.23	3	5	ND	1	16	.2	2	5	47	.13	.035	9	18	.31	43	.20	3	1.38	.01	.05	1	2	1	16
9W 775S	1	8	23	80	.2	7	6	265	2.12	2	5	ND	1	12	.2	2	7	49	.10	.034	8	16	.36	38	.18	2	1.30	.01	.07	1	2	1	1
9W 800S	1	10	15	56	.2	6	5	193	2.80	3	5	ND	2	15	.2	2	2	54	.12	.074	7	16	.20	48	.19	3	1.24	.01	.04	1	2	1	11
RE 9W 725S	2	10	25	64	.5	7	6	225	2.19	10	5	ND	1	15	.2	2	3	44	.10	.051	10	19	.22	51	.13	5	1.26	.01	.07	1	2	1	338
9W 825S	1	8	9	42	.1	4	5	166	2.77	9	5	ND	2	11	.2	2	3	55	.10	.080	7	16	.14	26	.15	4	1.23	.01	.05	1	2	1	7
9W 850S	2	9	11	59	.1	5	5	175	2.48	2	5	ND	2	13	.2	2	2	47	.11	.081	8	19	.18	39	.16	2	2.46	.01	.03	1	2	1	8
9W 875S	1	10	12	53	.4	8	6	175	2.44	2	5	ND	4	14	.2	2	2	49	.10	.057	8	19	.20	55	.17	2	2.20	.01	.04	1	2	1	1
9W 900S	2	27	687	348	4.7	8	7	190	2.10	32	5	ND	6	14	.6	5	4	34	.06	.099	14	18	.15	55	.09	2	2.16	.01	.05	1	2	1	78
9W 925S	1	9	66	62	.5	4	3	209	1.30	18	5	ND	1	19	.2	2	5	27	.20	.051	10	11	.13	43	.10	2	.66	.01	.11	1	2	1	12
STANDARD C/AU-S	20	60	41	132	7.3	71	32	1064	3.97	40	22	7	41	53	18.6	14	19	60	.48	.091	40	59	.88	177	.09	37	1.89	.07	.15	11	2	3	52

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au** ppb
9W 950S	1	10	17	34	.3	5	3	171	1.37	4	5	ND	2	16	.2	2	3	32	.15	.023	9	15	.12	46	.21	2	.76	.01	.06	1	2	1	26
9W 975S	2	8	14	43	.1	4	3	194	2.19	4	5	ND	1	12	.2	2	2	47	.12	.055	7	15	.13	32	.17	2	1.00	.01	.06	1	2	1	20
9W 1000S	1	10	10	50	.1	6	5	160	3.26	4	5	ND	1	14	.2	2	2	64	.10	.064	8	21	.17	35	.14	2	2.38	.01	.05	1	2	1	9

Sample type: SOIL.

ACME ANALYTICAL

Granges Inc. PROJECT BLACKWATER-DAVIDSON FILE # 92-2216

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au** ppb
BD SILT 1	2	4	19	103	.6	11	6	1865	2.00	61	5	ND	1	36	.4	3	3	23	.32	.040	12	11	.19	80	.05	5	1.02	.01	.05	1	2	1	7
BD SILT 2	2	12	21	136	.9	7	5	711	1.65	61	16	ND	1	58	.3	2	2	24	.53	.073	19	13	.21	68	.04	3	1.26	.01	.07	1	2	1	9
BD SILT 3	4	11	17	99	1.0	12	8	1343	1.96	52	5	ND	1	78	.6	2	2	28	.51	.098	18	14	.24	97	.03	4	2.17	.01	.08	1	2	1	6
BD SILT 4	3	9	9	76	.1	9	9	1164	2.28	22	5	ND	1	35	.3	2	6	37	.29	.057	12	14	.25	62	.08	2	1.15	.02	.09	1	2	1	14
STANDARD C	20	60	38	137	7.1	71	31	1074	4.05	42	22	7	38	53	18.9	13	21	58	.49	.091	39	59	.89	182	.09	35	1.91	.07	.15	11	2	2	-

Sample type: SILT.

COMP: GRANGES INC.
PROJ: BLACKWATER-DAVIDSON (120)
ATTN: GORDON ALLEN/BRUCE DOWNING

MIN-EN LABS — ICP REPORT

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

SEP - 4 1992

FILE NO: 2V-0739-HJ1
DATE: 92/08/31
* HEAVY MINERAL * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL %	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA %	CD PPM	CO PPM	CU PPM	FE %	K %	LI PPM	MG %	MN PPM	MO PPM	NA %	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB
BD-H1	.1	1.66	1	12	86	.1	17	1.93	.1	12	14	3.78	.05	8	.37	942	1	.01	10	1830	19	1	150	1	3404	107.2	82	1	5	3	28	5
BD-H2	.1	1.38	1	9	50	.1	19	1.60	.1	13	9	4.26	.03	5	.38	949	1	.01	1	890	8	1	126	1	3893	122.6	51	1	3	3	22	4

ACME ANA ICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(6(253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

AUG 20 1992

Granges Inc. PROJECT BLACKWATER-DAVIDSON File # 92-2333 Page 1

2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
BD SILT 5	1	10	29	364	.5	13	8	941	2.59	22	5	ND	3	29	1.1	2	2	45	.32	.066	12	20	.41	57	.09	2	1.07	.03	.11	1	175
BD SILT 6	1	4	7	53	.1	7	4	385	1.13	7	5	ND	1	36	.2	2	2	27	.39	.062	10	18	.20	47	.05	2	.72	.01	.04	1	3
RE BD SILT 5	1	10	33	358	.4	12	8	930	2.48	23	5	ND	3	29	1.0	4	2	43	.32	.066	12	19	.39	56	.09	2	1.08	.03	.11	1	754

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1 SILT P2 PAN CONC. AU** ANALYSIS BY FA/ICP FROM 10 GM SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 5 1992 DATE REPORT MAILED: Aug 18/92 SIGNED BY C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL

Granges Inc. PROJECT BLACKWATER-DAVIDSON FILE # 92-2333

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
BD PAN 1	1	9	22	309	.2	10	7	568	2.34	21	5	ND	4	27	.5	3	2	45	.31	.049	12	19	.32	49	.10	3	.96	.03	.10	1	6
BD PAN 2	1	8	9	52	.1	6	4	295	2.16	2	5	ND	2	44	.2	2	2	52	.45	.033	16	23	.22	32	.18	3	.74	.04	.09	1	1
RE BD PAN 1	1	11	22	306	.1	10	7	551	2.34	19	6	ND	3	27	.6	2	3	46	.31	.048	12	19	.32	44	.10	4	.94	.03	.10	1	-

Sample type: PAN CONC.. Samples beginning 'RE' are duplicate samples.

COMP: GRANGES INC.
PROJ: BLACKWATER-DAVIDSON (120)
ATTN: GORDON ALLEN/BRUCE DOWNING

MIN-EN LABS — ICP REPORT

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

SEP - 4 1992

FILE NO: 2V-0753-HJ1
DATE: 92/08/31
* HEAVY MINERAL * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL %	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA %	CD PPM	CO PPM	CU PPM	FE %	K %	LI PPM	MG %	MN PPM	MO PPM	NA %	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB
BD-H3	.1	1.03	1	9	64	.1	12	1.32	.1	13	12	6.01	.03	4	.43	636	1	.01	1	990	23	1	90	1	2561	163.7	76	1	2	4	20	5
BD-H4	.1	1.29	1	11	63	.1	17	1.57	.1	15	11	6.85	.04	5	.35	704	1	.01	1	1020	5	1	109	1	3432	195.8	50	1	3	5	28	70
BD-H5	.1	1.55	1	11	70	.1	14	1.59	.1	13	11	4.96	.04	8	.38	846	1	.01	1	990	18	1	112	1	2813	146.8	55	1	3	4	23	10
BD-H6	.1	1.79	1	13	129	.1	16	1.74	.1	19	25	7.53	.05	8	.63	1304	1	.01	5	1090	122	1	136	1	3007	198.2	335	1	6	5	31	15
BD-H7	.1	1.67	1	12	45	.1	20	2.10	.1	13	10	5.23	.03	5	.36	659	1	.01	1	1090	3	1	166	5	3694	170.3	46	1	3	5	42	7

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

GEOCHEMICAL ANALYSIS CERTIFICATE

SEP - 2 1992

Granges Inc. PROJECT BLACKWATER-DAVIDSON File # 92-2642 Page 1

2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L1800W 400N	3	8	18	55	.4	6	5	181	1.43	8	5	ND	9	17	1.3	3	5	27	.10	.045	10	14	.18	51	.09	2	1.30	.01	.05	3	1
DB L1800W 350N	7	15	18	70	.2	8	10	805	1.77	12	5	ND	3	72	2.0	3	3	39	.51	.051	15	17	.33	80	.06	2	1.81	.02	.06	2	5
DB L1800W 300N	3	13	13	80	.2	8	8	681	1.82	6	5	ND	1	53	.9	2	2	33	.41	.042	13	15	.28	75	.08	3	1.83	.02	.05	1	3
DB L1800W 250N	2	9	19	63	.1	8	6	337	1.88	10	5	ND	1	26	.4	2	2	37	.21	.023	9	15	.27	51	.12	4	1.40	.01	.05	1	1
DB L1800W 200N	1	5	19	33	.1	1	3	228	.85	3	5	ND	1	29	.2	2	2	19	.25	.026	9	8	.09	41	.09	2	.58	.01	.04	1	1
DB L1800W 150N	1	3	14	40	.2	2	3	252	1.05	5	5	ND	1	29	.2	2	5	23	.24	.026	9	9	.11	38	.09	2	.78	.01	.05	1	22
DB L1800W 100N	1	4	13	33	.1	5	4	171	1.02	3	5	ND	1	18	.2	2	4	21	.14	.016	9	11	.17	38	.10	2	.95	.01	.04	1	1
DB L1800W 050N	1	4	17	42	.2	4	3	180	1.15	5	5	ND	1	30	.2	2	2	21	.22	.032	10	11	.21	40	.09	3	1.11	.01	.05	1	1
DB L1800W 000N B.L.	1	4	14	42	.2	2	3	195	1.19	5	5	ND	1	20	.2	2	2	25	.16	.012	7	11	.19	34	.13	2	.88	.01	.04	1	1
DB L1800W 050S	1	13	22	99	.2	13	10	542	2.84	17	5	ND	1	37	.2	2	2	52	.29	.027	8	25	.49	65	.12	2	2.51	.02	.07	1	3
DB L1800W 100S	1	5	15	35	.1	4	3	165	1.49	18	5	ND	1	10	.2	2	2	29	.09	.031	9	12	.10	41	.09	2	1.08	.01	.05	1	2
DB L1800W 150S	1	20	15	122	.2	14	8	378	3.15	40	5	ND	1	57	.2	2	2	52	.41	.047	10	25	.52	84	.10	2	2.71	.03	.11	1	1
DB L1800W 200S	1	7	20	68	.5	7	4	211	1.52	12	5	ND	1	34	.2	2	4	30	.26	.032	11	17	.29	45	.08	2	1.61	.02	.08	1	1
DB L1800W 250S	1	8	17	62	.1	7	5	346	1.64	12	5	ND	1	18	.2	2	2	33	.14	.021	8	17	.28	48	.10	2	1.32	.01	.08	1	1
DB L1800W 300S	1	19	16	98	.2	13	9	520	2.88	32	8	ND	1	60	.2	2	4	48	.47	.054	13	24	.43	92	.09	2	2.34	.02	.12	1	174
DB L1800W 350S	1	14	13	73	.1	8	7	574	2.29	12	5	ND	1	42	.2	2	2	43	.34	.033	11	19	.31	62	.12	2	1.47	.01	.08	1	1
DB L1800W 400S	1	21	22	135	.6	15	15	1054	3.42	31	9	ND	1	65	.2	2	2	57	.48	.062	13	23	.56	90	.08	2	3.31	.02	.10	1	2
DB L1700W 400N	1	5	15	32	.1	2	2	179	.97	4	5	ND	1	15	.2	2	2	21	.12	.018	9	8	.08	33	.09	3	.60	.01	.04	1	1
DB L1700W 350N	1	6	13	54	.2	5	5	214	1.73	6	5	ND	1	23	.2	2	2	32	.18	.024	10	14	.25	46	.12	2	1.55	.01	.04	1	3
DB L1700W 300N	2	11	17	61	.1	7	6	233	1.55	6	5	ND	1	55	.2	2	2	27	.39	.039	14	14	.24	67	.06	2	1.91	.02	.06	1	2
DB L1700W 250N	1	5	15	41	.2	4	3	171	1.18	2	5	ND	1	21	.2	2	2	24	.18	.021	9	12	.17	37	.10	2	1.03	.01	.04	1	1
DB L1700W 200N	1	5	12	43	.3	5	4	155	1.22	2	5	ND	1	27	.2	2	2	23	.19	.032	9	11	.18	44	.07	2	1.13	.01	.04	1	2
DB L1700W 150N	1	5	20	32	.2	3	2	110	1.24	2	5	ND	2	13	.2	2	3	26	.10	.018	8	10	.09	37	.11	2	1.33	.01	.03	1	1
DB L1700W 100N	1	7	13	45	.5	8	4	176	1.08	4	5	ND	2	25	.9	2	4	20	.17	.031	10	13	.18	49	.07	3	1.18	.01	.05	1	4
DB L1700W 050N	1	8	9	63	.1	10	7	255	2.09	4	5	ND	2	22	.2	2	2	40	.17	.025	7	22	.36	41	.17	2	1.24	.01	.05	1	1
RE DB L1700W 200N	1	8	14	44	.3	6	4	155	1.26	5	5	ND	1	28	.2	2	3	23	.19	.033	9	11	.19	45	.08	2	1.13	.01	.05	1	3
DB L1700W 000N B.L.	1	9	16	48	.8	5	4	131	1.50	8	5	ND	1	22	.2	2	2	22	.14	.056	11	10	.13	43	.05	2	1.70	.01	.04	1	1
DB L1700W 050S	1	8	13	48	.1	4	5	288	1.33	14	5	ND	1	27	.2	2	3	27	.20	.018	11	13	.20	56	.09	2	1.16	.01	.06	1	1
DB L1700W 100S	1	15	14	106	.2	10	8	873	2.43	23	5	ND	1	44	.2	2	2	41	.33	.036	9	21	.44	70	.09	2	1.98	.02	.10	1	1
DB L1700W 150S	1	10	18	85	.1	11	8	777	2.00	15	5	ND	1	28	.2	2	2	37	.25	.026	10	17	.31	56	.13	2	1.36	.02	.08	1	1
DB L1700W 200S	1	10	15	80	.2	7	6	280	2.24	9	5	ND	1	21	.2	2	2	46	.18	.020	8	20	.21	46	.12	2	1.08	.01	.06	1	1
DB L1700W 250S	1	7	8	46	.1	6	4	253	1.70	4	5	ND	1	27	.2	2	3	36	.24	.025	10	16	.10	45	.09	2	.61	.01	.06	1	1
DB L1700W 300S	1	12	18	98	.3	8	6	251	2.72	23	5	ND	1	24	.2	2	2	42	.17	.049	7	18	.27	73	.12	2	2.32	.01	.07	1	1
DB L1700W 350S	1	22	20	108	.5	15	9	1084	2.65	36	12	ND	1	79	.2	2	3	46	.61	.057	23	21	.42	117	.06	2	3.53	.02	.13	1	1
DB L1700W 400S	1	7	20	64	.1	6	5	488	1.60	10	5	ND	1	21	.2	2	4	36	.18	.031	7	14	.24	44	.12	2	1.27	.01	.06	1	4
DB L1600W 400N	1	3	10	39	.1	3	4	218	1.44	2	5	ND	2	15	.2	2	4	31	.14	.014	9	13	.20	29	.14	2	.94	.01	.04	1	1
DB L1600W 350N	1	5	18	35	.1	5	3	165	1.17	3	5	ND	1	21	.2	2	2	25	.16	.013	9	11	.17	35	.15	2	.89	.01	.03	1	5
STANDARD C/AU-S	18	57	41	134	7.3	71	32	1059	3.96	43	19	7	39	52	17.8	14	20	57	.49	.084	36	59	.94	182	.09	34	2.01	.07	.14	11	48

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: P1 TO P10 SOIL P11 SILT/P12 PAN CON P13 ROCK AU** ANALYSIS BY FA/ICP FROM 10 GM SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 19 1992 **DATE REPORT MAILED:** Aug 31/92 **SIGNED BY** C. Leong ..D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L1600W 300N	3	9	10	57	.2	7	4	231	1.91	2	5	ND	10	16	.2	2	2	36	.13	.028	10	15	.24	38	.13	2	1.41	.01	.05	2	5
DB L1600W 250N	1	7	6	37	.1	6	4	232	1.20	8	5	ND	4	21	.5	2	5	25	.21	.023	10	14	.22	35	.11	2	.92	.02	.06	1	1
RE DB L1600W 000N B.L.	3	14	17	105	.2	12	8	333	3.56	39	5	ND	5	16	.4	2	2	58	.13	.064	8	21	.34	74	.13	2	3.24	.01	.09	1	1
DB L1600W 200N	1	6	15	44	.2	6	3	207	1.36	6	5	ND	3	14	.3	2	2	24	.11	.034	9	14	.22	45	.12	2	1.47	.02	.07	1	1
DB L1600W 150N	2	6	9	42	.4	5	4	165	2.60	11	5	ND	6	8	.7	2	2	44	.07	.084	7	18	.15	31	.12	2	2.79	.01	.04	1	1
DB L1600W 100N	2	10	9	63	.2	5	5	225	2.63	34	5	ND	3	13	.3	2	3	42	.10	.058	9	18	.19	50	.11	2	1.45	.01	.07	1	4
DB L1600W 050N	1	7	12	52	.1	9	4	260	1.73	12	5	ND	3	13	.2	2	2	35	.12	.020	9	16	.25	35	.14	2	1.22	.01	.05	1	5
DB L1600W 000N B.L.	2	12	18	101	.3	12	8	322	3.43	37	5	ND	4	16	.3	2	2	56	.12	.064	9	20	.33	68	.12	2	3.07	.01	.09	1	1
DB L1600W 050S	2	11	20	70	.4	9	6	256	3.06	39	5	ND	3	11	.2	2	2	54	.09	.157	8	24	.26	37	.10	2	2.35	.01	.07	1	1
DB L1600W 100S	2	18	21	127	1.1	13	8	322	2.94	35	5	ND	2	27	.6	2	2	49	.21	.068	11	24	.37	70	.10	2	2.69	.01	.08	1	2
DB L1600W 150S	2	13	14	58	.2	7	5	191	2.94	41	5	ND	2	25	.5	2	2	52	.17	.156	7	21	.21	40	.10	2	2.42	.01	.06	1	1
DB L1600W 200S	3	19	18	148	.7	16	14	2560	3.05	43	5	ND	1	101	1.0	2	2	51	.74	.112	23	20	.41	134	.04	2	4.47	.02	.14	1	3
DB L1600W 250S	1	6	19	43	.1	2	3	456	1.06	5	5	ND	1	26	.3	2	2	25	.21	.023	9	11	.16	40	.12	2	.91	.01	.06	1	14
DB L1600W 300S	3	9	11	44	.3	6	4	235	2.03	16	5	ND	5	15	.9	2	2	40	.16	.043	8	16	.14	43	.12	3	1.21	.01	.05	1	4
DB L1600W 350S	2	13	7	60	.2	4	4	275	1.83	12	5	ND	1	35	.2	2	2	34	.24	.027	12	15	.23	40	.10	2	1.26	.01	.05	1	5
DB L1600W 400S	1	3	10	40	.1	2	3	261	1.17	6	5	ND	1	28	.4	2	2	23	.23	.018	10	12	.15	35	.10	2	.93	.02	.04	1	1
DB L1500W 050S	1	12	13	58	.5	8	4	242	2.08	21	5	ND	1	19	.3	2	2	37	.14	.061	10	20	.25	50	.09	2	1.80	.01	.08	1	1
DB L1500W 100S	2	10	13	78	.2	6	7	359	2.80	18	5	ND	4	11	.4	3	2	49	.10	.181	8	20	.22	32	.10	2	3.37	.01	.07	1	5
DB L1500W 150S	1	6	15	51	.1	3	3	236	1.30	9	5	ND	1	20	.2	2	3	27	.17	.035	12	12	.16	55	.10	2	.98	.01	.05	1	1
DB L1500W 200S	1	6	9	50	.4	8	4	203	1.39	10	5	ND	3	17	.3	2	2	26	.15	.029	10	15	.19	40	.11	2	1.36	.02	.04	1	2
DB L1500W 250S	2	5	7	44	.2	2	4	178	1.96	10	5	ND	5	7	.2	2	2	35	.07	.060	6	16	.15	21	.10	2	1.95	.01	.03	1	1
DB L1500W 300S	1	3	12	28	.3	1	2	146	.92	4	5	ND	3	13	.2	2	3	22	.12	.016	7	11	.11	20	.13	2	1.24	.01	.04	1	2
DB L1500W 350S	1	2	18	23	.1	1	1	160	.71	3	5	ND	1	9	.2	2	4	18	.08	.013	8	9	.08	32	.11	2	.56	.01	.04	1	3
DB L1500W 400S	2	3	7	25	.1	3	1	134	1.12	2	5	ND	1	9	.2	2	2	27	.08	.014	8	14	.08	20	.08	2	.50	.01	.03	1	1
DB L1400W 400N	17	11	4	103	.7	14	28	8836	3.74	22	5	ND	1	62	.9	2	2	75	.46	.094	13	19	.28	160	.03	2	3.28	.02	.07	1	1
DB L1400W 350N	2	6	9	43	.2	2	5	631	2.07	15	5	ND	1	16	.3	2	2	40	.13	.042	8	15	.16	46	.09	2	1.21	.01	.04	1	4
DB L1400W 300N	1	3	12	32	.1	1	3	192	1.77	10	5	ND	1	11	.4	2	2	36	.10	.039	7	13	.10	28	.08	2	1.19	.01	.04	1	5
DB L1400W 250N	1	4	18	22	.1	2	2	146	.86	3	5	ND	1	16	.2	2	2	21	.11	.014	9	9	.12	30	.11	2	.66	.01	.04	1	4
DB L1400W 200N	2	6	15	34	.3	7	3	195	1.19	5	5	ND	1	14	.2	2	4	29	.09	.021	10	16	.12	31	.13	2	.66	.01	.05	1	3
DB L1400W 150N	3	22	16	107	.6	20	7	492	1.66	27	7	ND	1	129	1.5	2	2	30	.69	.042	10	16	.22	55	.06	2	1.33	.01	.09	1	1
DB L1400W 100N	3	4	7	28	.1	1	2	167	1.03	7	5	ND	1	15	.2	2	2	24	.11	.017	8	11	.07	25	.08	2	.48	.01	.05	1	2
DB L1400W 050N	1	7	15	41	.5	2	4	248	1.70	12	5	ND	1	13	.2	2	2	32	.09	.033	9	15	.14	45	.09	2	1.25	.01	.06	1	1
DB L1400W 000N B.L.	1	12	22	55	.4	10	6	285	1.82	13	5	ND	1	30	.3	2	2	35	.19	.024	13	17	.30	68	.10	2	1.89	.01	.07	1	1
DB L1400W 050S	3	10	13	52	.5	3	5	200	3.14	20	5	ND	4	11	.4	2	5	55	.10	.167	7	21	.19	29	.12	2	2.30	.01	.07	1	1
DB L1400W 100S	4	9	9	61	.3	7	11	2673	1.80	7	5	ND	1	61	.8	2	2	35	.41	.051	22	14	.21	98	.05	2	1.35	.02	.10	1	6
DB L1400W 150S	2	6	15	39	.1	3	6	472	1.45	10	5	ND	1	16	.2	2	2	33	.12	.019	11	12	.17	48	.11	2	.98	.01	.05	1	5
DB L1400W 200S	2	7	12	50	.3	7	4	237	1.87	16	5	ND	3	11	.2	2	3	38	.09	.027	7	19	.19	53	.10	2	1.74	.01	.05	1	6
STANDARD C/AU-S	19	59	39	138	7.5	72	32	1087	3.96	43	21	7	38	53	19.4	15	21	59	.49	.084	39	61	.93	182	.09	33	1.94	.07	.14	10	48

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

ACME ANALYTICAL

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppb
DB L1400W 300S	2	9	17	53	.4	11	3	206	1.21	7	5	ND	3	24	.7	2	2	22	.28	.033	15	17	.27	74	.08	3	1.10	.02	.07	1	1
DB L1400W 350S	1	10	11	27	.5	6	1	95	.73	2	5	ND	2	15	.4	2	2	15	.09	.028	10	8	.06	85	.05	2	.76	.02	.06	1	1
DB L1300W 400N	2	12	12	39	.4	9	2	99	.76	3	8	ND	1	14	.6	2	2	16	.09	.027	10	8	.06	88	.05	3	.76	.02	.07	2	5
DB L1300W 350N	1	5	13	37	.1	7	2	149	1.11	6	5	ND	2	15	.2	2	2	28	.14	.023	8	13	.13	38	.10	2	1.26	.02	.06	1	1
DB L1300W 300N	2	3	17	30	.1	5	1	125	.69	2	5	ND	1	21	.2	2	2	17	.18	.013	10	10	.09	43	.12	2	.65	.02	.04	1	6
DB L1300W 250N	1	9	12	53	.1	15	2	131	2.50	3	5	ND	3	11	.2	2	2	45	.07	.068	9	30	.24	47	.13	2	2.53	.02	.05	1	4
DB L1300W 200N	1	6	14	42	.1	12	2	121	1.93	12	5	ND	3	13	.2	2	3	37	.10	.050	9	17	.12	28	.13	2	1.27	.02	.07	1	1
DB L1300W 150N	2	5	16	36	.2	6	1	135	1.77	4	5	ND	1	12	.2	2	3	35	.09	.039	8	12	.07	23	.13	2	1.14	.02	.05	1	1
DB L1300W 100N	1	7	16	45	.2	14	2	158	2.16	18	5	ND	3	16	.4	3	2	34	.11	.044	9	16	.12	30	.11	2	1.20	.02	.08	1	2
DB L1300W 050N	1	3	11	30	.1	3	1	135	1.29	2	5	ND	1	8	.2	2	2	24	.08	.043	7	11	.06	27	.08	2	.74	.01	.04	1	2
DB L1300W 000N B.L.	1	7	15	57	.1	6	2	229	2.26	5	5	ND	2	10	.5	2	2	37	.10	.099	8	16	.12	33	.11	2	1.50	.02	.07	1	1
DB L1300W 050S	1	12	14	75	.5	10	4	226	2.35	10	5	ND	1	27	.6	2	2	36	.19	.060	11	18	.24	65	.08	2	1.92	.02	.08	1	2
DB L1300W 100S	1	8	20	84	.3	11	5	260	1.42	16	7	ND	3	52	.5	2	2	28	.52	.037	12	23	.38	55	.13	2	1.53	.04	.11	1	1
DB L1300W 150S	1	7	14	38	.2	3	1	86	.61	2	5	ND	1	54	.7	2	2	13	.41	.029	27	10	.09	37	.05	2	.85	.02	.06	1	1
DB L1300W 200S	1	4	8	24	.1	4	1	150	.92	2	5	ND	1	8	.2	2	2	21	.09	.014	9	10	.07	26	.09	2	.48	.02	.05	1	17
DB L1300W 250S	1	5	10	43	.3	3	1	411	.49	3	7	ND	1	20	.3	2	2	8	.25	.052	7	8	.04	69	.02	3	.54	.02	.09	1	1
DB L1300W 300S	2	9	12	49	.4	7	4	722	1.21	9	7	ND	1	28	.4	2	2	22	.30	.050	11	13	.15	80	.04	3	1.07	.03	.11	2	1
DB L1300W 350S	1	11	10	39	1.5	8	2	142	.88	7	6	ND	2	24	.4	6	2	17	.21	.057	20	13	.10	53	.03	2	1.50	.02	.09	3	4
DB L1300W 400S	2	10	8	90	.3	12	5	398	2.10	16	5	ND	1	29	.3	2	2	40	.26	.031	9	25	.38	66	.11	2	1.47	.02	.08	1	7
DB L1200W 400N	1	18	9	107	.3	38	6	557	2.59	15	5	ND	1	44	.6	2	2	47	.28	.046	14	47	.59	121	.09	2	2.41	.03	.18	1	1
DB L1200W 350N	2	20	7	139	.7	26	7	1807	2.79	20	6	ND	1	63	.8	4	2	49	.45	.058	16	38	.54	117	.07	4	2.25	.02	.13	1	5
DB L1200W 300N	3	8	11	59	.4	15	4	420	1.66	7	7	ND	2	40	.2	2	2	36	.33	.027	10	22	.31	76	.10	2	1.31	.02	.11	1	2
DB L1200W 250N	2	12	16	76	.3	21	5	256	2.12	18	5	ND	1	34	.2	2	2	38	.23	.033	11	25	.35	70	.10	3	2.03	.03	.09	1	1
DB L1200W 200N	1	5	11	35	.3	6	1	129	1.07	4	5	ND	1	20	.2	2	2	23	.17	.020	9	10	.07	39	.09	3	.64	.02	.06	1	3
DB L1200W 150N	1	11	6	27	.1	5	1	164	1.37	2	5	ND	1	9	.2	2	2	30	.09	.023	8	13	.11	26	.11	3	.67	.02	.09	1	1
DB L1200W 100N	1	10	10	50	.3	7	3	212	2.68	5	5	ND	4	9	.2	2	2	47	.10	.147	9	20	.16	27	.12	3	2.06	.02	.07	1	2
DB L1200W 050N	1	5	5	27	.3	5	1	186	.83	2	7	ND	2	10	.2	2	2	19	.12	.023	9	9	.07	24	.08	2	.45	.01	.08	1	2
DB L1200W 000N B.L.	1	5	6	40	.1	3	2	174	1.32	2	5	ND	3	13	.2	2	2	26	.13	.035	9	12	.12	51	.12	2	.69	.02	.06	1	8
DB L1200W 050S	2	6	8	43	.1	4	1	290	1.51	2	5	ND	1	14	.2	2	2	29	.18	.044	8	12	.07	52	.09	3	.63	.01	.06	1	2
DB L1200W 100S	2	11	10	69	.1	10	3	581	2.02	3	5	ND	1	21	.2	2	3	38	.25	.057	8	22	.30	73	.13	2	1.18	.02	.11	1	5
DB L1200W 150S	3	6	10	27	.1	4	1	227	1.10	2	5	ND	1	12	.2	2	2	22	.11	.026	9	12	.06	51	.07	3	.58	.01	.06	1	1
DB L1200W 200S	1	5	8	27	.1	4	1	124	.76	2	5	ND	1	25	.2	2	2	17	.14	.025	23	13	.11	58	.04	2	.79	.02	.06	1	1
RE DB L1200W 000N B.L.	1	5	7	43	.3	4	2	175	1.36	2	5	ND	3	13	.2	2	2	27	.13	.034	10	13	.12	50	.12	2	.69	.02	.07	1	1
DB L1200W 250S	5	16	22	66	.6	6	11	7871	1.46	5	10	ND	1	74	1.6	2	2	19	.45	.067	49	12	.11	265	.04	3	1.43	.02	.08	1	1
DB L1200W 300S	6	24	21	71	.7	8	14	4193	1.82	8	5	ND	1	33	.6	2	2	35	.25	.052	12	17	.21	182	.06	3	1.08	.02	.08	1	6
DB L1200W 350S	1	5	9	33	.1	4	1	184	.89	2	5	ND	1	17	.2	2	2	19	.16	.019	9	11	.10	50	.08	2	.53	.02	.07	1	8
DB L1200W 400S	1	5	11	51	.1	1	3	1121	.68	2	5	ND	1	33	.2	2	2	12	.28	.053	7	7	.07	85	.03	3	.52	.02	.11	1	11
STANDARD C/AU-S	17	58	38	128	7.5	71	31	1033	3.96	41	20	7	38	51	19.0	15	20	54	.51	.083	38	58	.91	190	.08	35	2.01	.08	.17	10	50

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L1100W 400N	3	11	10	101	.3	14	4	254	2.52	7	5	ND	4	29	.8	2	2	47	.25	.037	9	23	.27	70	.10	2	1.30	.02	.11	1	8
DB L1100W 350N	1	9	9	41	.1	9	2	133	1.73	2	5	ND	1	15	.2	2	2	31	.11	.056	8	20	.12	44	.08	2	.99	.02	.03	1	7
RE DB L1100W 100N	2	8	12	37	.1	7	2	173	1.74	2	5	ND	2	12	.2	2	3	36	.10	.026	8	16	.07	38	.15	2	.67	.02	.04	1	9
DB L1100W 300N	1	8	14	34	.2	10	2	201	.99	2	5	ND	1	37	.4	2	2	20	.32	.018	12	12	.14	33	.08	2	.85	.02	.05	1	9
DB L1100W 250N	2	10	10	50	.2	10	3	182	2.68	8	5	ND	1	17	.3	2	2	51	.15	.073	9	24	.21	46	.15	2	1.07	.02	.08	1	8
DB L1100W 200N	1	7	7	37	.4	6	2	342	1.35	4	5	ND	2	11	.2	4	2	30	.14	.040	8	17	.13	27	.11	3	.65	.02	.09	1	9
DB L1100W 150N	2	5	7	32	.1	7	2	117	1.53	4	5	ND	2	8	.2	2	2	35	.07	.026	8	13	.07	28	.13	2	.73	.01	.05	1	5
DB L1100W 100N	2	6	9	42	.2	7	2	183	1.77	2	5	ND	3	12	.2	2	3	37	.11	.027	9	16	.07	37	.15	2	.66	.02	.06	1	5
DB L1100W 050N	2	6	11	34	.1	6	2	143	1.52	2	5	ND	2	8	.2	2	3	35	.08	.016	8	15	.07	18	.14	2	.54	.02	.05	1	1
DB L1100W 000N B.L.	1	7	6	38	.1	8	2	171	1.65	2	5	ND	3	11	.2	2	2	34	.13	.037	8	17	.14	36	.15	2	.68	.02	.07	1	8
DB L1100W 050S	2	16	18	67	.4	19	5	574	1.82	9	5	ND	1	51	.5	2	2	37	.46	.023	21	19	.22	42	.09	2	1.31	.02	.07	1	3
DB L1100W 100S	2	10	5	37	.1	7	2	158	1.23	2	5	ND	1	19	.5	2	2	27	.18	.019	7	14	.05	83	.08	3	.34	.02	.08	1	3
DB L1100W 150S	1	9	12	83	.3	11	3	230	1.29	3	5	ND	1	66	.6	2	2	26	.60	.034	10	24	.29	71	.09	3	1.05	.01	.07	1	6
DB L1100W 200S	1	7	11	49	.3	5	3	1116	.99	3	5	ND	1	43	.4	2	2	19	.41	.031	17	12	.12	57	.06	2	.88	.02	.07	1	11
DB L1100W 250S	10	30	40	163	1.2	30	16	1739	4.93	27	5	ND	2	94	1.2	2	2	85	.87	.069	37	29	.55	130	.07	2	5.12	.02	.15	1	5
DB L1100W 300S	2	6	14	34	.4	5	1	198	.74	2	5	ND	1	19	.5	2	2	16	.19	.021	10	9	.05	52	.07	3	.51	.02	.06	1	1
DB L1100W 350S	3	19	16	69	.7	8	5	479	.91	3	5	ND	1	175	1.4	2	2	17	1.39	.052	58	9	.16	108	.03	3	1.16	.02	.07	1	1
DB L1100W 400S	1	4	10	23	.2	5	1	169	.86	2	5	ND	2	14	.2	2	2	22	.13	.019	10	10	.09	32	.10	2	.57	.02	.05	1	6
DB L1000W 400N	1	4	14	25	.1	4	1	93	1.18	3	5	ND	2	11	.2	2	2	30	.12	.029	8	9	.05	32	.12	2	.50	.01	.03	1	5
DB L1000W 350N	1	5	14	34	.2	8	2	112	.76	2	5	ND	1	22	.2	2	2	16	.16	.016	11	10	.11	50	.07	2	.83	.01	.05	1	7
DB L1000W 300N	1	6	17	39	.2	5	2	197	.93	3	5	ND	3	16	.4	2	3	21	.15	.012	9	11	.13	38	.13	2	.62	.02	.08	1	4
DB L1000W 250N	1	11	8	44	.3	13	4	188	1.68	9	5	ND	4	17	.2	2	2	30	.14	.031	9	19	.22	49	.11	2	1.41	.03	.06	1	3
DB L1000W 200N	2	7	10	28	.1	7	2	141	1.32	2	5	ND	2	9	.2	2	3	33	.08	.018	8	17	.10	34	.13	2	.59	.02	.05	1	5
DB L1000W 150N	2	7	14	50	.2	12	4	1371	1.12	4	5	ND	1	60	.4	2	2	27	.52	.019	11	20	.26	78	.10	2	.97	.02	.06	1	9
DB L1000W 100N	1	4	7	22	.3	4	1	110	1.04	4	7	ND	2	7	.2	2	2	24	.06	.020	8	11	.05	23	.08	2	.54	.01	.07	1	4
DB L1000W 050N	2	10	15	53	.3	13	4	428	1.52	3	5	ND	2	22	.2	2	3	32	.18	.014	12	20	.29	29	.10	2	1.21	.02	.06	1	3
DB L1000W 000N B.L.	1	7	11	55	.2	10	3	247	1.31	3	5	ND	2	16	.2	2	2	30	.14	.015	10	18	.21	39	.12	2	.76	.02	.06	1	4
DB L1000W 050S	2	8	16	47	.3	8	10	1324	1.51	4	5	ND	1	29	.3	2	2	33	.26	.026	11	16	.10	91	.09	2	.52	.02	.10	1	1
DB L1000W 100S	1	3	7	25	.2	5	1	143	.57	2	5	ND	1	15	.2	2	2	14	.13	.012	9	9	.08	57	.06	2	.37	.01	.06	1	1
DB L1000W 150S	3	9	14	79	.4	12	6	296	1.54	6	5	ND	1	25	.2	2	2	37	.21	.026	8	21	.23	61	.09	2	.90	.02	.06	1	1
DB L1000W 200S	1	4	14	39	.2	8	2	155	1.00	5	5	ND	3	22	.2	2	2	24	.20	.012	9	16	.21	39	.13	2	.76	.02	.08	1	2
DB L1000W 300S	2	18	16	66	.3	6	3	381	1.08	2	6	ND	1	32	.6	2	2	20	.22	.067	11	12	.08	106	.07	2	.79	.02	.10	1	1
DB L1000W 350S	3	9	19	56	.5	12	3	196	1.41	5	6	ND	1	17	.3	2	3	28	.13	.036	13	18	.20	47	.07	2	1.43	.02	.09	1	2
DB L1000W 400S	3	8	16	64	.7	8	8	403	1.90	17	5	ND	2	35	.3	2	2	47	.28	.034	10	16	.21	81	.09	2	1.39	.02	.07	1	5
DB L900W 400N	1	5	8	62	.1	9	3	229	1.46	2	5	ND	1	23	.2	2	2	30	.19	.016	10	18	.22	34	.11	2	1.06	.02	.03	1	1
DB L900W 350N	2	8	14	64	.3	11	3	180	1.69	4	5	ND	2	28	.5	2	2	33	.22	.027	14	17	.19	51	.09	2	1.14	.02	.05	1	1
DB L900W 300N	3	8	7	43	.6	9	3	165	2.03	8	9	ND	4	10	.2	3	2	46	.08	.025	9	21	.17	41	.14	2	.89	.01	.09	2	1
STANDARD C/AU-S	19	60	41	133	7.6	75	31	1060	3.96	42	20	7	40	52	19.0	15	21	57	.50	.086	39	61	.94	183	.09	34	1.94	.08	.16	11	48

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L900W 250N	2	12	21	68	.4	10	6	212	3.25	8	5	ND	7	12	.2	5	2	64	.13	.205	8	27	.20	45	.13	2	3.30	.01	.05	1	3
DB L900W 200N	1	5	17	41	.4	7	3	176	1.22	2	5	ND	3	30	.3	4	3	32	.26	.029	15	16	.13	56	.16	2	.91	.01	.06	1	5
DB L900W 150N	2	10	15	53	.3	6	4	210	2.05	3	5	ND	4	14	.2	2	2	41	.12	.087	11	22	.17	42	.14	2	1.70	.01	.05	1	3
DB L900W 100N	2	10	30	55	.5	4	7	217	2.38	2	5	ND	3	28	.5	2	2	38	.18	.078	16	16	.13	55	.07	2	3.57	.01	.05	2	6
DB L900W 050N	1	5	14	27	.2	2	3	128	.88	2	5	ND	2	23	.2	2	2	22	.14	.016	10	9	.09	74	.13	2	.67	.01	.04	1	4
DB L900W 000N B.L.	1	9	15	58	.3	8	6	265	1.96	3	5	ND	3	26	.2	4	2	46	.21	.021	10	30	.28	51	.23	2	1.21	.02	.05	1	5
DB L900W 050S	14	35	60	135	.8	40	64	7417	4.67	39	5	ND	1	110	1.2	2	2	105	.91	.049	27	25	.53	147	.09	2	4.44	.02	.10	1	7
RE DB L900W 250S	2	11	6	80	.1	13	8	558	2.27	8	5	ND	2	34	.2	2	3	50	.30	.024	10	23	.43	58	.17	2	1.81	.02	.07	1	5
DB L900W 100S	2	12	13	82	.5	9	8	900	3.14	14	5	ND	4	17	.2	2	2	61	.20	.073	9	26	.32	67	.16	2	1.60	.02	.07	1	1
DB L900W 150S	1	10	6	58	.1	6	2	207	.35	2	5	ND	1	153	.4	2	2	5	.99	.086	26	3	.08	118	.01	2	.53	.01	.06	1	4
DB L900W 200S	2	7	23	56	.1	3	5	795	1.33	4	5	ND	1	26	.2	2	2	31	.24	.029	10	16	.14	71	.12	5	.66	.01	.06	1	1
DB L900W 250S	2	9	15	86	.1	11	8	383	2.38	3	5	ND	2	34	.2	4	2	52	.32	.026	10	24	.47	54	.19	2	1.84	.02	.08	1	4
DB L900W 300S	3	13	21	83	.4	9	11	549	2.23	13	5	ND	1	39	.2	2	2	48	.32	.034	14	24	.33	66	.12	4	1.76	.02	.07	1	1
DB L900W 350S	4	13	22	109	1.4	7	9	2037	1.56	10	5	ND	1	69	.5	5	2	32	.53	.070	8	14	.18	247	.05	4	1.88	.01	.11	1	2
DB L900W 400S	2	8	17	62	.1	7	6	236	3.23	12	5	ND	4	15	.2	5	2	73	.16	.075	9	25	.23	49	.20	2	1.59	.01	.07	1	3
DB L800W 400N	1	27	20	173	1.1	28	12	1095	3.39	28	5	ND	1	89	.2	2	2	57	.70	.080	22	26	.49	173	.06	2	4.94	.02	.10	1	4
DB L800W 350N	2	20	22	113	1.2	15	9	457	2.35	13	5	ND	2	61	.8	6	2	47	.49	.039	20	24	.40	83	.10	2	2.78	.02	.06	1	1
DB L800W 300N	1	3	13	24	.4	4	2	116	.80	3	12	ND	1	12	.2	2	2	19	.09	.013	11	9	.05	30	.07	2	.40	.01	.04	1	1
DB L800W 250N	1	3	12	18	.1	1	1	165	.83	2	5	ND	1	11	.2	2	2	21	.08	.011	11	8	.04	16	.10	2	.42	.01	.03	1	4
DB L800W 200N	1	8	15	51	.2	9	6	204	2.41	8	5	ND	5	14	.2	2	5	50	.14	.066	10	23	.18	43	.15	2	2.12	.02	.04	1	4
DB L800W 150N	1	5	20	46	.6	8	4	183	1.24	10	5	ND	4	21	.2	2	2	29	.17	.025	12	14	.20	57	.13	2	1.42	.02	.04	1	1
DB L800W 100N	1	9	19	54	.3	7	6	320	2.02	10	5	ND	4	15	.2	3	2	42	.14	.039	10	18	.16	33	.14	2	1.69	.02	.05	1	3
DB L800W 050N	1	6	13	31	.1	3	2	128	1.09	2	5	ND	1	13	.2	2	2	25	.10	.017	9	11	.04	37	.07	2	.51	.01	.03	1	1
DB L800W 000N B.L.	2	7	14	52	.1	7	5	196	2.48	7	5	ND	3	12	.2	2	2	55	.11	.032	9	18	.15	43	.22	2	1.64	.01	.03	1	1
DB L800W 050S	2	7	25	65	.2	5	5	193	2.46	5	5	ND	2	24	.2	2	2	55	.17	.035	11	19	.18	67	.24	2	1.70	.01	.05	1	1
DB L800W 100S	3	12	27	79	.3	11	8	337	2.15	3	5	ND	1	41	.2	2	2	53	.31	.024	13	17	.28	75	.17	2	1.91	.02	.06	1	7
DB L800W 150S	3	15	24	82	.7	12	8	361	2.18	5	5	ND	1	43	.4	5	3	50	.33	.030	15	26	.33	60	.15	2	1.74	.02	.06	1	8
DB L800W 200S	6	20	28	119	.7	18	22	1047	3.05	12	5	ND	2	92	.2	2	2	71	.71	.035	23	27	.51	90	.14	4	2.87	.02	.07	1	3
DB L800W 250S	1	6	14	39	.1	1	3	188	1.05	2	5	ND	1	21	.2	2	2	24	.19	.014	9	10	.12	44	.08	2	.85	.01	.05	1	2
DB L800W 300S	1	9	10	32	.1	3	4	183	1.49	2	5	ND	1	13	.2	2	6	36	.12	.034	8	13	.07	44	.11	2	.62	.01	.04	1	4
DB L800W 350S	1	18	13	58	.5	5	4	548	.91	14	5	ND	1	51	.4	2	2	17	.47	.087	37	11	.11	57	.02	2	1.90	.02	.05	1	1
DB L700W 400N	1	9	15	46	.3	5	3	187	.68	2	5	ND	1	29	.2	2	2	18	.23	.023	14	12	.12	60	.09	4	.62	.01	.05	1	2
DB L700W 350N	1	10	17	75	.4	12	7	280	1.59	2	5	ND	4	35	.5	2	2	33	.32	.035	13	24	.37	62	.16	3	1.61	.03	.08	1	3
DB L700W 250N	2	12	20	85	.1	11	11	831	2.14	17	5	ND	1	59	.7	2	4	51	.49	.022	19	24	.39	59	.14	2	1.95	.02	.07	1	1
DB L700W 200N	1	8	9	23	.2	1	3	175	1.20	3	5	ND	3	9	.3	3	2	32	.07	.010	11	12	.07	32	.12	2	.51	.01	.04	1	3
DB L700W 150N	1	6	9	22	.1	1	2	200	.53	2	5	ND	1	19	.2	2	4	15	.13	.011	11	7	.04	63	.07	2	.41	.01	.03	1	6
DB L700W 100N	1	7	16	52	.1	7	4	260	1.90	5	5	ND	4	12	.3	2	2	40	.12	.051	8	18	.15	36	.12	3	1.41	.01	.03	1	5
STANDARD C/AU-S	20	59	42	137	7.7	73	29	1109	3.96	39	18	7	40	53	18.9	15	21	62	.50	.087	40	62	.92	183	.09	34	1.99	.07	.14	10	47

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

ACME ANALYTICAL

Granges Inc. PROJECT BLACKWATER-DAVIDSON FILE # 92-2642

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L700W 050N	2	7	8	48	.1	9	6	213	1.96	12	5	ND	12	12	.5	2	2	40	.11	.033	9	20	.19	37	.12	2	1.30	.02	.04	2	2
DB L700W 000N B.L.	1	7	12	58	.1	6	5	409	2.40	6	5	ND	4	21	.6	2	2	49	.21	.046	7	18	.17	55	.19	2	1.06	.01	.04	1	4
DB L700W 050S	2	11	14	79	.1	8	8	265	3.30	2	5	ND	4	18	.4	2	2	64	.17	.093	9	26	.20	60	.22	2	2.10	.02	.06	1	3
DB L700W 100S	2	11	16	68	.4	10	7	272	2.50	14	5	ND	4	46	.9	2	2	43	.29	.073	13	19	.20	113	.12	2	1.87	.01	.06	1	28
DB L700W 150S	1	9	13	47	.1	5	4	215	1.38	2	5	ND	2	18	.2	2	2	29	.14	.017	8	14	.24	39	.13	2	1.13	.01	.04	1	2
DB L700W 200S	1	30	16	90	1.8	15	5	246	1.02	2	5	ND	1	115	.6	2	2	19	.88	.104	52	11	.19	91	.02	2	2.99	.02	.05	1	3
DB L700W 250S	2	21	2	77	.6	6	2	54	.17	8	6	ND	1	65	.8	2	2	6	.54	.094	15	4	.06	37	.01	6	.65	.02	.02	1	4
DB L700W 300S	2	17	3	128	.4	3	1	72	.23	8	5	ND	1	57	.5	2	2	9	.51	.082	10	4	.08	21	.01	5	.55	.02	.03	1	14
DB L700W 350S	2	11	3	70	.2	2	1	44	.15	7	5	ND	1	64	.3	2	2	7	.75	.128	11	2	.08	10	.01	3	.47	.02	.01	1	1
DB L700W 400S	2	7	2	66	.3	3	1	213	.26	19	5	ND	1	85	.2	2	2	5	1.00	.148	7	3	.11	10	.01	3	.36	.03	.02	1	6
DB L600W 400N	1	9	16	90	.1	10	7	267	2.62	11	5	ND	5	18	.3	2	2	44	.17	.104	9	23	.23	55	.12	2	2.57	.02	.05	1	5
DB L600W 350N	1	7	12	56	.1	9	6	194	2.24	6	5	ND	3	14	.4	2	2	43	.13	.061	9	24	.21	60	.12	2	2.12	.02	.04	1	4
DB L600W 300N	1	5	15	32	.1	2	2	125	.65	4	5	ND	1	17	.2	2	2	19	.13	.018	10	8	.08	58	.10	2	.60	.02	.04	1	2
DB L600W 250N	1	7	13	77	.2	11	5	398	1.80	6	5	ND	2	27	.2	2	2	34	.27	.050	11	20	.30	69	.12	3	1.45	.02	.08	1	4
DB L600W 200N	2	7	7	37	.1	5	3	184	1.72	2	5	ND	1	15	.4	2	2	40	.12	.020	9	19	.09	39	.15	2	.52	.01	.05	1	54
DB L600W 150N	2	8	19	76	.1	9	5	282	2.16	7	6	ND	3	33	.4	2	2	50	.29	.034	10	22	.24	84	.18	2	1.41	.02	.07	1	5
DB L600W 100N	1	11	14	61	.1	8	6	411	2.16	10	5	ND	5	20	.2	2	2	45	.23	.050	10	20	.20	55	.14	4	1.20	.01	.05	1	1
DB L600W 050N	1	12	23	65	.3	10	4	190	1.59	4	5	ND	2	33	.2	2	3	32	.25	.048	14	17	.20	72	.12	2	1.88	.01	.05	1	5
DB L600W 000N B.L.	2	9	15	61	.1	3	6	313	2.98	15	5	ND	2	21	.2	2	2	62	.19	.086	8	19	.21	63	.16	2	1.51	.01	.06	1	3
DB L600W 050S	1	6	13	35	.1	4	3	180	.90	4	5	ND	2	25	.2	2	2	21	.28	.046	13	13	.22	58	.12	2	1.27	.01	.04	1	2
DB L600W 100S	1	10	2	83	.3	3	1	15	.12	6	5	ND	1	61	.2	2	2	7	.46	.090	9	3	.04	45	.01	4	.40	.01	.02	1	2
DB L600W 150S	1	12	2	79	.4	2	1	46	.24	9	5	ND	1	45	.3	2	2	7	.41	.114	12	5	.03	36	.01	2	.70	.01	.02	1	6
DB L600W 200S	1	8	2	41	.3	1	1	114	.63	15	5	ND	1	49	.3	2	2	9	.55	.157	14	5	.05	34	.01	2	.69	.01	.02	1	6
DB L600W 250S	1	13	2	46	.3	2	1	87	.30	15	5	ND	1	56	.2	2	2	8	.55	.153	11	4	.03	43	.01	4	.57	.01	.01	1	7
RE DB L500W 200N	1	7	12	56	.1	9	6	342	1.68	5	5	ND	4	23	.2	2	2	36	.23	.035	11	21	.31	43	.16	3	1.22	.02	.05	1	4
DB L600W 300S	1	13	4	52	.5	3	1	225	.62	18	5	ND	1	66	.3	2	2	15	.91	.240	12	6	.10	43	.01	3	.88	.01	.01	1	3
DB L600W 350S	7	19	6	60	.6	5	4	433	.59	16	5	ND	1	117	.3	2	2	14	1.61	.264	25	9	.18	118	.01	4	1.80	.02	.03	1	6
DB L600W 400S	3	19	6	75	1.1	6	5	284	1.23	27	5	ND	1	81	.6	2	2	20	.81	.232	14	10	.13	125	.01	3	1.99	.02	.05	1	11
?N DB L500W 400S	1	7	15	50	.2	5	3	161	1.13	6	5	ND	1	23	.2	2	2	27	.23	.026	9	15	.16	54	.13	4	.70	.01	.06	1	3
DB L500W 350N	2	7	19	84	.2	7	6	832	2.79	8	5	ND	5	19	.4	2	2	52	.23	.317	6	21	.20	94	.10	2	3.71	.01	.05	1	1
DB L500W 300N	1	17	18	107	.3	14	11	1162	2.56	11	5	ND	1	71	.3	2	2	52	.53	.043	20	25	.50	114	.13	2	3.03	.02	.09	1	7
DB L500W 250N	1	3	19	41	.1	4	3	328	1.08	3	5	ND	2	21	.2	2	2	25	.19	.031	11	12	.14	37	.16	3	.79	.02	.05	1	7
DB L500W 200N	1	7	10	53	.1	9	6	334	1.63	8	5	ND	5	21	.2	2	2	35	.21	.029	11	20	.29	43	.15	2	1.17	.02	.05	1	3
DB L500W 050N	1	6	15	56	.1	9	5	346	1.45	4	5	ND	3	32	.2	2	2	32	.26	.029	13	20	.28	80	.14	2	1.49	.02	.07	1	6
DB L500W 000N B.L.	1	8	15	60	.2	6	4	215	1.23	2	5	ND	2	31	.2	2	2	27	.28	.021	10	15	.22	59	.13	3	1.15	.01	.06	1	6
DB L500W 050S	1	2	14	40	.2	1	2	178	.69	4	5	ND	2	28	.2	2	2	19	.25	.018	11	8	.08	56	.11	2	.68	.01	.05	1	4
DB L500W 100S	1	7	14	60	.1	8	5	252	1.69	6	5	ND	4	31	.2	2	2	34	.30	.030	12	20	.33	63	.16	5	1.50	.02	.06	1	3
STANDARD C/AU-S	20	62	40	134	7.4	71	32	1082	3.96	42	19	7	39	53	18.5	14	19	60	.50	.084	40	61	.95	185	.09	35	1.94	.07	.14	10	48

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

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L500W 150S	1	19	13	102	.1	16	6	256	2.33	7	5	ND	2	37	.3	2	2	37	.35	.047	14	25	.42	108	.12	3	2.76	.04	.12	1	17
DB L500W 200S	1	6	13	70	.2	13	5	229	2.12	6	5	ND	2	37	.2	2	2	41	.41	.030	13	22	.42	110	.12	2	2.93	.04	.08	1	10
DB L500W 250S	1	15	5	68	.9	9	2	61	.80	14	5	ND	1	27	.2	2	2	21	.22	.303	18	13	.06	60	.02	2	2.06	.02	.03	1	3
DB L500W 300S	1	19	16	65	.1	18	5	281	1.80	18	5	ND	5	29	.2	2	2	46	.27	.035	24	27	.31	153	.12	2	2.44	.04	.07	1	7
DB L500W 350S	1	6	12	53	.2	10	4	212	1.49	6	5	ND	2	16	.2	2	2	30	.18	.028	10	17	.25	48	.14	2	1.41	.03	.08	1	7
DB L500W 400S	1	15	16	51	.5	11	3	118	1.22	3	5	ND	1	26	.2	2	2	21	.16	.049	12	15	.14	69	.07	2	1.72	.02	.08	1	6
DB L400W 400N	1	6	20	79	.1	12	8	547	1.85	6	5	ND	1	35	.2	2	2	37	.29	.028	13	20	.30	90	.15	2	1.66	.03	.04	1	14
DB L400W 350N	1	23	17	165	.5	34	15	1960	4.01	28	5	ND	3	101	.9	2	2	64	.92	.094	23	31	.56	261	.07	2	6.60	.04	.17	1	7
DB L400W 300N	2	11	20	94	.2	14	8	732	2.58	18	5	ND	2	75	.6	2	3	56	.66	.040	15	22	.40	118	.12	3	2.39	.03	.10	1	1
DB L400W 200N	1	15	16	73	.7	15	5	224	2.23	7	7	ND	1	51	.3	2	2	38	.38	.069	15	22	.30	129	.05	2	3.40	.03	.12	1	7
DB L400W 150N	1	9	13	67	.1	12	7	392	2.00	6	5	ND	2	31	.2	2	2	38	.25	.033	11	24	.36	98	.13	2	2.19	.03	.09	1	14
DB L400W 100N	1	1	19	19	.1	3	1	272	.56	2	5	ND	1	18	.2	2	2	16	.15	.012	11	7	.05	41	.14	2	.48	.02	.02	1	4
DB L400W 050N	1	6	14	75	.5	8	5	232	3.65	7	6	ND	3	19	.2	2	2	64	.20	.105	11	20	.25	56	.12	3	2.52	.03	.09	1	1
DB L400W 000N B.L.	1	4	15	35	.2	5	2	184	1.01	2	5	ND	1	20	.2	2	2	24	.20	.022	11	11	.13	45	.18	2	.95	.02	.05	1	7
DB L400W 050S	1	10	14	68	.2	12	5	207	2.75	8	5	ND	5	16	.2	2	2	44	.15	.090	11	22	.25	60	.15	3	2.75	.03	.06	1	8
DB L400W 100S	1	7	17	72	.5	14	7	217	2.60	8	5	ND	6	18	.3	2	2	42	.17	.077	12	19	.26	80	.14	3	3.02	.03	.09	1	8
DB L400W 150S	1	3	13	34	.1	5	2	155	.99	2	5	ND	2	18	.2	2	2	22	.18	.021	10	10	.13	37	.12	2	1.04	.02	.05	1	1
DB L400W 200S	1	5	15	41	.1	8	3	196	1.44	5	5	ND	3	20	.2	2	3	30	.19	.020	10	15	.23	44	.17	2	1.22	.02	.05	1	1
DB L400W 250S	1	26	16	76	1.0	16	5	161	1.97	6	7	ND	1	45	.5	2	2	26	.28	.124	16	18	.19	108	.02	2	2.97	.03	.12	1	8
DB L400W 300S	1	5	4	43	.1	3	1	111	.48	3	5	ND	1	136	.5	2	2	9	1.06	.056	4	6	.11	67	.02	3	.43	.02	.06	1	1
DB L400W 350S	1	4	17	38	.1	4	2	127	.81	2	5	ND	1	19	.2	2	2	18	.15	.023	11	9	.11	56	.09	2	1.38	.02	.05	1	8
DB L400W 400S	1	7	15	51	.3	7	3	165	2.82	10	5	ND	3	15	.3	2	2	51	.14	.101	10	19	.15	44	.14	2	2.65	.02	.05	1	5
DB L300W 400N	2	9	14	65	.4	8	3	344	2.12	8	5	ND	3	41	.6	3	2	43	.37	.049	10	23	.19	87	.13	3	1.10	.03	.09	1	4
DB L300W 350N	4	20	22	89	2.5	28	9	417	2.28	22	7	ND	2	59	.5	2	4	38	.49	.217	24	30	.34	195	.03	2	5.94	.03	.11	1	19
DB L300W 300N	6	17	14	58	.8	13	21	3601	4.50	144	5	ND	1	44	.8	2	2	68	.37	.198	28	18	.19	163	.02	3	3.02	.02	.07	1	8
DB L300W 250N	1	5	13	41	.1	7	4	239	1.39	4	5	ND	2	24	.2	2	2	30	.24	.026	14	16	.22	55	.16	3	1.39	.03	.05	1	1
DB L300W 200N	1	5	12	51	.2	10	4	197	1.81	4	5	ND	3	19	.2	2	2	35	.17	.032	11	16	.21	57	.15	3	1.59	.02	.04	1	1
DB L300W 150N	1	10	15	62	.5	7	5	283	1.98	5	5	ND	2	24	.2	2	2	41	.21	.029	10	14	.31	75	.14	3	1.77	.02	.10	1	2
DB L300W 100N	1	2	16	23	.2	3	2	132	.80	2	5	ND	2	16	.2	2	2	22	.14	.012	11	8	.09	30	.16	2	.85	.02	.04	1	1
DB L300W 050N	1	8	19	50	.1	7	4	201	1.49	3	5	ND	3	18	.2	2	2	32	.19	.018	11	15	.25	53	.20	2	1.52	.03	.05	1	12
DB L300W 000N B.L.	1	9	15	38	.6	9	4	178	1.47	2	5	ND	3	17	.2	2	2	33	.18	.029	11	16	.24	73	.19	2	2.36	.02	.06	1	2
DB L300W 050S	1	6	17	52	.7	5	2	144	2.65	7	5	ND	5	14	.2	2	4	45	.14	.116	9	16	.11	39	.12	3	3.27	.02	.05	1	2
DB L300W 100S	1	5	20	56	.2	8	4	171	2.09	3	5	ND	4	17	.2	2	4	40	.18	.046	11	17	.20	60	.16	3	2.61	.02	.05	1	12
RE DB L300W 100N	1	2	16	22	.2	3	2	129	.80	2	5	ND	1	15	.2	2	4	22	.13	.012	10	8	.09	30	.16	2	.85	.02	.04	1	5
DB L300W 150S	1	10	17	52	.3	10	4	204	1.79	7	5	ND	4	19	.2	2	3	33	.18	.032	11	17	.26	62	.15	3	1.87	.03	.07	1	2
DB L300W 200S	1	6	16	36	.2	6	3	294	1.02	2	5	ND	2	28	.2	2	2	22	.23	.020	13	11	.15	71	.13	3	1.17	.02	.05	1	1
DB L300W 250S	1	4	21	31	.4	4	2	140	.80	3	5	ND	3	14	.2	2	2	20	.12	.023	11	9	.11	45	.12	2	1.25	.03	.05	2	1
STANDARD C/AU-S	18	60	40	134	7.5	77	31	1062	3.96	43	22	8	40	53	18.7	15	21	58	.50	.085	40	60	.91	183	.09	34	1.95	.08	.16	11	52

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L300W 300S	1	6	10	45	.1	8	2	164	1.26	5	5	ND	3	14	.2	2	2	25	.19	.034	8	13	.22	51	.13	2	1.60	.01	.05	1	3
DB L300W 350S	1	24	15	61	.2	14	6	242	2.03	2	5	ND	1	56	.2	2	4	33	.42	.089	20	20	.29	134	.02	2	3.16	.02	.10	1	2
DB L300W 400S	1	9	9	58	.1	8	5	159	2.10	7	5	ND	3	15	.2	2	5	40	.13	.075	10	20	.17	43	.15	2	2.59	.01	.04	1	13
DB L200W 400N	1	11	8	45	.1	11	6	391	1.86	4	5	ND	2	26	.2	2	6	43	.29	.043	16	22	.25	56	.17	2	1.27	.02	.06	1	6
DB L200W 350N	1	10	15	55	.1	9	4	392	1.30	2	5	ND	1	70	.5	2	4	26	.49	.037	23	17	.22	101	.10	2	1.40	.02	.05	1	3
DB L200W 300N	1	7	15	30	.2	6	2	156	.98	2	5	ND	1	23	.3	2	4	25	.20	.020	11	13	.12	48	.13	2	.81	.01	.04	1	8
DB L200W 250N	1	4	19	36	.3	5	2	189	1.02	2	5	ND	1	22	.2	2	6	26	.21	.014	10	10	.15	40	.16	4	.80	.01	.04	1	2
DB L200W 200N	1	8	17	68	.2	8	5	258	1.72	6	5	ND	1	23	.2	2	5	36	.22	.025	11	15	.29	58	.16	4	1.70	.02	.05	1	10
DB L200W 150N	1	9	13	42	.1	8	4	161	1.45	2	5	ND	2	17	.2	2	3	31	.17	.030	12	15	.18	50	.16	2	1.74	.02	.04	1	1
DB L200W 100N	1	11	15	52	.3	12	4	196	1.44	2	5	ND	2	18	.2	2	4	29	.19	.032	10	16	.23	68	.15	4	1.79	.01	.04	1	1
DB L200W 050N	1	10	13	56	.3	9	7	183	2.83	3	5	ND	4	18	.2	4	4	52	.16	.081	10	19	.23	67	.13	2	3.84	.01	.04	1	1
RE DB L200W 200S	2	20	17	80	.6	15	7	201	2.37	3	5	ND	1	35	.4	2	2	38	.22	.134	12	22	.20	114	.03	3	4.10	.02	.12	1	1
DB L200W 000N B.L.	1	10	16	41	.2	7	4	166	1.54	2	6	ND	1	19	.2	2	4	31	.16	.035	13	15	.16	66	.14	3	1.97	.01	.05	1	1
DB L200W 050S	1	16	11	71	.1	13	7	243	2.82	4	5	ND	1	22	.4	2	2	52	.19	.037	11	21	.32	90	.18	2	2.49	.01	.05	1	2
DB L200W 100S	1	8	14	40	.1	4	3	127	2.52	8	5	ND	1	13	.2	2	4	46	.12	.057	8	17	.12	30	.12	2	2.08	.01	.03	1	8
DB L200W 150S	1	10	9	73	.1	9	6	212	2.35	2	5	ND	2	17	.2	2	5	39	.18	.046	10	20	.27	64	.15	2	2.41	.01	.06	1	1
DB L200W 200S	1	20	19	77	.4	16	7	197	2.30	4	5	ND	1	33	.3	2	5	38	.21	.130	12	23	.20	110	.03	2	3.96	.02	.12	1	2
DB L200W 250S	1	11	11	66	.1	9	6	164	2.48	2	5	ND	2	17	.3	2	2	47	.14	.076	10	22	.20	52	.14	4	2.78	.01	.04	1	3
DB L200W 300S	1	10	15	35	.1	7	3	129	1.11	2	5	ND	1	20	.3	2	2	26	.16	.038	11	16	.15	52	.12	2	1.64	.01	.04	1	4
DB L200W 350S	1	8	13	56	.1	7	5	161	2.19	2	10	ND	1	17	.2	2	3	42	.14	.068	9	17	.20	55	.14	2	2.87	.01	.04	1	1
DB L200W 400S	1	8	11	67	.1	9	5	174	3.14	7	5	ND	2	16	.4	2	2	53	.16	.116	8	20	.18	53	.13	4	2.99	.01	.04	1	6
DB L100W 350N	1	17	8	66	.1	11	10	258	3.00	5	6	ND	1	26	.4	2	2	59	.22	.069	10	21	.34	98	.11	3	2.75	.01	.07	1	3
DB L100W 300N	1	10	17	72	.1	8	7	261	3.19	2	6	ND	1	16	.2	2	3	60	.15	.076	11	20	.24	51	.12	2	2.76	.01	.05	1	3
DB L100W 250N	1	11	9	55	.1	6	6	252	3.20	7	5	ND	1	21	.2	2	2	57	.19	.084	8	21	.23	49	.18	3	1.49	.01	.05	1	1
DB L100W 200N	1	7	11	40	.1	5	4	197	1.64	2	10	ND	1	18	.4	2	3	36	.16	.019	10	15	.20	39	.18	2	1.10	.01	.05	1	4
DB L100W 150N	1	8	13	58	.1	5	5	216	2.43	7	5	ND	2	19	.2	2	5	51	.15	.037	10	17	.24	59	.16	2	1.86	.01	.05	1	1
DB L100W 100N	1	6	13	28	.1	6	2	145	1.05	2	5	ND	1	19	.2	2	2	27	.16	.013	11	11	.15	42	.18	3	.95	.01	.03	1	2
DB L100W 050N	1	10	12	54	.2	10	5	226	1.73	2	5	ND	3	22	.8	2	2	36	.21	.022	12	19	.27	72	.19	2	1.65	.02	.04	1	5
DB L100W 000N B.L.	1	8	15	34	.3	5	2	127	1.01	2	5	ND	1	27	.2	2	3	23	.19	.029	13	13	.12	71	.09	2	1.30	.01	.05	1	1
DB L100W 050S	1	13	10	57	.2	11	6	263	2.24	8	5	ND	3	22	.2	2	2	41	.20	.068	10	18	.24	85	.15	2	1.90	.01	.05	1	3
DB L100W 100S	1	10	10	75	.5	11	6	187	2.12	8	5	ND	4	18	.4	2	2	39	.17	.046	11	19	.22	66	.16	3	2.18	.01	.04	1	7
DB L100W 150S	1	16	14	42	1.9	7	5	149	1.33	5	5	ND	1	30	.2	2	2	23	.22	.114	12	16	.13	83	.01	5	2.14	.01	.07	2	2
DB L100W 200S	1	11	8	37	.1	8	5	160	2.21	6	5	ND	1	18	.4	2	3	48	.18	.041	11	22	.24	60	.15	3	1.81	.01	.04	1	2
DB L100W 250S	1	11	11	57	.1	11	6	170	2.39	7	5	ND	3	18	.3	2	2	44	.16	.056	9	19	.22	72	.15	4	2.45	.01	.04	1	4
DB L100W 300S	1	9	10	56	.1	8	5	198	2.60	7	5	ND	2	18	.4	2	2	50	.17	.078	10	22	.23	55	.15	5	2.58	.01	.05	1	5
DB L100W 350S	1	11	10	63	.1	11	5	202	2.40	6	5	ND	2	21	.2	2	2	44	.19	.056	10	20	.26	80	.15	4	2.38	.01	.05	1	4
DB L100W 400S	1	20	13	16	.3	7	2	53	.86	2	5	ND	1	35	.3	2	2	13	.22	.059	14	11	.06	88	.02	3	1.20	.01	.03	1	1
STANDARD C/AU-S	19	58	39	133	7.6	72	32	1066	3.96	38	19	7	40	53	19.0	14	20	58	.50	.083	39	60	.94	183	.09	35	1.93	.07	.14	13	47

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

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
DB L00W 200N	1	7	12	55	.1	8	5	180	1.88	6	5	ND	2	18	.2	2	3	39	.24	.041	8	19	.21	56	.14	3	1.33	.01	.03	1	1
DB L00W 150N	1	4	10	34	.2	4	4	342	2.04	8	6	ND	2	15	.3	2	3	43	.14	.054	7	15	.09	38	.13	2	.78	.01	.03	1	2
RE DB L00W 100S	1	6	10	48	.3	10	5	168	1.63	5	5	ND	3	17	.2	2	3	30	.19	.040	8	16	.21	49	.12	2	1.74	.01	.05	1	1
DB L00W 100N	1	4	13	30	.2	3	3	152	1.15	2	5	ND	1	16	.2	2	2	26	.14	.023	9	10	.11	38	.13	2	.65	.01	.04	1	1
DB L00W 050N	1	5	14	32	.1	4	3	162	1.03	2	5	ND	1	14	.2	2	2	23	.13	.018	8	10	.16	41	.13	2	.87	.01	.04	1	1
DB L00W 000N B.L.	1	7	8	47	.1	7	8	411	1.81	8	5	ND	2	19	.2	2	4	33	.16	.035	8	16	.19	67	.13	2	1.12	.01	.05	1	1
DB L00W 050S	1	8	19	45	.3	8	5	164	1.77	6	5	ND	4	15	.4	2	2	32	.16	.037	9	15	.20	52	.13	2	1.46	.01	.04	1	1
DB L00W 100S	1	7	10	49	.2	8	5	169	1.62	4	5	ND	2	17	.2	2	4	30	.18	.039	8	16	.22	44	.12	2	1.72	.01	.04	1	1
DB L00W 150S	1	10	17	75	.2	8	8	204	2.65	5	5	ND	3	12	.2	2	2	51	.10	.090	9	21	.24	46	.17	2	2.27	.01	.04	1	6
DB L00W 200S	1	10	9	58	.1	8	6	206	2.38	7	5	ND	2	12	.2	2	2	46	.12	.079	7	18	.19	43	.13	2	2.01	.01	.03	1	2
DB L00W 250S	1	11	13	54	.2	8	6	260	1.78	8	5	ND	2	19	.2	2	2	38	.19	.037	8	17	.24	55	.16	2	1.38	.01	.04	1	2
DB L00W 300S	1	7	12	40	.2	6	4	158	1.19	5	5	ND	2	16	.2	2	2	26	.18	.027	9	14	.21	48	.13	2	1.13	.01	.05	1	4
DB L00W 350S	1	12	14	57	.4	9	6	168	2.23	5	5	ND	3	19	.2	2	2	40	.16	.037	8	17	.28	65	.11	4	2.60	.01	.04	1	3
DB L00W 400S	1	9	7	42	.3	4	3	130	1.77	6	5	ND	3	11	.2	2	4	36	.11	.064	8	17	.14	38	.11	3	1.98	.01	.04	1	7
STANDARD C/AU-S	20	59	41	133	7.3	71	32	1075	3.96	41	19	7	41	53	18.9	14	21	59	.50	.083	39	61	.94	183	.09	35	1.94	.07	.14	11	49

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
PEM 00W 1000S	1	11	23	85	.5	14	5	322	2.20	8	5	ND	1	28	.5	2	3	38	.21	.047	13	22	.32	87	.13	2	1.60	.02	.07	1	22
PEM 00W 1050S	1	7	13	50	.3	8	4	238	2.93	8	5	ND	2	12	.2	2	2	55	.13	.105	9	22	.18	46	.18	2	1.25	.01	.06	1	3
PEM 00W 1100S	1	2	13	19	.1	4	1	90	1.08	4	5	ND	2	9	.2	2	2	24	.06	.028	11	9	.05	19	.11	2	.71	.01	.05	1	4
PEM 00W 1150S	1	5	11	42	.1	7	2	175	2.05	6	5	ND	3	17	.2	4	2	41	.13	.056	9	15	.14	33	.13	2	1.15	.02	.07	2	2
PEM 00W 1200S	1	6	12	35	.1	6	3	160	1.97	5	5	ND	3	12	.2	3	3	39	.09	.046	10	15	.14	27	.13	2	1.36	.02	.05	1	3
PEM 00W 1250S	1	1	6	13	.1	2	1	63	.33	2	5	ND	1	7	.2	2	2	10	.05	.010	10	5	.02	18	.06	2	.34	.01	.03	1	4
PEM 00W 1300S	1	8	11	54	.1	8	3	165	2.16	2	5	ND	4	15	.4	2	3	37	.10	.076	9	17	.16	37	.13	2	2.43	.02	.04	1	9
PEM 00W 1350S	1	11	9	62	.1	8	3	214	2.45	8	5	ND	4	18	.2	2	2	37	.19	.086	9	17	.21	45	.11	2	2.63	.02	.07	1	8
PEM 00W 1400S	1	8	12	46	.1	7	3	183	1.97	5	5	ND	3	15	.2	3	2	36	.12	.043	9	15	.19	39	.15	2	1.15	.02	.05	1	1
PEM 00W 1450S	1	8	15	52	.2	7	3	190	1.52	2	5	ND	3	17	.2	2	2	32	.14	.026	11	14	.18	41	.17	2	1.01	.02	.07	1	6
PEM 00W 1500S	1	3	14	27	.1	4	1	109	.82	2	5	ND	1	13	.2	2	2	20	.09	.015	10	8	.07	28	.12	2	.63	.01	.04	1	6
PEM 00W 1550S	1	10	12	64	.4	10	4	199	1.81	2	5	ND	3	16	.2	2	2	31	.12	.041	11	15	.24	44	.13	2	2.31	.02	.04	1	4
PEM 00W 1600S	1	11	15	52	.2	9	4	204	1.81	3	5	ND	2	14	.2	2	2	35	.12	.024	10	17	.27	31	.18	2	1.26	.02	.06	1	5
PEM 00W 1650S	1	10	21	112	.1	11	5	306	1.99	2	5	ND	2	23	.2	2	2	39	.20	.027	10	17	.38	38	.21	2	1.48	.02	.06	1	2
PEM 00W 1700S	1	7	12	37	.1	6	3	174	1.38	3	5	ND	2	15	.2	2	2	29	.12	.014	10	12	.16	29	.15	2	.90	.02	.05	1	2
PEM 00W 1750S	10	39	17	111	1.0	21	15	3776	2.83	41	8	ND	1	130	1.2	2	2	59	1.08	.203	32	34	.39	193	.03	2	4.41	.04	.11	1	2
PEM 00W 1800S	1	7	13	40	.2	6	2	172	1.81	4	5	ND	1	12	.2	2	2	34	.09	.056	8	13	.10	35	.11	2	1.96	.02	.04	1	1
PEM 00W 1850S	1	8	2	62	.2	4	1	31	.12	2	5	ND	1	41	.4	2	3	6	.32	.089	9	3	.03	29	.01	2	.45	.02	.01	1	4
PEM 00W 1900S	1	10	2	91	.2	5	2	142	.45	4	5	ND	1	120	.3	2	2	12	1.00	.060	7	4	.06	38	.01	2	.31	.03	.01	1	5
PEM 00W 1950S	2	5	12	28	.3	5	1	103	.68	2	5	ND	1	10	.2	2	2	15	.10	.023	7	8	.09	31	.07	2	1.12	.02	.05	1	2
RE PEM 00W 1750S	11	38	17	108	.8	19	15	3647	2.74	39	5	ND	1	128	1.0	2	2	58	1.04	.194	31	32	.38	191	.03	2	4.32	.04	.10	1	1
PEM 00W 2000S	1	6	11	33	.3	7	2	205	.87	2	6	ND	1	17	.2	2	2	18	.14	.026	10	10	.15	42	.08	2	.99	.02	.07	1	1
PEM 00W 2050S	1	3	13	21	.1	4	1	117	.95	2	5	ND	1	11	.2	2	2	24	.09	.022	8	8	.04	22	.12	3	.65	.02	.04	1	1
PEM 00W 2100S	1	5	10	23	.3	5	1	119	.99	5	5	ND	2	9	.2	2	2	23	.06	.020	9	10	.07	30	.09	2	.67	.02	.05	1	5
PEM 00W 2150S	1	8	16	50	.1	9	3	187	2.15	7	5	ND	2	13	.2	2	2	41	.10	.042	9	14	.17	45	.15	2	1.46	.02	.06	1	2
PEM 00W 2200S	1	6	18	30	.1	4	1	147	.88	4	5	ND	1	13	.2	2	2	21	.11	.018	8	9	.11	25	.11	2	.74	.02	.06	1	5
PEM 00W 2250S	1	7	14	38	.2	5	2	188	1.64	8	5	ND	2	11	.2	2	2	34	.09	.035	9	11	.10	41	.10	2	1.16	.02	.06	2	6
PEM 00W 2266S	1	13	19	78	.1	9	4	264	2.03	10	5	ND	2	25	.2	2	2	43	.20	.026	9	18	.29	56	.12	2	1.37	.02	.07	1	4
24708-X	6	22	42	131	.3	9	6	765	3.36	140	5	ND	4	55	.2	5	2	15	.16	.043	21	6	.14	93	.01	2	1.78	.02	.16	1	2
STANDARD C/AU-S	19	60	39	132	7.4	77	31	1070	3.96	41	19	7	39	52	18.5	15	21	58	.52	.085	39	59	.93	183	.08	34	1.94	.08	.16	11	48

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
BD SILT 7	4	27	22	101	1.4	13	8	2413	2.21	61	125	2	1	74	.6	3	2	26	.86	.070	35	22	.31	110	.03	2	2.15	.03	.15	2	2
RE BD SILT 7	5	27	20	100	1.2	13	8	2426	2.21	57	125	2	1	75	.6	2	2	26	.88	.070	35	22	.31	111	.03	2	2.18	.03	.15	1	-

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
BD-PAN-3	7	27	39	69	.2	17	4	244	1.58	11	5	ND	5	35	.2	2	2	22	.53	.020	12	51	.22	45	.06	2	.72	.09	.17	1	2
BD-PAN-4	10	20	9	50	.1	28	10	517	5.55	2	5	ND	4	80	.7	2	5	122	.78	.037	25	47	.30	73	.30	4	1.19	.20	.21	1	1
BD-PAN-5	7	16	7	47	.1	19	10	430	4.64	2	5	ND	3	49	.2	2	2	107	.54	.038	17	64	.30	50	.23	2	.93	.09	.13	1	1
RE BD-PAN-6	4	8	7	47	.1	15	7	535	2.35	2	5	ND	4	30	.2	2	5	40	.33	.032	11	21	.33	61	.10	2	1.08	.10	.17	1	1
BD-PAN-6	5	9	4	49	.1	16	7	541	2.36	2	5	ND	4	30	.2	2	2	39	.33	.032	11	20	.34	60	.10	2	1.10	.10	.17	1	1
BD-PAN-7	8	12	9	57	.1	17	4	648	1.41	19	5	ND	4	18	.4	2	2	19	.19	.014	8	59	.18	34	.07	4	.65	.10	.16	1	8
BD-PAN-8	8	14	9	56	.1	25	8	981	3.19	15	5	ND	3	49	.2	2	2	58	.49	.033	12	31	.33	81	.16	2	1.23	.16	.25	2	3
BD-PAN-9	8	13	6	73	.1	20	9	484	2.57	16	7	ND	3	41	.2	2	6	43	.48	.047	12	56	.38	96	.13	2	1.32	.12	.22	1	4
BD-PAN-10	5	7	2	50	.1	14	4	512	1.65	7	6	ND	3	27	.2	2	2	25	.25	.020	12	18	.21	64	.08	5	.93	.09	.17	1	2
BD-PAN-11	5	7	7	64	.1	17	6	986	1.89	10	5	ND	2	28	.3	2	3	27	.26	.028	13	39	.31	98	.04	2	1.17	.07	.18	1	1
STANDARD C/AU-R	20	56	37	134	7.3	72	32	1062	3.96	42	22	7	40	52	18.5	15	21	58	.49	.084	39	61	.94	182	.08	34	2.01	.07	.14	10	479

Sample type: PAN CONC.. Samples beginning 'RE' are duplicate samples.

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
24625-X	4	6	3	9	.1	3	1	82	.50	7	5	ND	13	5	.2	2	2	1	.01	.006	10	4	.02	16	.01	2	.38	.04	.08	1	3
24626-X	4	2	6	17	.1	4	2	1362	.99	6	5	ND	13	12	.2	2	2	2	.03	.010	8	6	.02	32	.01	2	.33	.05	.13	1	1
24627-X	3	4	24	18	.1	5	1	124	.44	12	5	ND	13	3	.2	2	2	1	.02	.003	9	9	.01	8	.01	6	.36	.04	.13	1	6
24628-X	3	2	7	18	.4	7	2	76	.71	9	5	ND	14	3	.2	2	2	3	.03	.013	8	6	.03	11	.01	4	.31	.04	.12	1	8
24629-X	3	2	7	16	.1	1	1	84	.48	38	5	ND	16	3	.2	3	2	1	.03	.005	10	5	.04	5	.01	4	.43	.03	.13	1	8
24630-X	3	4	28	13	.2	7	1	62	.45	9	5	ND	14	3	.2	2	2	1	.02	.007	11	9	.01	15	.01	6	.36	.05	.13	1	9
24631-X	9	1	693	1121	.9	2	1	351	.38	2	5	ND	11	11	10.8	2	3	1	.11	.007	19	5	.01	34	.01	2	.26	.03	.16	1	3
24632-X	6	2	208	302	.6	2	2	1321	.58	14	5	ND	12	9	3.3	12	2	1	.06	.008	23	5	.02	76	.01	2	.31	.03	.17	1	5
24633-X	4	5	35	625	.1	6	2	879	.60	13	5	ND	7	25	5.1	2	2	1	.23	.007	17	8	.03	45	.01	5	.29	.03	.18	1	1
24634-X	3	3	131	250	.1	6	1	86	.40	8	5	ND	9	6	.2	2	2	1	.05	.008	22	6	.01	39	.01	4	.32	.03	.17	1	5
24639-X	5	75	10	131	.3	118	20	194	3.78	2	5	ND	4	24	.5	2	2	70	.14	.028	7	82	1.37	108	.15	7	2.86	.06	.88	1	3
24640-X	2	81	7	27	.3	76	14	173	1.70	13	5	ND	1	367	.2	2	4	27	4.65	.147	3	23	.31	120	.09	7	5.63	.36	.14	2	2
24707-X	1	17	10	41	.1	4	3	143	.74	5	5	ND	12	13	.2	2	2	5	.16	.029	13	8	.05	48	.01	5	.57	.04	.14	1	2
24709-X	4	5	31	23	.4	5	2	304	.91	35	5	ND	12	6	.2	2	2	3	.05	.015	9	6	.03	22	.01	5	.35	.05	.14	1	5
RE 24634-X	3	3	135	244	.1	6	1	81	.42	5	5	ND	9	6	.2	2	2	1	.05	.008	23	6	.02	49	.01	3	.33	.04	.19	1	4
24710-X	3	20	6	45	.1	11	6	525	1.74	5	5	ND	7	27	.2	2	2	26	.92	.047	21	16	.14	89	.02	3	.47	.07	.20	1	3
STANDARD C/AU-R	19	58	38	134	7.4	71	32	1051	3.96	39	17	7	39	52	19.2	14	19	57	.49	.084	38	60	.93	182	.08	35	1.99	.07	.14	10	470

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

COMP: GRANGES INC.
PROJ: BLACKWATER-DAVIDSON (120)
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: 2V-1002-HJ1
DATE: 92/09/15
* * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL %	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA %	CD PPM	CO PPM	CU PPM	FE %	K %	LI PPM	MG %	MN PPM	MO PPM	NA %	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB
BD-H09	.1	.75	1	25	53	.1	13	.71	.1	20	14	9.21	.03	6	.54	509	1	.01	1	1290	1	1	51	1	2606	293.9	54	1	1	6	43	1
BD-H10	.1	.83	1	13	88	.1	16	.79	.1	24	18	13.12	.04	8	.49	968	1	.01	1	1100	82	1	65	1	3774	404.2	126	1	1	7	66	2
BD-H11	.1	.94	1	16	85	.1	23	.96	.1	29	19	>15.00	.04	6	.84	995	1	.01	1	1330	1	1	68	1	5346	499.4	58	1	2	9	67	10
BD-H12	9.2	1.23	1	18	44	.1	41	1.23	.1	23	20	9.79	.04	9	.36	1728	1	.01	1	1100	44	1	91	1	7406	269.6	89	1	9	8	72	2
BD-H13	.1	1.24	1	12	111	.1	33	1.13	.1	31	32	>15.00	.05	6	.50	1543	1	.01	1	1370	1	1	82	1	6803	461.7	84	1	3	9	80	5
BD-H14	.1	1.34	1	11	103	.1	31	1.21	.1	28	22	14.57	.06	8	.47	903	1	.01	1	1480	1	1	82	1	6268	424.8	84	1	5	8	50	5

ACME ANA[illegible]ICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX([illegible])253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

SEP - 8 1992

Granges Inc. PROJECT BLACKWATER DAVIDSON File # 92-2739 Page 1

2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L20W 1000N	4	17	15	283	.7	14	6	1170	1.98	29	5	ND	1	84	2.9	2	2	37	.72	.085	24	21	.25	127	.05	3	2.36	.03	.07	1	1
L20W 950N	4	15	13	229	.5	13	5	1532	1.65	21	6	ND	1	88	2.0	2	2	29	.76	.064	24	18	.27	107	.07	2	1.69	.03	.09	1	20
L20W 900N	4	10	16	117	.3	8	5	926	2.14	30	5	ND	1	45	.6	2	4	27	.34	.058	16	15	.13	84	.05	2	1.16	.02	.05	1	8
L20W 850N	1	11	16	78	.5	7	5	360	1.51	8	5	ND	1	38	.4	2	2	35	.30	.058	14	14	.12	69	.06	2	1.22	.02	.06	1	8
L20W 800N	1	7	10	50	.1	6	3	460	1.25	6	5	ND	1	28	.2	2	2	27	.22	.022	10	13	.19	70	.08	2	1.01	.02	.04	1	10
L20W 750N	1	6	15	67	.5	3	2	280	.89	4	5	ND	1	20	.2	2	2	21	.20	.026	10	9	.10	41	.09	2	.64	.01	.06	1	1
L20W 700N	1	20	17	460	1.1	15	8	1760	2.70	29	5	ND	1	113	1.5	2	2	59	.89	.064	27	22	.34	195	.04	2	3.68	.02	.12	1	5
L20W 650N	1	7	9	93	.2	7	3	169	2.61	9	5	ND	2	20	.3	2	2	51	.18	.067	9	20	.15	43	.10	2	1.94	.01	.05	1	2
L20W 600N	1	5	13	33	.5	2	1	88	1.31	4	5	ND	1	12	.2	2	2	28	.10	.040	11	13	.07	32	.08	2	1.32	.01	.05	1	10
L20W 550N	1	15	19	369	2.7	17	6	347	2.39	27	5	ND	1	94	2.3	2	2	38	.77	.119	17	24	.28	142	.03	2	4.62	.03	.14	1	8
L20W 500N	1	6	14	50	.4	4	1	96	1.42	5	5	ND	1	16	.2	3	2	29	.13	.047	11	13	.08	40	.07	2	1.52	.01	.05	1	5
L20W 450N	1	11	24	351	.8	13	9	1080	2.16	33	6	ND	1	51	1.9	2	2	29	.45	.058	13	22	.28	113	.06	2	3.19	.03	.15	1	8
L20W 400N	1	17	21	390	2.2	19	6	318	2.50	24	5	ND	1	92	2.2	2	2	38	.74	.114	16	26	.31	155	.03	2	5.26	.03	.16	2	14
L20W 350N	1	10	18	120	.2	10	5	396	1.73	17	5	ND	2	40	.4	2	2	41	.35	.045	18	20	.25	72	.12	2	1.47	.02	.08	1	2
L20W 300N	1	7	14	88	.1	6	3	226	1.68	14	5	ND	1	45	.4	2	2	30	.30	.043	15	14	.16	71	.07	2	1.60	.02	.05	1	2
L20W 250N	1	8	17	138	.4	9	4	445	1.59	12	5	ND	1	56	.5	2	2	34	.43	.039	17	17	.25	84	.08	3	1.61	.03	.08	1	1
L20W 200N	1	5	15	45	.4	5	2	105	.96	3	5	ND	2	34	.2	2	2	19	.27	.040	15	11	.13	66	.09	2	1.09	.02	.05	1	1
L20W 150N	1	5	9	32	.1	6	2	154	.95	2	5	ND	1	17	.2	2	2	21	.19	.026	11	11	.14	32	.09	2	.71	.02	.05	1	1
L20W 100N	1	7	10	56	.4	8	3	301	1.10	4	5	ND	1	66	.6	2	2	20	.47	.055	16	13	.15	96	.06	2	1.04	.02	.12	1	3
L20W 050N	1	6	12	33	.1	4	2	365	.61	2	5	ND	1	45	.9	2	2	14	.29	.025	17	10	.06	70	.04	2	.66	.02	.04	1	10
L20W 00 BL	1	15	49	152	1.1	16	8	605	2.36	19	5	ND	1	77	1.6	2	2	35	.53	.095	17	21	.26	183	.04	2	4.60	.02	.11	1	9
L20W 050S	1	4	14	51	.4	4	2	134	.95	3	5	ND	3	18	.2	2	2	20	.16	.017	11	9	.13	34	.12	2	.90	.02	.05	1	8
L20W 150S	1	5	19	50	.2	5	3	290	.98	2	5	ND	1	26	.4	2	2	24	.21	.014	13	10	.13	55	.12	2	.98	.02	.05	1	5
L20W 200S	1	8	17	53	.3	7	4	523	1.43	5	5	ND	4	34	.3	2	2	35	.32	.026	15	17	.20	61	.14	2	1.11	.02	.08	1	9
L20W 250S	1	6	12	48	.1	7	2	174	1.08	2	5	ND	2	24	.2	2	2	22	.24	.024	11	13	.19	48	.10	2	.99	.02	.06	1	3
RE L20W 050S	1	4	14	51	.6	4	2	130	.93	2	5	ND	4	18	.2	3	2	20	.16	.016	11	8	.12	30	.12	2	.84	.02	.07	2	5
L20W 300S	1	23	16	116	.3	16	12	1180	2.29	4	5	ND	1	124	.8	2	2	33	1.00	.085	26	20	.38	191	.04	3	3.07	.03	.11	2	9
L20W 350S	1	14	20	116	.3	18	8	645	2.62	7	5	ND	1	48	.4	2	2	45	.37	.051	14	23	.42	139	.05	2	3.07	.03	.14	1	1
L20W 400S	1	4	13	47	.2	6	2	124	.93	2	5	ND	1	25	.2	2	2	18	.19	.020	11	10	.13	60	.08	2	.99	.02	.05	1	7
L20W 450S	1	9	12	82	.6	11	5	415	1.68	3	6	ND	1	44	.4	2	2	30	.35	.042	13	17	.30	112	.06	2	1.93	.02	.10	1	5
L20W 500S	1	9	15	84	.2	12	7	700	1.59	4	5	ND	3	33	.3	2	2	36	.34	.039	17	18	.25	106	.11	2	1.36	.03	.07	1	9
L20W 550S	1	7	15	57	.2	8	5	439	1.25	2	5	ND	1	30	.2	2	2	27	.23	.027	12	13	.16	69	.10	2	1.22	.02	.06	1	2
L20W 600S	1	6	13	49	.2	9	3	144	1.21	2	5	ND	1	31	.2	2	2	28	.25	.024	11	16	.18	53	.14	2	1.13	.02	.06	2	8
L20W 650S	1	24	19	142	1.0	17	10	468	3.17	7	9	ND	2	79	1.3	2	2	58	.55	.061	16	25	.42	147	.08	2	3.16	.02	.15	2	16
L20W 700S	1	25	14	187	.6	21	9	507	3.56	9	5	ND	1	107	1.4	2	4	60	.78	.075	15	25	.62	185	.04	2	4.50	.03	.18	2	12
L20W 750S	1	6	13	53	.1	8	4	357	1.66	4	5	ND	4	30	.2	2	2	38	.35	.043	13	16	.23	42	.18	2	.78	.03	.06	1	4
L20W 800S	1	11	18	87	.2	11	5	369	1.94	13	5	ND	1	35	.9	2	2	40	.27	.044	14	19	.28	89	.12	2	1.60	.02	.07	1	12
STANDARD C/AU-S	17	59	37	133	7.5	74	31	1067	3.96	42	22	7	39	53	18.7	15	19	59	.50	.085	40	60	.94	184	.09	35	1.95	.08	.16	10	49

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: P1 TO P16 SOIL P17 SILT/P18 PAN CON P19 ROCK AU** ANALYSIS BY FA/ICP FROM 10 GM SAMPLE.
Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 24 1992 **DATE REPORT MAILED:** Sept 3/92 **SIGNED BY** C. Leong ....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME ANALYTICAL

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L20W 850S	1	10	12	78	.1	11	7	510	2.19	5	5	ND	2	72	.6	2	2	48	.47	.051	16	20	.31	97	.10	2	2.39	.03	.06	1	10
L20W 900S	1	10	14	80	.3	12	8	563	2.09	2	5	ND	2	53	.2	2	2	47	.41	.054	17	20	.32	90	.12	2	2.20	.03	.08	1	8
L20W 950S	1	23	10	115	.7	18	9	903	3.43	2	5	ND	1	95	.9	2	2	74	.57	.096	17	22	.48	128	.04	2	3.85	.03	.11	1	5
L20W 1000S	1	14	16	97	.6	14	11	643	2.26	2	9	ND	1	126	.4	2	2	48	.77	.071	20	18	.36	122	.05	2	3.25	.04	.10	1	4
L19W 1000N	1	5	16	37	.3	8	4	206	1.45	7	5	ND	2	35	.2	2	2	31	.29	.027	13	14	.19	50	.11	2	.95	.02	.07	1	2
L19W 950N	1	6	24	45	.3	7	3	254	.98	2	5	ND	2	42	.2	2	2	23	.29	.026	13	12	.13	80	.08	2	1.07	.02	.06	1	1
L19W 900N	1	6	16	113	.4	5	2	104	.88	3	5	ND	1	45	.4	2	2	19	.30	.033	18	11	.11	74	.06	2	1.19	.02	.06	1	4
L19W 850N	1	16	12	333	1.5	17	6	655	2.59	11	9	ND	2	62	.6	3	2	54	.48	.091	13	23	.33	120	.04	2	3.56	.02	.13	1	4
L19W 800N	1	6	10	59	.1	9	5	301	1.69	7	5	ND	2	26	.2	2	5	38	.29	.043	13	16	.21	54	.14	2	1.02	.02	.03	1	1
RE L19W 550N	1	5	16	79	.3	8	3	191	1.36	6	5	ND	1	24	.2	2	2	30	.21	.033	12	14	.17	58	.09	2	1.32	.02	.06	1	2
L19W 750N	1	5	16	54	.6	7	3	119	1.50	8	8	ND	4	19	.2	3	2	35	.19	.035	15	18	.17	41	.13	2	1.16	.02	.07	1	4
L19W 700N	1	4	14	56	.4	6	2	97	.70	3	5	ND	2	16	.2	2	2	19	.16	.013	11	9	.08	36	.11	2	.59	.02	.06	1	4
L19W 650N	1	2	16	45	.4	4	2	94	1.32	6	5	ND	1	13	.2	2	3	37	.11	.030	13	11	.10	32	.10	2	.94	.02	.05	1	5
L19W 600N	1	9	11	65	.2	12	3	123	1.61	8	5	ND	2	13	.2	2	2	32	.12	.036	11	17	.20	43	.08	2	1.52	.02	.05	1	1
L19W 550N	1	6	16	80	.3	7	3	203	1.42	6	5	ND	1	23	.2	2	2	31	.20	.034	13	15	.17	62	.09	2	1.39	.02	.06	1	3
L19W 500N	1	3	11	107	.5	4	2	105	.82	4	5	ND	3	18	.2	2	2	19	.18	.020	11	9	.15	33	.11	2	.74	.02	.05	1	3
L19W 450N	1	8	15	182	.3	6	2	193	1.11	16	5	ND	1	40	.7	2	2	27	.34	.015	15	11	.12	62	.09	2	1.18	.02	.08	1	1
L19W 400N	1	22	13	399	2.4	8	11	1733	.97	22	5	ND	1	114	6.0	2	2	13	.86	.079	25	9	.10	145	.02	2	1.15	.02	.10	1	10
L19W 350N	1	19	15	297	.6	8	4	334	.97	13	5	ND	1	77	3.9	2	2	18	.60	.048	25	13	.12	121	.04	2	1.18	.02	.08	1	3
L19W 300N	2	11	17	93	.7	13	5	285	2.08	6	9	ND	2	45	.3	2	2	41	.29	.068	12	18	.27	98	.07	2	2.73	.02	.10	1	9
L19W 250N	1	14	18	163	.4	10	7	590	2.11	20	5	ND	1	60	.8	2	2	45	.48	.038	17	19	.29	105	.11	2	1.77	.03	.11	1	4
L19W 200N	1	8	19	133	.2	10	5	450	1.78	13	5	ND	3	45	.6	2	2	41	.43	.048	16	18	.27	68	.16	2	1.23	.04	.07	1	8
L19W 150N	1	6	19	139	.4	8	4	314	1.58	14	9	ND	4	28	.3	2	2	39	.27	.029	13	16	.23	62	.15	2	1.26	.03	.08	1	1
L19W 100N	1	8	18	180	.3	9	4	325	1.59	20	5	ND	3	38	.8	2	2	37	.36	.040	15	17	.25	68	.13	2	1.22	.03	.09	1	6
L19W 050N	1	5	18	166	.1	8	4	424	1.72	29	5	ND	2	48	.6	2	2	43	.40	.032	12	15	.22	74	.13	2	1.26	.02	.08	1	2
L19W 00 BL	1	5	16	96	.3	8	4	316	1.31	10	5	ND	2	36	.3	2	2	32	.32	.029	12	14	.23	62	.12	2	1.19	.03	.06	1	1
L19W 050S	1	7	17	77	.3	9	6	436	1.80	12	6	ND	2	48	.3	2	2	40	.38	.037	15	16	.25	78	.11	2	1.57	.03	.08	1	1
L19W 100S	1	10	16	93	.5	12	12	1667	2.54	18	6	ND	2	56	.8	2	2	55	.47	.052	17	19	.30	96	.12	2	1.69	.03	.10	1	1
L19W 150S	1	8	11	72	.1	8	4	264	1.41	5	5	ND	1	38	.3	2	2	34	.34	.040	13	16	.22	67	.13	2	1.24	.03	.05	1	2
L19W 200S	1	8	15	77	.2	11	8	453	2.55	22	5	ND	2	43	.3	2	2	60	.36	.043	15	22	.29	77	.11	2	1.44	.03	.06	1	1
L19W 250S	1	10	15	81	.4	12	8	414	2.09	8	5	ND	1	63	.4	2	3	58	.49	.053	14	20	.28	112	.07	2	2.28	.03	.11	1	1
L19W 300S	1	11	16	94	.5	12	6	513	2.08	2	5	ND	1	84	.6	2	2	41	.64	.053	15	19	.26	131	.05	2	2.66	.02	.12	1	1
L19W 350S	1	8	16	79	.4	10	6	972	1.47	3	5	ND	1	48	.3	2	2	33	.40	.040	14	18	.24	118	.09	2	1.51	.03	.08	1	4
L19W 450S	1	6	16	46	.1	8	3	181	1.05	2	5	ND	1	40	.2	2	2	24	.32	.025	13	14	.16	84	.15	2	1.50	.03	.07	1	5
L19W 500S	1	10	13	59	.1	11	5	271	1.69	2	5	ND	1	35	.2	2	2	36	.28	.031	12	17	.31	90	.13	2	1.65	.02	.06	1	6
L19W 550S	1	10	16	65	.4	10	10	452	1.79	2	5	ND	1	42	.2	2	2	37	.31	.035	14	17	.28	102	.11	2	1.92	.02	.09	1	5
L19W 600S	1	10	12	64	.1	11	5	242	1.90	2	5	ND	1	33	.2	2	2	38	.23	.026	10	17	.30	74	.14	2	1.65	.02	.04	1	6
STANDARD C/AU-S	18	63	40	136	7.5	78	32	1084	3.96	43	21	7	39	53	19.1	15	21	60	.50	.087	41	61	.90	184	.09	34	1.96	.08	.16	11	52

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

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L19W 650S	1	7	18	57	.1	8	4	219	1.61	2	5	ND	1	35	.2	2	2	41	.27	.018	11	16	.28	77	.22	2	1.26	.02	.02	1	1
L19W 700S	1	11	21	84	.3	11	7	601	2.22	4	5	ND	1	50	.4	2	2	45	.41	.039	14	18	.37	108	.13	2	1.91	.04	.11	1	1
RE L19W 900S	1	8	10	46	.1	7	3	208	1.65	2	5	ND	1	20	.2	2	2	37	.19	.020	9	14	.23	34	.18	2	1.13	.02	.04	1	1
L19W 750S	1	7	12	54	.1	7	3	261	1.59	2	5	ND	1	34	.4	2	2	37	.30	.025	12	15	.24	59	.16	2	1.01	.02	.03	1	1
L19W 800S	2	33	31	396	.9	18	9	1932	2.57	49	8	ND	1	200	11.3	2	2	46	1.51	.080	30	19	.50	280	.04	2	3.10	.03	.14	1	3
L19W 850S	2	37	62	243	.7	17	9	1028	2.71	78	6	ND	1	100	3.9	2	2	52	.77	.082	33	24	.41	179	.08	2	2.72	.03	.12	1	22
L19W 900S	1	6	13	48	.1	7	3	216	1.71	2	5	ND	1	20	.2	2	2	38	.19	.021	10	15	.24	34	.18	2	1.16	.02	.03	1	3
L19W 950S	2	11	21	82	.3	11	5	179	1.57	3	5	ND	1	78	.2	2	2	31	.51	.092	16	18	.26	94	.05	2	2.68	.02	.08	1	3
L19W 1000S	1	10	18	73	.3	8	4	279	1.34	5	5	ND	1	113	.4	2	2	27	.75	.048	22	15	.23	93	.10	2	1.52	.03	.05	1	1
L18W 1000N	1	5	16	103	.1	7	3	182	1.64	7	5	ND	1	25	.2	2	2	36	.25	.029	12	16	.19	47	.12	2	1.16	.02	.02	1	1
L18W 950N	1	8	16	91	.4	11	7	224	2.69	11	8	ND	4	14	.3	3	3	47	.13	.150	10	20	.19	42	.10	3	3.27	.02	.06	2	1
L18W 900N	1	8	21	66	.2	11	4	153	2.26	10	5	ND	3	14	.2	2	2	43	.10	.073	10	21	.19	51	.11	2	2.21	.02	.05	1	2
L18W 850N	1	5	17	42	.3	5	2	163	1.92	9	6	ND	3	13	.2	4	2	38	.11	.074	12	13	.11	27	.09	2	1.57	.01	.05	2	1
L18W 800N	2	7	14	57	.1	9	4	165	2.04	8	5	ND	3	15	.2	2	5	39	.11	.067	9	18	.19	38	.11	2	1.88	.02	.03	1	6
L18W 750N	1	7	19	96	.3	8	3	339	2.31	8	5	ND	1	20	.2	2	2	44	.19	.088	11	18	.16	49	.08	2	2.11	.02	.06	1	1
L18W 700N	1	6	16	60	.2	5	2	99	1.53	10	5	ND	1	13	.2	2	2	35	.11	.029	10	13	.11	41	.07	2	1.35	.02	.04	1	7
L18W 650N	1	8	16	158	.8	9	2	191	1.70	7	5	ND	1	67	.6	2	2	33	.52	.065	19	13	.14	99	.08	2	1.32	.02	.08	1	1
L18W 600N	1	3	12	41	.1	4	1	127	1.29	3	5	ND	1	15	.2	2	2	27	.14	.030	11	11	.10	29	.08	2	.78	.01	.02	1	2
L18W 550N	1	6	15	82	.1	4	2	112	1.69	6	5	ND	1	20	.2	2	2	37	.15	.044	11	12	.09	58	.12	2	1.02	.02	.04	1	1
L18W 500N	1	13	19	270	.6	7	6	684	1.28	6	5	ND	1	53	.8	2	2	22	.40	.052	18	13	.14	114	.04	2	1.99	.02	.09	1	1
L18W 500S	1	8	16	67	.1	8	8	521	1.71	3	5	ND	1	34	.2	2	2	40	.32	.032	12	18	.24	60	.16	2	1.25	.03	.05	1	7
L18W 550S	1	8	12	50	.1	8	6	539	2.13	3	5	ND	3	33	.2	2	2	49	.42	.054	15	19	.23	54	.20	2	.87	.04	.05	1	7
L18W 600S	1	8	14	65	.1	9	5	366	1.66	4	5	ND	1	39	.3	2	2	37	.39	.042	14	19	.26	69	.14	2	1.29	.03	.06	1	1
L18W 650S	1	8	17	59	.1	8	4	213	1.73	2	5	ND	1	19	.2	2	2	38	.18	.021	11	16	.25	46	.15	2	1.37	.02	.04	1	1
L18W 700S	1	6	15	42	.1	4	2	146	1.26	2	5	ND	1	23	.3	2	3	29	.20	.027	10	12	.10	40	.12	2	.89	.02	.04	1	1
L18W 750S	1	6	19	39	.4	5	2	132	1.13	2	5	ND	1	18	.2	2	2	27	.16	.035	13	12	.12	41	.14	2	1.00	.02	.05	1	14
L18W 800S	1	6	14	49	.2	5	3	207	1.75	2	5	ND	1	21	.2	2	2	40	.21	.026	10	15	.17	31	.17	2	.96	.02	.03	1	1
L18W 850S	2	17	29	201	.8	13	6	362	2.43	19	11	ND	1	52	.7	3	2	46	.36	.073	12	21	.33	76	.05	2	2.58	.02	.12	2	2
L18W 900S	1	7	15	52	.1	7	3	212	1.66	3	5	ND	1	17	.2	2	3	37	.19	.025	9	15	.26	33	.17	2	1.27	.02	.04	1	1
L18W 950S	1	6	15	52	.1	8	3	199	1.73	3	5	ND	1	19	.2	2	2	38	.19	.026	10	16	.25	42	.15	2	1.49	.02	.05	1	14
L18W 1000S	1	6	15	45	.1	6	3	183	1.38	3	5	ND	1	22	.2	2	3	31	.19	.019	9	14	.24	43	.14	2	1.43	.02	.05	1	1
L17W 1000N	1	4	15	74	.1	5	2	105	1.58	3	5	ND	1	19	.2	2	2	35	.18	.029	9	14	.14	56	.10	2	1.52	.02	.01	1	16
L17W 950N	1	5	13	84	.1	6	2	147	1.12	4	5	ND	1	32	.2	2	2	25	.24	.016	10	11	.15	50	.10	2	.91	.02	.01	1	5
L17W 900N	1	7	23	139	.3	7	3	155	2.43	16	5	ND	1	16	.2	2	2	43	.13	.048	9	18	.17	54	.08	2	2.86	.02	.03	2	2
L17W 850N	1	9	17	80	.2	12	8	622	2.46	18	5	ND	1	23	.2	2	2	44	.24	.049	12	18	.34	75	.09	2	1.74	.03	.09	1	3
L17W 800N	1	3	14	43	.1	6	3	137	1.06	4	5	ND	1	20	.2	2	2	24	.26	.040	12	12	.21	37	.14	2	.88	.02	.04	1	3
L17W 750N	2	21	17	369	1.1	21	8	885	2.74	12	11	ND	1	135	1.1	3	4	38	1.30	.117	19	22	.43	150	.03	2	4.54	.03	.18	3	22
L17W 700N	1	25	22	615	1.1	28	22	5112	4.26	23	5	ND	1	101	2.0	2	3	77	.89	.129	15	30	.56	200	.04	2	5.63	.03	.21	1	2
STANDARD C/AU-S	20	60	41	139	7.3	79	32	1095	3.96	42	20	7	38	53	19.4	15	21	60	.50	.090	40	62	.91	183	.09	35	1.95	.08	.16	11	52

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

Granges Inc. PROJECT BLACKWATER DAVIDSON FILE # 92-2739

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L17W 650N	1	3	13	70	.3	4	2	88	.72	4	5	ND	2	19	.2	2	2	16	.18	.014	9	8	.11	29	.10	2	.69	.01	.04	1	63
L17W 600N	1	6	13	123	.5	7	2	145	1.65	11	7	ND	3	22	.2	3	2	33	.20	.046	11	14	.17	45	.09	2	1.38	.02	.06	1	20
L17W 550N	1	5	8	63	.2	5	2	98	1.23	7	5	ND	1	9	.2	2	2	24	.07	.042	9	12	.11	40	.06	2	1.90	.01	.04	1	9
L17W 500N	1	5	12	96	.3	7	4	277	1.28	4	5	ND	4	14	.2	2	2	25	.14	.025	10	13	.20	37	.11	2	1.06	.02	.06	1	12
L17W 500S	1	6	15	63	.3	8	3	187	1.29	6	6	ND	2	29	.3	3	2	29	.31	.041	12	15	.20	67	.13	2	1.17	.02	.07	1	10
L17W 550S	1	11	14	67	.1	10	6	407	2.12	7	5	ND	1	37	.2	2	2	43	.36	.053	13	20	.27	69	.10	2	1.41	.03	.04	1	11
L17W 600S	1	5	15	52	.2	6	3	153	1.21	3	5	ND	2	20	.2	2	2	28	.18	.012	9	12	.20	34	.15	2	.79	.02	.04	1	13
L17W 650S	1	4	14	88	.2	6	3	163	1.24	3	5	ND	2	19	.2	2	2	28	.17	.009	9	12	.21	38	.14	2	.82	.02	.05	1	10
L17W 700S	1	6	18	44	.4	5	2	129	1.78	2	5	ND	1	13	.2	2	2	36	.12	.040	9	12	.13	39	.13	2	1.19	.01	.02	1	10
L17W 750S	1	8	38	121	.3	5	3	208	1.21	3	5	ND	1	22	.8	2	2	26	.18	.019	10	11	.18	54	.12	2	.95	.01	.03	1	70
L17W 800S	1	4	21	43	.3	4	2	129	1.35	4	5	ND	1	14	.2	2	2	30	.12	.030	9	11	.13	28	.13	2	.92	.01	.04	1	11
L17W 850S	1	5	13	42	.2	4	2	110	1.64	2	5	ND	1	12	.2	2	2	35	.10	.044	8	13	.11	27	.11	2	1.27	.01	.04	1	7
L17W 900S	1	4	14	44	.1	5	2	107	1.72	4	5	ND	1	13	.2	2	2	32	.12	.072	9	14	.12	44	.08	2	1.41	.01	.03	1	10
L17W 950S	1	18	13	66	.9	13	4	185	1.75	25	5	ND	1	105	.3	2	2	30	.62	.168	16	16	.26	63	.01	2	2.74	.03	.08	1	10
L17W 1000S	1	4	12	47	.1	6	3	333	1.44	4	5	ND	1	39	.2	2	2	30	.32	.021	8	13	.28	37	.12	2	1.15	.02	.04	1	7
L16W 1000N	1	6	14	45	.1	9	3	132	1.39	5	5	ND	2	22	.2	2	2	28	.23	.040	12	16	.24	58	.12	2	1.05	.02	.04	1	10
L16W 950N	1	5	15	42	.2	6	2	126	1.47	8	5	ND	3	17	.2	3	2	33	.13	.024	12	13	.13	33	.13	2	.83	.01	.05	1	5
L16W 900N	1	6	16	56	.1	8	5	388	1.26	2	5	ND	1	36	.2	2	2	26	.27	.029	11	14	.21	77	.09	2	1.52	.02	.06	1	10
L16W 850N	1	4	17	38	.6	3	2	99	2.07	15	5	ND	5	10	.2	4	2	34	.07	.069	11	11	.10	35	.07	2	1.50	.01	.04	1	3
L16W 800N	1	7	13	67	.3	9	4	134	1.83	8	5	ND	1	21	.2	2	2	36	.20	.029	9	14	.21	62	.09	2	1.83	.02	.04	1	7
L16W 750N	1	4	7	36	.4	5	3	91	1.37	5	5	ND	2	10	.2	2	2	25	.09	.041	7	12	.14	44	.07	2	1.64	.01	.04	1	9
L16W 700N	1	2	11	24	.1	2	1	62	.61	3	5	ND	1	12	.2	2	2	13	.09	.017	9	6	.06	30	.05	2	.74	.01	.02	1	9
L16W 650N	1	2	14	22	.1	1	1	60	.49	2	5	ND	2	11	.2	2	2	15	.08	.010	11	5	.04	24	.08	2	.58	.01	.03	1	6
L16W 600N	1	3	14	88	.2	3	2	101	.88	2	5	ND	1	20	.2	2	2	18	.17	.019	9	10	.13	41	.09	2	.98	.01	.04	1	4
L16W 550N	1	4	10	49	.2	4	2	86	1.45	2	5	ND	3	8	.2	2	2	26	.07	.052	7	13	.11	35	.07	2	2.03	.02	.02	1	17
RE L16W 750N	1	4	7	36	.2	4	2	89	1.39	3	5	ND	1	10	.2	2	2	24	.09	.042	7	12	.14	45	.07	2	1.75	.01	.01	1	7
L16W 500N	1	1	11	35	.2	1	1	51	.41	2	5	ND	1	13	.2	2	2	10	.11	.011	8	5	.04	20	.08	2	.48	.01	.02	1	5
L16W 500S	1	4	14	35	.1	5	2	138	1.24	2	5	ND	1	16	.2	2	2	26	.17	.024	9	12	.17	34	.15	2	1.05	.02	.01	1	11
L16W 550S	1	7	24	121	.2	9	5	345	1.79	13	5	ND	1	57	.3	2	2	33	.45	.054	12	16	.29	87	.07	2	2.12	.02	.04	1	101
L16W 600S	1	5	22	57	.2	6	3	170	1.38	2	5	ND	1	15	.2	2	2	28	.16	.018	9	13	.25	39	.13	2	1.14	.02	.04	1	21
L16W 650S	1	7	16	70	.6	8	4	186	2.05	5	5	ND	1	14	.2	2	3	35	.14	.059	9	15	.26	44	.12	2	2.48	.02	.04	1	7
L16W 700S	1	7	16	57	.5	5	3	164	2.85	3	5	ND	1	14	.2	2	2	51	.11	.056	9	16	.18	39	.16	2	1.31	.01	.04	1	26
L16W 750S	1	6	16	66	.3	5	3	144	2.45	10	5	ND	1	11	.2	2	2	41	.10	.094	8	15	.20	36	.11	2	2.82	.01	.05	1	9
L16W 800S	1	4	17	38	.1	3	1	112	1.09	3	5	ND	1	16	.2	2	2	27	.14	.025	9	10	.10	28	.11	2	.84	.01	.02	1	181
L16W 850S	1	4	16	50	.3	4	2	140	1.59	2	5	ND	1	15	.2	3	2	36	.15	.026	9	12	.17	26	.16	2	1.00	.01	.04	1	13
L16W 900S	1	6	14	49	.1	8	4	186	1.78	3	5	ND	1	28	.2	2	2	41	.24	.020	8	17	.31	32	.19	2	1.19	.02	.02	1	14
L16W 950S	4	14	14	90	.7	15	9	1097	2.98	68	14	ND	1	88	.3	4	2	65	.62	.073	16	21	.46	61	.07	2	3.16	.02	.12	1	10
L16W 1000S	1	7	11	51	.1	7	4	219	2.23	2	5	ND	1	22	.2	2	2	43	.18	.030	10	16	.28	46	.16	2	1.51	.02	.03	1	5
STANDARD C/AU-S	18	59	38	133	7.4	74	31	1065	3.96	40	23	7	39	53	18.8	15	21	58	.50	.086	40	60	.95	183	.09	33	1.95	.08	.17	11	47

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

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L15W 1000N	1	8	16	43	.2	7	2	106	2.42	5	5	ND	5	14	.3	2	2	41	.09	.088	13	15	.11	40	.09	6	2.09	.01	.04	2	6
L15W 950N	1	10	11	69	.3	12	4	159	2.50	5	5	ND	3	18	.2	2	2	47	.15	.064	10	19	.21	53	.11	5	1.96	.02	.06	1	8
L15W 900N	1	14	14	59	.3	8	2	122	3.43	10	5	ND	4	17	.2	2	2	60	.12	.124	11	18	.16	50	.10	6	2.96	.01	.05	1	10
L15W 850N	1	8	10	61	.1	10	3	137	1.70	2	5	ND	2	16	.2	2	2	32	.14	.057	11	15	.19	75	.10	4	2.13	.02	.04	1	2
L15W 800N	1	8	14	36	.1	5	1	89	2.13	6	5	ND	3	14	.2	2	2	44	.09	.053	11	13	.08	41	.11	5	1.40	.01	.03	1	1
L15W 750N	1	5	13	31	.2	4	1	91	.71	2	5	ND	1	25	.2	2	2	17	.19	.019	12	8	.10	52	.08	3	.91	.02	.06	1	4
L15W 700N	1	7	13	33	.3	5	1	81	1.87	2	5	ND	4	11	.2	2	2	37	.08	.048	11	12	.07	32	.08	4	1.46	.01	.04	1	6
L15W 650N	1	8	13	63	.5	7	2	141	2.70	3	6	ND	3	12	.2	2	2	48	.11	.150	12	16	.14	40	.10	5	2.04	.02	.05	1	6
L15W 600N	1	6	10	83	.1	8	3	139	2.18	2	5	ND	1	19	.2	2	2	42	.15	.048	12	16	.18	52	.12	4	2.01	.02	.03	1	3
L15W 550N	1	4	11	113	.4	6	2	120	.89	2	5	ND	3	22	.2	2	2	20	.22	.022	11	11	.15	32	.09	2	.89	.02	.05	1	4
L15W 500N	1	13	12	275	.6	12	3	326	1.36	2	5	ND	1	52	.4	2	2	25	.44	.041	14	17	.23	76	.06	3	1.90	.03	.08	1	1
L15W 500S	1	10	17	63	.3	10	4	255	2.05	2	5	ND	4	21	.2	2	2	43	.19	.038	12	17	.28	54	.17	5	1.85	.02	.07	1	15
L15W 550S	1	6	27	52	.1	9	2	178	1.33	2	5	ND	3	18	.2	2	2	31	.16	.024	11	15	.21	39	.16	3	1.39	.02	.05	1	8
L15W 600S	2	13	28	124	.2	14	9	1121	2.24	21	5	ND	1	91	.3	2	2	49	.58	.092	20	22	.34	116	.07	3	3.00	.03	.07	1	2
L15W 650S	1	19	43	163	.3	6	2	229	1.08	8	5	ND	1	100	2.4	2	2	24	.64	.057	14	12	.15	61	.04	2	1.13	.02	.06	1	324
L15W 700S	1	10	20	75	.2	9	3	336	1.73	2	5	ND	1	25	.2	2	2	44	.18	.033	12	17	.19	43	.16	3	1.02	.02	.06	1	11
L15W 750S	1	7	18	65	.4	7	2	195	1.20	2	6	ND	2	24	.3	3	2	31	.18	.016	12	13	.20	35	.16	2	.96	.02	.07	1	8
L15W 800S	1	9	21	137	.2	14	5	526	2.20	9	5	ND	1	52	1.0	2	2	58	.36	.034	13	26	.51	70	.16	3	2.17	.03	.08	1	711
L15W 850S	1	4	17	36	.3	6	1	158	.90	3	7	ND	2	16	.2	3	2	27	.13	.013	11	10	.15	32	.17	2	.85	.02	.06	1	12
L15W 900S	2	12	17	73	.1	14	5	279	2.71	3	5	ND	1	17	.2	2	2	64	.12	.051	13	27	.34	60	.16	4	1.72	.02	.10	1	9
L15W 950S	2	13	18	51	.2	9	3	218	1.65	2	5	ND	1	18	.2	2	4	35	.17	.057	12	14	.20	61	.12	3	1.31	.02	.10	1	10
L15W 1000S	1	12	15	62	.2	9	3	217	2.41	4	5	ND	1	22	.2	3	2	59	.16	.070	10	18	.15	70	.10	3	1.07	.02	.09	1	11
L14W 1000N	1	8	17	59	.1	8	3	210	2.65	6	5	ND	3	16	.2	2	2	52	.11	.105	13	19	.14	49	.12	3	2.66	.02	.03	1	3
L14W 950N	1	8	18	48	.1	5	2	120	2.03	8	5	ND	3	15	.2	2	2	44	.09	.049	14	14	.10	36	.11	3	1.48	.02	.01	1	1
L14W 900N	1	9	16	53	.3	7	2	138	2.89	24	5	ND	4	15	.2	2	3	60	.10	.091	13	19	.13	41	.11	4	2.36	.02	.05	1	1
L14W 850N	1	8	17	73	.1	9	3	172	2.34	7	5	ND	3	20	.2	2	2	51	.17	.068	12	17	.19	53	.12	3	2.17	.02	.03	1	6
L14W 800N	1	6	16	42	.1	4	1	107	1.96	7	5	ND	3	13	.2	2	2	46	.08	.042	12	11	.07	43	.11	2	1.43	.02	.01	1	5
L14W 750N	1	5	16	55	.2	7	2	165	1.17	2	5	ND	4	28	.2	2	2	31	.26	.014	13	12	.20	56	.15	2	1.04	.02	.05	1	9
L14W 700N	1	7	15	50	.3	6	1	105	2.47	5	5	ND	6	11	.2	2	2	54	.08	.157	11	17	.08	35	.11	3	2.71	.02	.03	1	11
L14W 650N	1	6	18	40	.3	5	1	146	.69	2	6	ND	1	20	.2	2	2	20	.18	.027	13	8	.09	35	.08	3	.75	.02	.08	1	2
RE L14W 850N	1	8	17	73	.4	8	3	173	2.27	7	5	ND	5	20	.2	4	2	52	.17	.067	13	17	.19	51	.12	2	2.09	.02	.06	1	4
L14W 600N	1	3	16	24	.1	3	1	112	.54	2	5	ND	1	18	.2	2	2	18	.11	.013	12	7	.05	30	.11	2	.51	.02	.03	1	1
L14W 550N	1	6	22	62	.2	6	5	358	.91	2	5	ND	1	21	.2	2	2	25	.14	.022	13	10	.12	48	.10	2	1.05	.02	.05	1	8
L14W 500N	1	5	22	33	.3	5	1	150	.80	2	5	ND	2	19	.2	2	2	25	.14	.016	15	10	.08	30	.15	2	.77	.02	.05	1	4
L14W 500S	1	11	53	76	.1	9	2	235	2.01	7	5	ND	1	19	.2	2	2	51	.15	.067	13	16	.16	36	.16	2	1.18	.02	.04	1	61
L14W 550S	1	8	38	76	.5	8	3	225	1.67	3	5	ND	2	24	.2	2	3	40	.17	.045	13	15	.22	61	.17	2	1.69	.02	.05	1	31
STANDARD C/AU-S	21	59	43	139	7.4	71	29	1036	3.96	41	22	7	40	52	19.0	15	21	57	.50	.093	36	62	.91	172	.10	39	1.96	.09	.16	10	53

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L14W 600S	1	8	27	78	.4	7	4	189	1.82	8	5	ND	1	12	.6	2	2	38	.11	.054	9	14	.22	40	.11	2	2.19	.01	.05	1	52
L14W 650S	1	11	19	86	.3	9	7	474	1.98	19	5	ND	1	69	.4	2	2	40	.45	.067	22	20	.29	116	.05	2	2.53	.02	.06	1	13
L14W 700S	1	8	14	85	.4	8	5	168	1.39	9	5	ND	1	65	.6	2	2	24	.40	.103	19	19	.23	108	.02	2	2.40	.02	.05	1	30
RE L14W 900S	1	11	11	68	.1	10	8	475	2.52	10	5	ND	1	26	.2	2	2	60	.17	.028	10	21	.42	68	.12	2	2.25	.02	.07	1	4
L14W 750S	1	20	21	126	.2	12	5	306	2.24	5	5	ND	1	52	.5	2	2	45	.31	.051	15	22	.29	117	.05	2	3.00	.01	.08	1	6
L14W 800S	1	8	18	72	.1	9	4	215	1.47	3	5	ND	1	26	.3	2	2	32	.22	.029	10	18	.31	56	.13	2	1.54	.02	.07	1	9
L14W 850S	1	8	23	59	.1	7	3	173	1.33	5	5	ND	1	19	.2	2	2	30	.21	.037	11	13	.22	40	.12	2	1.13	.01	.04	1	5
L14W 900S	1	10	12	66	.1	10	8	478	2.49	9	5	ND	1	24	.2	2	2	59	.16	.027	10	20	.41	65	.12	2	2.17	.02	.06	1	3
L14W 950S	1	8	8	42	.1	4	3	202	1.73	3	5	ND	1	17	.2	2	2	37	.17	.062	7	12	.15	45	.11	2	1.08	.01	.06	1	2
L13W 1000N	1	8	10	69	.1	7	5	173	2.85	3	5	ND	2	13	.2	2	2	56	.13	.116	7	15	.19	49	.17	2	2.33	.01	.03	1	2
L13W 950N	1	8	6	72	.2	6	4	132	2.37	2	5	ND	2	11	.2	2	2	44	.11	.102	7	10	.16	33	.11	2	2.62	.01	.03	1	1
L13W 900N	1	6	9	54	.2	4	3	82	3.17	5	5	ND	1	12	.2	2	2	51	.10	.128	8	12	.10	35	.10	2	1.94	.01	.03	1	1
L13W 850N	1	10	10	65	.1	7	5	139	2.90	3	5	ND	2	13	.2	2	2	54	.11	.095	8	16	.19	41	.15	2	2.13	.01	.03	1	1
L13W 800N	1	9	5	70	.1	9	6	182	3.07	2	5	ND	2	14	.2	2	2	55	.20	.129	10	16	.23	64	.11	2	2.45	.01	.03	1	6
L13W 750N	1	6	4	58	.1	6	5	122	1.93	3	5	ND	3	10	.2	2	2	38	.09	.045	8	9	.14	47	.10	2	1.87	.01	.03	1	7
L13W 700N	1	9	14	59	.2	7	4	104	2.32	4	5	ND	4	11	.2	2	2	40	.06	.103	7	10	.14	38	.08	3	2.41	.01	.03	1	3
L13W 650N	1	7	16	56	.3	4	3	79	2.71	2	5	ND	4	25	.2	2	2	45	.08	.200	8	5	.10	54	.05	2	3.21	.01	.03	1	16
L13W 600N	1	12	14	68	.1	6	4	385	2.40	2	6	ND	4	14	.2	2	2	38	.08	.171	8	7	.11	51	.07	4	3.06	.01	.03	1	7
L13W 550N	1	7	7	41	.1	6	3	114	1.76	4	5	ND	3	10	.2	2	2	31	.06	.068	8	10	.12	32	.08	2	1.60	.01	.03	1	1
L13W 500N	1	2	9	12	.1	1	1	44	.38	2	5	ND	1	8	.2	2	2	11	.06	.012	11	3	.02	23	.06	2	.50	.01	.03	1	1
L13W 475N	1	7	14	65	.1	6	3	242	1.17	3	5	ND	2	23	.2	2	2	24	.23	.011	8	10	.18	31	.09	2	1.11	.01	.03	1	1
L13W 450N	1	4	20	27	.1	3	2	128	.83	2	5	ND	1	16	.2	2	2	22	.13	.013	9	8	.10	30	.16	2	.81	.01	.03	1	1
L13W 425N	1	4	10	36	.1	5	2	109	.77	2	5	ND	1	11	.2	2	2	16	.10	.013	7	8	.13	36	.06	2	.99	.01	.04	1	5
L13W 400N	1	4	16	34	.1	3	1	91	.56	2	5	ND	1	13	.2	2	2	15	.10	.020	9	6	.08	39	.04	2	1.06	.01	.04	1	12
L13W 375N	1	6	12	75	.2	8	2	116	1.48	2	5	ND	1	12	.2	2	2	26	.11	.027	8	12	.15	66	.06	2	2.11	.01	.04	1	3
L13W 350N	1	4	23	83	.2	4	1	91	.72	2	5	ND	1	12	.2	2	2	17	.09	.013	8	7	.10	32	.08	2	.79	.01	.03	1	6
L13W 325N	1	4	21	143	.5	4	1	95	.80	2	5	ND	1	11	.2	2	2	19	.10	.012	7	7	.11	22	.08	2	.70	.01	.03	1	3
L13W 300N	1	4	21	146	.6	2	1	62	.59	4	5	ND	1	18	.2	2	2	14	.15	.021	10	4	.05	33	.03	2	.62	.01	.04	1	9
L13W 275N	1	4	22	159	.9	2	1	70	.47	2	5	ND	1	18	.6	2	2	14	.15	.013	11	5	.05	26	.07	2	.59	.01	.03	1	12
L13W 250N	1	12	34	629	.8	10	4	522	1.69	14	5	ND	1	37	1.0	2	2	32	.31	.037	11	16	.34	70	.06	2	1.67	.01	.07	1	7
L13W 225N	1	9	128	421	1.0	5	3	939	1.23	16	5	ND	1	26	.6	2	2	25	.23	.038	14	8	.10	56	.03	2	1.18	.01	.06	1	9
L13W 200N	1	7	14	98	.2	5	2	90	2.07	5	5	ND	1	9	.2	2	2	38	.07	.110	7	9	.09	41	.07	2	1.31	.01	.03	1	1
L13W 175N	1	4	21	115	.3	2	1	65	.45	2	5	ND	1	14	.2	2	2	13	.11	.016	10	3	.03	22	.05	2	.47	.01	.03	1	3
L13W 150N	1	8	46	318	1.3	4	2	189	.70	5	5	ND	1	22	.6	2	2	15	.19	.016	11	7	.09	36	.04	2	.85	.01	.04	1	10
L13W 100N	1	10	142	677	2.7	9	3	335	1.24	48	5	ND	1	29	1.1	2	2	25	.27	.034	10	14	.20	46	.07	2	1.31	.01	.06	1	12
L13W 075N	1	3	125	107	6.7	1	1	91	.31	30	5	ND	1	10	.2	2	2	10	.10	.012	9	3	.03	20	.07	2	.45	.01	.03	1	1
L13W 050N	1	5	67	344	5.4	4	1	102	.68	15	5	ND	1	16	.6	2	2	15	.16	.021	9	7	.13	29	.08	2	.76	.01	.04	1	5
STANDARD C/AU-S	18	59	38	131	7.6	70	31	1033	3.96	38	18	7	40	52	19.0	15	19	56	.52	.087	38	56	.92	182	.08	33	1.99	.07	.14	10	47

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L13W 025S	1	10	67	672	5.1	6	3	953	1.39	79	5	ND	2	18	1.4	3	2	27	.19	.033	13	18	.14	24	.10	2	1.02	.02	.05	1	11
L13W 050S	1	6	65	475	6.7	5	2	306	1.30	45	5	ND	3	14	.3	4	2	25	.13	.022	9	14	.15	25	.12	2	.97	.02	.05	1	9
L13W 075S	1	3	66	179	1.7	3	1	138	1.03	32	5	ND	2	11	.2	3	2	24	.11	.019	10	9	.11	17	.13	2	.70	.02	.06	1	11
L13W 100S	1	15	67	818	2.0	5	3	2054	3.59	236	5	ND	1	15	.9	3	2	27	.14	.030	11	13	.16	22	.11	3	1.07	.01	.06	1	52
L13W 125S	1	16	182	1856	2.5	10	3	9562	1.97	474	5	ND	1	17	2.0	4	2	25	.12	.024	16	15	.13	21	.06	2	.95	.01	.07	1	481
L13W 150S	1	6	30	108	.4	3	1	193	1.99	38	5	ND	1	10	.3	2	2	38	.08	.032	9	14	.08	29	.09	2	1.66	.02	.04	1	6
L13W 175S	1	8	64	188	2.9	5	2	260	2.75	56	5	ND	3	10	.2	2	2	45	.09	.049	10	17	.15	29	.11	2	1.95	.02	.04	1	15
L13W 200S	1	5	86	127	.4	2	1	307	1.04	18	5	ND	1	13	.3	2	2	22	.09	.028	12	7	.06	63	.07	2	.77	.01	.04	1	24
L13W 225S	1	10	41	157	.2	8	3	259	2.09	25	5	ND	1	19	.2	2	2	40	.16	.028	11	15	.24	65	.12	2	1.34	.02	.06	1	17
L13W 250S	1	8	24	134	.3	6	3	238	2.42	21	5	ND	1	12	.3	2	2	43	.12	.036	9	15	.17	44	.12	2	1.33	.01	.05	1	6
L13W 275S	1	8	21	160	.4	7	3	167	2.01	10	5	ND	3	13	.3	2	2	37	.13	.033	10	17	.19	57	.12	2	2.19	.02	.04	1	8
L13W 300S	1	9	19	79	.4	8	3	159	3.08	11	5	ND	2	15	.3	2	2	49	.12	.056	9	18	.19	59	.12	3	2.20	.02	.04	1	5
L13W 325S	1	7	33	54	.1	7	2	136	2.91	10	5	ND	2	13	.2	2	2	51	.10	.071	8	16	.15	36	.14	2	2.34	.02	.03	1	4
L13W 350S	1	18	162	247	1.4	8	4	226	1.58	3	5	ND	1	46	2.0	2	2	30	.38	.074	16	14	.17	94	.06	2	1.96	.02	.07	1	1
L13W 375S	1	5	26	118	.4	4	2	164	1.21	4	7	ND	1	19	.4	3	3	27	.19	.023	11	11	.15	35	.13	2	.85	.02	.06	2	1
L13W 400S	1	8	11	80	.4	8	3	169	2.21	7	6	ND	2	12	.3	2	2	38	.13	.099	9	17	.21	36	.10	3	2.99	.02	.05	1	1
L13W 425S	1	8	47	126	.3	7	3	225	2.66	12	5	ND	2	15	.2	2	2	49	.14	.062	9	20	.22	42	.13	2	2.58	.02	.06	1	49
L13W 450S	1	4	24	68	.1	5	2	311	2.92	7	5	ND	1	13	.2	2	2	53	.11	.058	9	14	.17	57	.16	2	1.23	.01	.04	1	5
L13W 475S	1	6	14	75	.3	6	3	152	2.15	2	5	ND	1	14	.2	2	3	38	.11	.085	8	16	.17	34	.12	3	2.38	.02	.03	1	4
L13W 500S	1	13	42	571	.1	10	4	675	4.39	37	5	ND	1	15	.9	2	2	66	.11	.081	10	22	.33	59	.15	3	2.27	.01	.18	1	52
L13W 550S	1	7	29	96	1.0	7	3	281	2.22	5	5	ND	1	13	.2	2	2	41	.11	.049	10	17	.26	47	.17	2	1.97	.02	.08	1	20
L13W 600S	1	8	13	69	.1	7	3	150	2.53	5	6	ND	5	11	.2	2	2	43	.10	.073	8	18	.18	38	.12	2	3.95	.02	.03	1	4
L13W 650S	1	11	12	84	.2	9	3	192	2.02	11	5	ND	4	11	.2	2	2	34	.09	.073	9	18	.21	38	.13	2	2.66	.02	.05	1	21
L13W 700S	1	5	16	41	.1	5	2	129	1.50	5	5	ND	1	10	.2	2	3	30	.09	.036	9	11	.14	36	.13	2	1.48	.01	.03	1	2
L13W 750S	1	5	22	54	.1	6	2	162	1.47	4	5	ND	1	12	.2	2	2	32	.11	.025	9	13	.18	35	.15	2	1.24	.01	.04	1	11
L13W 800S	1	9	11	66	.1	8	6	591	1.99	11	5	ND	1	49	.2	2	2	39	.41	.054	15	19	.25	70	.11	2	1.39	.03	.07	1	1
L13W 850S	1	11	15	76	.1	11	7	689	2.01	17	5	ND	1	62	.2	2	2	38	.47	.058	17	22	.28	86	.10	2	1.65	.03	.07	1	3
L13W 900S	1	16	17	120	.4	14	10	1080	3.05	29	5	ND	1	72	.3	2	2	59	.53	.075	13	21	.48	116	.05	2	3.29	.02	.11	1	1
L13W 950S	1	19	15	130	.5	19	10	815	3.92	28	6	ND	1	58	.2	2	2	74	.41	.080	10	26	.67	119	.06	2	4.19	.02	.13	2	3
L12W 1000N	1	7	12	95	.3	7	4	132	2.62	7	5	ND	3	12	.2	2	2	45	.12	.131	9	18	.17	47	.10	2	2.54	.02	.03	1	483
L12W 950N	1	6	14	59	.2	5	3	126	3.29	9	5	ND	3	14	.2	2	2	62	.11	.059	11	17	.14	58	.12	2	1.80	.02	.04	1	8
L12W 900N	1	8	10	61	.1	7	3	169	2.97	5	5	ND	2	17	.2	2	2	51	.14	.087	9	19	.21	53	.11	2	2.01	.02	.04	1	2
L12W 850N	1	9	16	72	.6	7	2	77	3.29	4	5	ND	1	25	.2	2	2	54	.19	.074	9	19	.13	70	.06	2	3.22	.01	.02	1	6
L12W 800N	1	9	13	64	.1	7	3	124	3.05	8	5	ND	1	29	.2	2	2	53	.18	.039	9	18	.16	81	.10	3	1.65	.02	.03	1	1
L12W 750N	1	7	10	32	.1	3	2	118	1.78	2	5	ND	1	16	.2	2	2	36	.10	.021	11	19	.05	47	.07	2	.72	.01	.04	1	5
RE L12W 900N	1	7	12	58	.1	7	3	158	2.79	7	5	ND	1	17	.2	2	2	48	.13	.082	9	19	.19	50	.11	2	1.82	.01	.02	1	3
L12W 700N	1	8	10	53	.1	4	2	87	1.17	2	5	ND	1	28	.2	2	2	22	.18	.013	10	12	.12	54	.06	2	.74	.01	.02	1	5
STANDARD C/AU-S	18	61	38	133	7.3	75	31	1061	3.96	42	20	7	40	53	18.6	14	21	58	.49	.085	40	60	.93	184	.09	34	1.95	.08	.16	10	47

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

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb	Hg ppb
L12W 650N	3	8	11	66	.3	9	6	128	2.49	7	7	ND	14	16	.5	2	2	36	.08	.090	10	20	.13	48	.06	2	2.30	.01	.04	3	1	45
L12W 600N	2	6	9	68	.1	8	5	156	2.15	6	6	ND	6	13	.3	3	2	35	.08	.058	9	19	.14	36	.09	2	1.85	.01	.04	2	10	30
L12W 550N	2	4	15	82	.2	7	6	190	2.55	7	5	ND	5	13	.2	3	2	41	.09	.064	8	19	.13	34	.12	4	2.62	.01	.03	2	4	35
L12W 500N	1	5	14	105	.4	8	6	172	2.32	9	7	ND	5	22	.2	3	2	36	.11	.081	9	18	.14	49	.10	3	2.20	.01	.04	1	7	30
L12W 500S	1	6	40	106	.1	4	3	157	1.70	7	5	ND	1	15	.7	2	2	42	.11	.024	9	13	.09	35	.17	2	1.02	.01	.03	1	1	15
L12W 550S	1	7	17	72	.4	5	4	158	2.52	8	5	ND	2	10	.4	2	2	45	.09	.070	8	18	.17	46	.14	2	1.88	.01	.04	1	12	50
L12W 600S	2	5	18	68	.5	6	4	143	2.31	13	5	ND	2	11	.2	2	3	43	.11	.049	8	17	.20	44	.12	3	3.06	.01	.04	1	4	85
L12W 650S	1	7	17	50	.3	4	4	126	1.85	5	5	ND	1	11	.2	2	2	34	.10	.087	8	14	.15	35	.10	3	2.91	.01	.03	1	5	80
L12W 700S	1	6	15	65	.3	5	5	140	2.13	18	5	ND	1	10	.2	2	2	37	.09	.048	9	17	.15	37	.09	2	1.92	.01	.03	1	18	35
L12W 750S	1	4	19	35	.2	5	3	117	1.82	7	5	ND	2	11	.2	2	3	39	.08	.027	9	13	.10	32	.15	2	1.18	.01	.03	1	1	25
L12W 800S	1	6	13	50	.2	5	5	157	2.52	9	5	ND	2	12	.2	2	3	44	.10	.072	8	17	.19	52	.13	2	2.49	.01	.04	1	2	85
L12W 850S	1	6	20	34	.2	6	3	121	1.67	4	5	ND	1	10	.2	2	2	36	.08	.042	9	15	.10	46	.10	2	1.10	.01	.05	1	2	25
L12W 900S	1	3	15	30	.2	5	3	109	1.43	3	5	ND	1	11	.2	2	2	32	.11	.035	8	13	.12	30	.13	2	1.04	.01	.04	1	1	25
L12W 950S	2	7	16	59	.7	6	4	272	1.46	2	5	ND	1	65	.3	2	2	30	.49	.067	9	16	.24	90	.05	2	1.36	.01	.06	1	1	25
L12W 1000S	1	7	9	41	.2	7	5	140	2.54	5	5	ND	1	14	.2	2	2	47	.14	.115	7	18	.16	32	.10	3	2.39	.01	.03	2	5	90
L11W 1000N	1	6	17	52	.3	6	4	106	1.61	9	5	ND	1	29	.2	2	2	33	.25	.023	10	14	.14	45	.10	2	1.23	.01	.03	1	6	35
L11W 950N	2	8	9	84	.4	12	8	194	3.09	9	5	ND	4	18	.3	2	2	51	.16	.040	9	23	.21	72	.10	3	1.84	.01	.03	1	1	35
L11W 900N	1	6	11	56	.1	7	5	143	1.99	4	5	ND	1	18	.2	2	2	38	.16	.027	8	15	.18	62	.09	2	1.16	.01	.03	1	23	20
L11W 850N	1	9	14	76	.1	8	6	161	2.37	3	5	ND	1	40	.2	2	2	43	.43	.025	11	21	.22	74	.07	2	1.12	.01	.03	1	1	20
L11W 800N	1	8	7	89	.1	6	5	163	2.37	2	5	ND	1	38	.3	2	3	45	.25	.026	10	27	.15	88	.06	3	1.29	.01	.04	1	2	25
L11W 750N	2	14	11	83	.1	8	7	176	3.69	4	5	ND	3	21	.2	2	2	58	.15	.108	10	24	.21	82	.07	2	2.00	.01	.04	1	2	35
RE L11W 950N	1	7	11	86	.1	11	7	165	3.21	7	5	ND	2	17	.2	2	2	53	.15	.045	9	22	.19	72	.10	2	1.94	.01	.03	1	2	30
L11W 700N	1	12	11	81	.1	8	6	258	2.14	4	5	ND	1	42	.2	2	2	38	.23	.071	11	20	.20	75	.08	3	1.50	.01	.04	1	2	20
L11W 650N	1	10	10	90	.3	7	6	168	3.12	11	5	ND	4	17	.2	3	2	46	.14	.131	8	21	.15	57	.06	2	3.03	.01	.04	1	1	65
L11W 600N	2	8	13	90	.1	10	7	171	3.41	11	5	ND	4	12	.2	2	2	52	.11	.094	7	20	.18	47	.12	6	2.99	.01	.04	1	1	55
L11W 550N	1	7	13	81	.2	7	7	155	2.81	9	5	ND	5	9	.2	4	2	42	.08	.126	8	18	.16	41	.09	2	2.69	.01	.04	1	1	65
L11W 500N	1	7	9	92	.1	7	6	198	2.05	4	5	ND	4	12	.2	2	2	34	.08	.073	9	17	.16	52	.10	2	2.05	.01	.04	1	5	55
L11W 475N	1	3	14	47	.2	4	3	137	1.85	5	5	ND	3	10	.2	2	2	31	.08	.058	8	13	.09	33	.09	2	1.65	.01	.04	1	1	35
L11W 450N	1	6	19	61	.2	7	5	176	2.02	5	5	ND	3	11	.2	2	2	35	.09	.049	9	14	.15	31	.10	2	1.50	.01	.04	1	1	45
L11W 425N	1	5	27	147	.7	7	5	239	2.16	2	5	ND	3	10	.3	2	2	35	.09	.102	9	17	.13	46	.09	3	2.38	.01	.04	1	1	65
L11W 400N	1	6	31	158	.6	8	5	460	1.92	7	5	ND	2	13	.2	2	2	32	.11	.069	10	15	.14	69	.08	2	1.37	.01	.04	1	1	35
L11W 375N	1	6	21	127	.3	9	4	212	1.56	7	5	ND	3	35	.2	2	2	28	.29	.019	11	14	.19	52	.09	2	1.29	.01	.06	1	4	25
L11W 350N	1	11	21	564	.7	9	7	649	2.22	16	5	ND	1	35	.3	2	2	38	.34	.071	12	19	.22	80	.05	2	2.24	.01	.07	1	2	55
L11W 325N	1	17	28	1018	1.3	12	12	1572	2.58	47	5	ND	1	49	.8	2	3	47	.53	.065	15	20	.36	104	.04	3	2.61	.02	.11	1	1	45
L11W 300N	1	14	23	796	1.5	9	5	309	1.34	15	5	ND	1	40	1.0	3	2	24	.43	.049	14	16	.21	53	.04	2	1.56	.01	.07	1	1	45
L11W 275N	1	10	20	528	2.3	7	4	238	1.18	8	5	ND	1	27	.5	3	2	22	.29	.034	11	13	.21	49	.05	2	1.29	.01	.06	1	2	45
L11W 250N	1	5	36	434	2.8	4	4	380	.99	12	5	ND	1	20	.4	3	2	22	.20	.016	12	11	.16	51	.06	2	1.22	.01	.05	1	19	25
STANDARD C/AU-S	19	59	41	139	7.5	71	32	1069	3.96	42	19	7	40	52	18.4	15	19	58	.50	.084	39	60	.94	183	.09	34	1.93	.07	.14	11	47	1500

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

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb	Hg ppb
L11W 225N	1	5	30	162	1.0	8	3	99	1.54	11	5	ND	2	10	.3	2	2	29	.09	.037	10	10	.14	45	.08	3	2.29	.01	.04	1	37	60
L11W 200N	1	6	63	151	3.1	5	2	125	1.05	19	5	ND	1	13	.4	2	2	25	.11	.022	13	10	.09	48	.08	2	1.16	.01	.04	1	1	55
L11W 175N	1	8	73	145	2.3	5	3	283	2.97	126	5	ND	3	11	.3	2	2	45	.09	.046	9	12	.09	54	.04	3	1.92	.01	.04	1	21	145
L11W 150N	1	6	59	404	3.5	9	3	223	1.32	36	5	ND	4	10	.2	3	2	26	.09	.022	13	13	.14	55	.06	2	2.37	.01	.05	1	4	60
L11W 125N	1	4	60	296	1.9	5	2	173	.76	19	5	ND	1	14	.2	2	2	17	.13	.019	11	8	.08	33	.04	3	1.18	.01	.04	1	6	45
L11W 100N	1	11	121	274	2.3	7	3	246	1.32	22	5	ND	2	21	.6	2	2	34	.17	.024	13	17	.12	42	.26	2	1.04	.01	.05	1	3	40
L11W 075N	2	20	348	996	5.6	9	11	9508	2.60	258	5	ND	1	40	9.9	7	2	33	.42	.056	17	10	.18	125	.03	6	1.90	.01	.10	1	32	60
L11W 050N	2	9	202	193	2.5	5	4	733	2.58	123	5	ND	1	9	.6	4	2	40	.10	.051	10	10	.10	37	.06	2	1.52	.01	.04	1	12	80
L11W 025N	1	8	131	367	.7	5	4	765	1.98	131	5	ND	1	13	.7	3	2	39	.12	.025	11	10	.12	39	.04	3	1.10	.01	.05	1	118	35
L11W 00 BL	1	27	160	1120	7.3	16	6	2042	2.62	249	5	ND	1	81	5.2	4	2	34	1.00	.111	23	23	.30	114	.02	2	3.20	.01	.10	1	25	150
L11W 025S	1	15	164	589	1.0	9	6	1309	2.77	103	5	ND	2	39	2.7	2	2	51	.36	.036	15	18	.27	65	.10	4	1.68	.01	.07	1	17	45
L11W 050S	1	13	167	522	11.4	9	5	2038	1.93	146	7	ND	1	24	2.3	2	2	33	.20	.032	14	15	.24	65	.07	6	1.95	.01	.07	1	244	75
L11W 075S	1	9	157	285	1.0	5	3	451	1.65	50	5	ND	1	21	.7	2	2	33	.19	.031	13	8	.12	57	.06	3	1.25	.01	.07	1	53	35
L11W 100S	1	15	151	545	1.7	12	11	1645	4.28	59	5	ND	1	33	1.0	2	2	64	.27	.075	14	23	.44	97	.11	2	2.44	.01	.11	1	13	40
L11W 125S	1	7	119	221	.9	6	3	420	1.60	15	5	ND	3	25	.6	2	2	34	.22	.024	12	12	.23	54	.13	5	1.21	.01	.06	1	23	25
L11W 150S	1	14	170	354	.7	7	11	1284	3.00	31	5	ND	1	27	1.6	2	2	53	.20	.065	15	16	.22	78	.07	3	1.75	.01	.08	1	10	55
L11W 175S	1	11	118	317	.5	8	4	475	2.38	18	5	ND	1	39	2.2	2	2	46	.29	.041	16	16	.24	93	.07	2	1.69	.01	.09	1	40	35
L11W 200S	1	8	28	188	.2	5	3	210	2.12	5	5	ND	1	34	3.0	2	2	51	.28	.028	14	15	.08	57	.11	2	.65	.01	.05	1	1	40
L11W 225S	1	13	34	598	.2	9	7	1057	2.56	13	5	ND	1	41	1.6	2	2	50	.30	.038	14	19	.31	96	.10	2	1.84	.01	.09	1	4	50
L11W 250S	1	8	33	98	.1	7	4	326	2.15	5	5	ND	1	17	.2	2	2	52	.20	.031	10	18	.18	59	.17	2	1.00	.01	.06	1	10	30
L11W 275S	1	8	29	72	.4	5	3	161	1.48	2	5	ND	1	22	.5	2	2	35	.15	.039	11	12	.14	55	.11	2	1.12	.01	.05	1	24	40
L11W 300S	1	7	41	166	.1	8	7	507	1.82	2	5	ND	1	30	1.0	2	2	45	.23	.023	12	17	.35	72	.12	2	1.57	.01	.06	1	5	20
L11W 325S	1	8	19	47	.1	5	3	272	1.53	4	5	ND	1	13	.6	2	2	37	.16	.034	10	13	.13	53	.11	2	.78	.01	.07	1	6	25
L11W 350S	1	17	67	185	.7	9	11	782	2.01	2	5	ND	1	57	2.9	2	2	40	.38	.053	22	15	.34	133	.07	2	2.46	.01	.08	1	7	40
L11W 375S	1	8	42	61	.1	5	3	221	2.08	5	5	ND	1	16	.7	2	2	58	.15	.036	9	13	.10	62	.14	3	.82	.01	.06	1	122	30
L11W 400S	1	12	200	117	.6	7	6	799	2.09	3	5	ND	1	22	1.5	2	2	38	.13	.059	11	14	.16	116	.07	2	1.32	.01	.10	1	68	65
L11W 425S	1	10	105	114	.5	7	4	239	3.50	18	5	ND	2	12	.4	2	2	69	.10	.074	8	17	.18	45	.14	4	2.23	.01	.05	1	13	45
L11W 450S	1	15	166	154	.9	7	4	447	2.90	33	5	ND	2	13	.5	2	2	55	.10	.040	9	23	.25	69	.15	4	1.67	.01	.09	1	528	45
RE L11W 350S	1	16	70	179	.6	9	10	730	1.96	2	5	ND	1	54	2.7	2	2	39	.36	.050	21	14	.32	127	.07	2	2.34	.01	.08	1	14	35
L11W 475S	1	17	40	199	.2	11	6	329	4.43	31	5	ND	2	15	.6	2	2	65	.12	.080	9	22	.32	66	.16	4	2.14	.01	.08	1	61	25
L11W 500S	1	8	19	79	.2	5	3	235	2.23	7	5	ND	1	13	.4	2	2	48	.09	.039	10	15	.10	41	.13	4	1.03	.01	.05	1	148	20
L11W 550S	1	8	16	50	.1	6	3	162	1.87	2	5	ND	1	14	.2	2	2	41	.13	.032	9	12	.17	41	.19	2	1.25	.01	.04	1	11	20
L11W 600S	1	5	14	34	.1	4	2	146	1.14	2	5	ND	1	13	.2	2	2	30	.11	.021	9	10	.09	24	.15	2	.84	.01	.04	1	9	20
L11W 650S	1	6	15	70	.7	5	2	105	1.74	3	5	ND	2	10	.2	2	2	33	.08	.055	8	8	.13	31	.12	2	2.55	.01	.03	1	18	60
L11W 700S	1	6	20	50	.1	5	3	127	2.62	6	5	ND	1	11	.3	2	2	50	.08	.075	9	12	.14	36	.13	2	2.03	.01	.04	1	3	50
L11W 750S	1	8	12	49	.1	6	3	242	2.58	2	5	ND	1	14	.2	2	2	42	.10	.086	8	12	.16	50	.11	3	1.81	.01	.04	1	2	50
L11W 800S	1	9	12	39	.1	6	2	153	2.61	2	5	ND	2	13	.2	2	2	55	.12	.051	8	15	.19	29	.24	5	1.42	.01	.05	1	2	30
STANDARD C/AU-S	18	57	39	130	7.4	71	31	1036	3.96	40	16	7	40	52	18.5	14	19	57	.52	.088	39	58	.92	182	.08	38	1.99	.07	.14	11	48	1600

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

ACME ANALYTICAL

Granges Inc. PROJECT BLACKWATER DAVIDSON FILE # 92-2739

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb	Hg ppb
L11W 850S	3	7	14	35	.1	5	3	152	1.73	2	5	ND	1	14	.2	2	2	49	.08	.029	10	16	.11	44	.18	2	.95	.02	.04	1	16	90
L11W 900S	1	8	12	39	.3	9	4	219	1.81	2	5	ND	1	13	.2	2	2	42	.10	.039	9	21	.20	50	.14	2	.99	.03	.06	1	8	50
L11W 950S	1	3	11	23	.1	5	1	107	1.35	2	5	ND	1	12	.2	2	2	37	.08	.018	9	11	.07	28	.14	2	.76	.02	.01	1	5	25
L11W 1000S	1	9	12	64	.2	11	5	220	2.19	7	5	ND	3	14	.2	2	2	42	.11	.133	8	17	.22	46	.14	2	2.75	.02	.04	2	6	85
L10W 1000N	2	8	16	85	.3	8	4	169	2.41	6	5	ND	3	28	.2	4	2	53	.23	.034	13	20	.21	69	.13	2	1.18	.03	.07	1	11	25
L10W 950N	1	10	18	107	.1	12	9	1072	2.20	3	5	ND	1	55	.4	2	2	47	.42	.032	14	18	.24	139	.08	2	2.07	.03	.06	1	6	45
L10W 900N	1	14	23	96	.1	11	7	397	3.06	3	5	ND	1	51	.3	2	2	56	.41	.056	15	26	.25	111	.07	2	1.80	.03	.05	1	9	30
L10W 850N	1	5	14	51	.1	6	2	129	1.66	2	5	ND	1	18	.2	2	2	36	.12	.026	10	13	.14	62	.10	2	1.13	.03	.03	1	2	25
L10W 800N	2	14	18	76	.2	12	4	128	3.04	8	5	ND	3	22	.2	6	2	53	.12	.094	12	24	.17	93	.07	2	2.17	.03	.05	1	9	55
L10W 750N	1	13	24	95	.1	10	5	266	1.84	2	5	ND	1	46	.2	2	2	43	.39	.017	12	21	.23	96	.13	2	1.40	.03	.04	1	7	20
L10W 700N	1	9	16	33	.2	4	2	190	1.82	2	5	ND	1	16	.2	2	2	41	.10	.046	10	17	.06	49	.10	2	1.04	.02	.05	1	8	35
L10W 650N	1	7	16	63	.4	7	5	184	3.28	2	5	ND	3	18	.3	4	2	70	.15	.092	9	19	.16	40	.23	2	2.30	.02	.04	2	4	50
L10W 600N	2	14	19	110	.1	14	6	251	2.47	11	5	ND	4	21	.2	6	2	44	.11	.140	13	20	.20	62	.12	2	2.88	.03	.05	1	5	60
RE L10W 550S	1	4	48	41	.2	3	1	153	.93	2	5	ND	1	15	.2	2	2	30	.10	.022	11	9	.07	37	.16	2	1.00	.02	.03	1	176	30
L10W 550N	2	6	18	74	.7	11	4	152	2.24	11	5	ND	4	13	.2	3	2	38	.09	.100	11	16	.13	63	.09	2	2.81	.03	.06	1	9	80
L10W 500N	1	5	20	68	.1	6	3	410	1.18	2	5	ND	1	31	.3	3	2	28	.28	.014	11	12	.16	56	.12	2	1.06	.03	.03	1	11	25
L10W 500S	1	8	22	99	.5	9	4	212	3.07	10	5	ND	1	17	.6	4	2	54	.13	.108	11	20	.23	51	.14	2	2.02	.02	.06	1	16	50
L10W 550S	1	4	43	37	.3	3	1	145	.90	2	5	ND	1	14	.2	2	2	28	.09	.021	11	9	.07	36	.15	2	.95	.02	.04	1	165	40
L10W 650S	2	10	27	53	.3	7	2	138	2.95	13	5	ND	1	12	.4	2	2	60	.08	.069	10	21	.12	37	.13	2	1.92	.02	.06	1	22	50
L10W 700S	1	7	32	58	.3	6	3	186	2.01	5	5	ND	2	14	.2	3	2	54	.09	.028	11	16	.15	37	.22	2	1.15	.02	.08	1	8	35
L10W 750S	1	2	20	26	.1	3	1	107	.80	2	5	ND	1	13	.2	2	2	22	.09	.014	11	8	.08	32	.13	2	.84	.02	.03	1	12	25
L10W 800S	1	3	14	31	.1	2	2	129	1.67	2	5	ND	1	14	.2	2	2	48	.12	.017	9	12	.11	24	.21	2	.93	.02	.02	1	8	20
L10W 850S	2	7	14	38	.4	5	3	148	2.09	2	5	ND	1	12	.2	2	2	44	.08	.077	10	14	.14	41	.12	2	1.53	.02	.06	1	55	55
L10W 900S	1	8	12	43	.1	6	3	147	2.58	4	5	ND	1	15	.2	2	2	51	.11	.068	8	17	.16	49	.16	2	1.85	.02	.03	1	8	55
L10W 950S	1	9	10	82	.1	8	4	192	2.36	5	5	ND	1	15	.2	2	2	48	.11	.061	10	20	.18	45	.13	2	2.34	.02	.04	1	10	45
L10W 1000S	1	10	19	62	.1	10	4	227	1.71	2	5	ND	1	22	.2	2	2	35	.14	.042	11	16	.26	53	.12	2	1.48	.02	.06	1	9	40
L9W 1000N	1	6	14	56	.1	6	3	190	1.26	2	5	ND	1	38	.2	2	2	27	.28	.013	10	13	.17	62	.09	2	.88	.03	.03	1	9	20
L9W 950N	1	43	24	119	.5	17	7	1574	3.20	14	8	ND	3	107	.8	2	2	58	.90	.068	35	26	.34	175	.05	2	3.75	.04	.11	1	3	85
L9W 900N	1	15	18	116	.3	12	7	813	2.28	5	5	ND	1	64	.4	2	2	47	.60	.026	12	21	.28	109	.09	2	2.06	.03	.06	1	10	40
L9W 850N	1	12	17	102	.5	11	6	189	3.51	4	5	ND	2	26	.2	2	2	66	.20	.054	11	22	.22	75	.13	2	2.30	.02	.06	1	7	40
L9W 800N	1	13	21	82	.1	12	6	142	2.96	5	5	ND	2	30	.2	2	2	50	.14	.110	11	23	.20	104	.07	2	2.50	.02	.03	1	4	50
L9W 750N	1	11	11	60	.2	10	5	166	2.52	4	5	ND	1	19	.2	2	2	44	.12	.103	9	20	.18	65	.08	2	2.63	.02	.04	1	3	65
L9W 700N	1	9	10	81	.1	9	5	211	3.66	5	5	ND	2	15	.2	2	2	65	.14	.182	8	18	.17	40	.18	3	4.06	.02	.03	1	9	85
L9W 650N	1	6	13	83	.2	7	4	327	2.47	8	5	ND	3	17	.2	3	2	40	.12	.100	9	17	.14	45	.10	2	2.81	.02	.05	1	6	70
L9W 600N	2	6	16	66	.1	9	5	149	2.34	2	5	ND	3	14	.2	2	2	40	.09	.049	9	17	.17	70	.12	2	2.27	.02	.02	1	5	60
L9W 550N	1	8	18	106	.4	8	4	229	2.16	4	5	ND	2	16	.2	3	2	34	.14	.104	11	17	.14	60	.09	2	2.08	.02	.06	1	46	50
L9W 500N	1	9	18	118	.2	11	5	319	2.22	5	5	ND	2	22	.4	2	2	36	.18	.076	10	18	.17	73	.09	2	1.99	.02	.05	1	11	40
STANDARD C/AU-S	19	60	40	136	7.2	78	32	1075	3.96	42	22	7	39	53	18.8	15	19	60	.50	.086	41	61	.95	184	.09	35	1.95	.08	.16	11	52	1600

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb	Hg ppb
L9W 475N	1	8	11	68	.2	7	3	133	1.97	9	5	ND	4	12	.5	2	2	32	.09	.050	10	14	.12	38	.07	2	1.21	.02	.03	1	15	60
L9W 450N	1	4	29	63	.1	3	1	233	1.74	11	5	ND	1	14	.2	2	2	30	.16	.100	9	11	.07	36	.07	2	1.23	.04	.01	1	9	40
L9W 425N	1	6	27	99	.4	7	3	522	1.42	6	5	ND	2	32	.4	2	2	28	.33	.017	11	12	.20	64	.10	2	1.23	.02	.06	1	19	20
L9W 400N	1	5	17	50	.1	3	1	118	.89	2	5	ND	1	19	.2	2	2	20	.18	.017	9	9	.11	45	.10	2	.79	.05	.02	1	11	15
L9W 375N	1	5	35	257	.6	5	3	1008	1.09	8	5	ND	1	30	.9	2	2	22	.30	.023	10	10	.13	51	.08	2	.91	.02	.06	1	9	30
L9W 350N	1	5	45	199	1.0	6	3	324	1.82	11	5	ND	2	12	.4	3	2	33	.11	.049	11	17	.13	48	.07	2	1.73	.05	.06	1	6	55
L9W 325N	1	6	40	212	.9	5	3	249	1.11	9	5	ND	1	26	1.1	2	2	23	.27	.023	11	11	.13	50	.08	2	.92	.02	.07	1	8	30
L9W 300N	1	6	41	294	1.5	7	3	274	1.20	7	5	ND	2	26	.4	2	2	25	.33	.039	13	15	.20	54	.11	2	1.05	.02	.04	1	13	25
L9W 275N	1	1	37	58	.2	1	1	81	.48	2	5	ND	1	18	.5	2	2	14	.14	.016	12	6	.04	35	.05	2	.57	.02	.03	1	7	15
L9W 250N	1	6	48	289	1.6	9	3	161	1.61	10	5	ND	3	13	.4	3	2	27	.13	.047	11	17	.18	64	.07	2	2.30	.08	.05	1	8	70
L9W 225N	1	7	41	169	.3	3	3	458	2.09	9	5	ND	1	12	.3	2	2	39	.10	.050	11	15	.11	42	.07	2	1.56	.01	.02	1	6	45
L9W 200N	1	6	56	261	.6	3	3	878	1.55	37	5	ND	1	12	.5	4	2	33	.11	.031	12	13	.11	42	.05	2	1.16	.20	.07	1	5	30
L9W 175N	1	13	45	157	2.1	4	3	275	2.26	24	5	ND	1	10	.4	2	2	38	.10	.056	13	14	.18	41	.04	2	1.44	.01	.05	1	8	35
L9W 150N	1	17	81	700	5.3	8	5	953	2.46	285	5	ND	2	24	1.8	2	2	41	.27	.040	24	24	.23	67	.08	2	2.47	.02	.06	1	16	180
L9W 125N	2	14	116	306	1.2	6	4	1635	1.97	90	8	ND	1	36	2.0	4	2	33	.35	.047	17	15	.13	74	.03	2	1.23	.04	.10	1	68	50
L9W 100N	1	9	108	547	4.7	9	4	2042	1.56	39	5	ND	1	34	4.3	2	2	29	.41	.033	16	16	.26	66	.06	2	1.64	.03	.08	1	100	45
L9W 075N	1	10	128	473	3.3	5	3	972	1.67	78	5	2	1	34	1.5	2	2	26	.44	.036	14	13	.20	52	.03	2	1.44	.01	.08	1	446	55
L9W 050N	1	13	114	314	.6	6	4	1543	1.96	86	5	ND	1	34	1.6	2	2	33	.29	.043	15	13	.13	74	.03	2	1.21	.03	.07	1	40	30
L9W 025N	1	9	106	200	.4	4	2	538	1.31	19	5	ND	1	36	1.0	2	2	28	.33	.026	15	12	.14	59	.07	2	1.15	.02	.07	1	11	20
L8W 950N	1	7	12	60	.1	7	3	161	2.12	3	5	ND	3	12	.2	2	2	36	.11	.058	9	16	.16	36	.11	2	1.94	.02	.05	1	9	50
L8W 900N	1	9	13	73	.1	9	4	180	2.69	5	5	ND	4	14	.2	2	2	43	.14	.073	11	19	.25	43	.10	2	1.67	.02	.07	1	3	25
L8W 850N	1	11	21	88	.1	8	3	135	3.00	2	5	ND	3	15	.4	2	2	47	.11	.144	10	20	.16	49	.07	2	2.76	.01	.04	1	3	40
L8W 800N	1	17	12	102	.1	15	8	243	4.03	2	5	ND	2	18	.3	2	2	70	.18	.141	10	22	.29	60	.16	2	4.06	.02	.03	1	4	60
L8W 750N	1	10	13	75	.3	12	5	170	3.01	2	5	ND	4	17	.2	2	2	48	.17	.189	9	21	.22	61	.09	2	2.64	.02	.05	1	1	55
L8W 700N	1	8	19	85	.1	8	4	185	3.76	6	5	ND	4	16	.2	2	2	58	.16	.160	10	20	.20	42	.13	2	2.46	.01	.04	1	2	60
L8W 650N	1	11	22	82	.4	10	4	350	3.01	7	5	ND	3	16	.2	2	2	45	.16	.151	11	18	.18	55	.08	2	2.57	.01	.07	1	4	40
RE L8W 850N	1	12	22	93	.4	8	4	143	3.15	2	5	ND	5	16	.3	2	2	50	.11	.150	11	21	.17	50	.07	2	2.89	.02	.06	1	5	45
L8W 600N	1	15	14	120	.4	13	7	167	3.21	2	5	ND	5	19	.2	2	2	49	.16	.181	14	25	.23	94	.04	2	3.21	.02	.07	1	2	50
L8W 550N	1	23	20	142	.5	18	11	2311	2.70	2	5	ND	1	68	1.2	2	2	46	.75	.043	18	26	.35	162	.04	2	2.42	.02	.09	1	2	45
L8W 500N	1	9	27	105	.4	6	3	133	2.80	21	5	ND	3	15	.7	2	2	44	.12	.103	11	16	.12	59	.05	2	2.29	.02	.06	1	3	45
L8W 500S	1	9	89	182	.3	7	5	351	1.75	3	5	ND	1	33	2.0	2	2	37	.21	.026	13	16	.27	86	.12	2	1.53	.02	.06	1	9	20
L8W 550S	1	11	31	57	.9	6	4	209	1.51	2	7	ND	1	23	.9	3	2	31	.14	.048	14	12	.14	66	.09	2	1.34	.01	.09	1	4	50
L8W 600S	1	10	32	79	.1	9	5	245	2.10	3	5	ND	1	19	.6	2	2	41	.14	.024	11	18	.30	53	.16	2	1.53	.02	.07	1	18	20
L8W 650S	1	8	22	63	.8	6	3	177	3.50	4	7	ND	4	11	.5	5	2	63	.10	.077	10	18	.18	41	.17	2	2.76	.01	.07	1	1	70
L8W 700S	1	5	17	38	.2	4	2	141	1.49	2	5	ND	1	13	.2	2	2	35	.11	.027	10	12	.11	35	.14	2	1.12	.01	.06	1	1	25
L8W 750S	1	7	44	55	.2	7	3	151	3.28	6	5	ND	3	13	.5	2	2	57	.11	.121	9	18	.16	49	.12	2	3.29	.01	.05	1	146	50
L8W 800S	1	9	14	63	.2	6	3	227	2.23	2	5	ND	2	15	.2	2	2	50	.10	.037	12	20	.17	46	.22	2	1.19	.02	.07	1	4	30
STANDARD C/AU-S	19	62	40	134	7.5	74	31	1065	3.96	42	22	7	39	53	18.8	15	21	59	.50	.085	39	60	.95	184	.09	35	1.96	.08	.16	11	47	1700

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L8W 850S	2	17	51	145	.2	10	5	280	2.11	6	5	ND	1	20	2.2	2	2	37	.11	.098	14	19	.23	86	.05	2	2.11	.01	.08	1	12
L8W 900S	1	8	17	96	.1	8	4	248	3.31	4	5	ND	1	13	.5	2	2	63	.12	.051	8	20	.21	57	.13	3	1.46	.01	.06	1	13
L8W 950S	1	9	14	50	.1	5	2	141	1.47	2	5	ND	1	14	.5	2	2	34	.10	.030	10	12	.11	65	.08	2	.99	.01	.04	1	8
L8W 1000S	2	80	42	421	2.1	17	10	1076	2.37	92	9	ND	1	73	6.4	2	2	45	.45	.138	51	18	.32	66	.02	2	3.65	.01	.06	1	6
L7W 950N	1	12	19	76	.4	8	4	145	2.78	2	5	ND	3	15	.2	2	2	42	.12	.254	10	15	.18	54	.08	4	2.60	.01	.03	1	1
L7W 900N	1	14	11	76	.3	10	6	168	3.35	2	5	ND	2	22	.2	2	2	49	.13	.210	10	24	.21	84	.06	2	2.57	.01	.05	1	1
L7W 850N	1	6	16	60	.2	7	4	117	3.65	2	5	ND	2	14	.2	2	2	74	.13	.105	8	15	.16	39	.15	2	3.32	.01	.03	1	1
L7W 800N	1	9	19	80	.4	10	6	179	3.88	2	5	ND	3	15	.2	2	2	67	.15	.177	8	15	.18	50	.14	3	3.76	.01	.04	1	7
L7W 750N	1	12	14	112	.2	13	8	336	3.94	6	5	ND	2	18	.2	2	2	68	.17	.103	8	20	.27	62	.28	2	3.18	.01	.04	1	1
L7W 700N	1	10	18	83	.1	9	5	164	2.54	2	5	ND	2	18	.2	2	2	45	.14	.070	11	18	.23	94	.08	2	2.38	.01	.05	1	2
L7W 650N	1	11	13	100	.2	10	6	424	3.06	2	5	ND	3	22	.2	2	2	48	.16	.174	8	14	.17	58	.09	2	3.08	.01	.04	1	1
L7W 600N	1	8	16	73	.1	8	4	97	2.40	4	5	ND	1	21	.2	2	2	39	.13	.093	12	16	.11	64	.04	3	1.75	.01	.04	1	1
L7W 550N	1	6	23	76	.1	6	4	192	1.37	2	5	ND	2	26	.2	2	2	21	.30	.011	12	14	.12	67	.10	2	.95	.01	.04	1	1
L7W 500N	1	7	22	63	.1	7	3	171	1.20	2	5	ND	2	20	.2	2	2	26	.22	.014	12	12	.17	51	.10	2	1.11	.01	.03	1	4
L7W 500S	1	9	19	63	.3	8	4	202	2.17	2	5	ND	1	30	.2	2	2	46	.17	.045	13	16	.19	77	.11	4	1.68	.01	.06	1	3
L7W 550S	1	7	35	64	.1	6	2	248	1.43	2	5	ND	1	24	.3	2	2	35	.22	.016	11	14	.20	55	.23	2	1.07	.01	.04	1	67
L7W 600S	1	6	71	115	.1	9	5	249	1.83	2	5	ND	1	34	.3	2	2	40	.28	.018	11	17	.38	75	.15	2	1.69	.01	.04	1	192
L7W 650S	1	11	20	67	.3	9	5	204	3.72	2	5	ND	1	20	.2	2	2	68	.18	.080	8	19	.28	44	.27	3	1.78	.01	.04	1	3
L7W 700S	1	6	19	46	.1	6	4	372	2.33	3	5	ND	1	14	.2	2	2	53	.11	.033	9	17	.13	38	.15	3	1.14	.01	.04	1	5
L7W 750S	1	15	18	185	.7	8	4	209	2.11	27	5	ND	1	49	2.1	2	2	41	.36	.108	13	17	.21	58	.04	2	2.19	.01	.06	1	35
L7W 850S	1	12	27	146	.3	12	5	309	3.40	5	5	ND	2	15	.2	2	2	65	.14	.057	10	27	.33	44	.18	6	1.65	.01	.07	1	10
L7W 900S	1	4	17	42	.1	4	2	137	1.77	2	5	ND	1	14	.2	2	2	40	.11	.050	8	13	.11	38	.13	2	1.09	.01	.04	1	3
L7W 950S	1	5	8	33	.1	5	2	145	1.96	2	5	ND	1	10	.2	2	2	49	.08	.020	9	19	.06	27	.11	3	.82	.01	.04	1	1
RE L7W 750S	1	15	20	189	.7	8	4	214	2.15	28	5	ND	1	50	2.1	2	2	42	.37	.109	14	18	.21	59	.04	3	2.24	.01	.06	1	5
L7W 1000S	1	7	31	46	.2	6	3	218	1.81	2	6	ND	1	10	.2	2	2	44	.08	.034	11	19	.10	53	.11	5	1.03	.01	.05	1	7
L6W 950N	1	9	28	65	.5	7	5	180	3.68	2	5	ND	4	12	.2	2	2	57	.10	.356	9	16	.15	52	.08	3	5.06	.01	.04	1	18
L6W 900N	1	8	21	75	.2	8	4	156	3.32	5	5	ND	4	10	.2	2	2	56	.11	.164	9	15	.17	34	.11	3	3.31	.01	.03	1	6
L6W 850N	1	8	24	65	.3	6	4	173	3.67	2	5	ND	5	9	.2	2	2	60	.08	.275	8	16	.12	30	.09	4	4.69	.01	.03	1	5
L6W 800N	1	6	30	100	.3	10	9	257	2.87	21	5	ND	3	10	.2	2	2	47	.09	.112	9	14	.19	50	.10	2	2.89	.01	.04	1	12
L6W 750N	1	9	19	61	.3	8	4	153	2.19	4	5	ND	3	14	.2	2	2	40	.10	.055	11	17	.17	60	.10	2	1.80	.01	.04	1	12
L6W 700N	1	7	25	71	.2	9	4	191	1.46	2	5	ND	2	24	.2	2	2	29	.20	.019	11	13	.18	75	.11	2	1.30	.01	.03	1	9
L6W 650N	1	8	29	110	.4	10	5	140	3.39	24	5	ND	3	23	.2	2	2	67	.21	.032	9	20	.16	57	.11	5	2.25	.01	.03	1	7
L6W 600N	1	5	23	57	.4	4	2	138	1.85	5	5	ND	1	13	.2	2	2	35	.11	.071	11	14	.09	42	.07	3	1.47	.01	.03	1	6
L6W 550N	1	8	27	82	.2	12	5	182	1.84	3	5	ND	3	18	.2	2	2	35	.16	.024	10	14	.22	98	.11	2	1.67	.01	.04	1	4
L6W 500N	1	6	23	70	.3	5	2	200	1.13	2	5	ND	2	32	.2	2	2	25	.27	.010	12	11	.15	50	.12	2	.85	.01	.03	1	8
L6W 500S	1	5	32	40	.2	4	2	158	1.02	2	5	ND	1	32	.2	2	2	27	.26	.022	10	9	.12	47	.12	2	.86	.01	.06	1	2
L6W 600S	1	13	18	224	.2	7	4	256	1.25	11	5	ND	1	78	7.6	2	2	25	.51	.053	25	13	.17	80	.08	2	1.39	.01	.05	1	16
STANDARD C/AU-S	18	56	37	128	7.2	69	32	1013	3.96	37	18	7	39	52	19.0	14	19	56	.51	.087	38	55	.90	182	.08	35	1.99	.07	.14	11	48

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

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppb
L6W 650S	1	8	22	341	.2	7	3	183	1.28	13	5	ND	3	36	2.4	2	2	27	.27	.023	12	14	.18	45	.13	2	1.24	.02	.05	1	8
L6W 750S	1	6	33	57	.2	7	1	120	.84	2	5	ND	1	36	.9	2	2	20	.25	.029	10	12	.09	47	.12	2	.92	.02	.05	1	12
L6W 800S	1	8	14	82	.1	6	2	241	1.58	5	5	ND	1	13	.5	2	2	35	.10	.032	9	13	.18	48	.09	2	1.11	.02	.10	1	1
L6W 850S	2	13	27	93	.4	10	4	237	2.40	5	6	ND	1	15	.5	2	2	49	.09	.042	11	25	.21	56	.13	2	1.26	.01	.11	1	18
L6W 900S	2	8	21	51	.1	8	3	158	1.75	3	5	ND	1	15	.2	2	2	34	.13	.038	9	14	.20	34	.13	2	1.69	.02	.05	1	6
L6W 950S	1	18	28	162	1.0	16	7	333	3.69	18	5	ND	1	49	1.6	2	2	47	.30	.096	12	20	.36	81	.04	2	3.01	.02	.09	1	8
L5W 950N	1	5	12	41	.2	5	2	122	2.51	7	5	ND	4	9	.2	2	2	45	.08	.086	8	16	.10	22	.10	3	2.08	.02	.04	2	3
L5W 900N	1	6	16	58	.2	8	3	141	2.67	5	5	ND	3	11	.2	2	2	43	.10	.090	9	19	.17	47	.09	2	2.58	.01	.05	1	9
L5W 850N	1	4	16	49	.1	7	2	137	2.47	4	5	ND	2	13	.2	2	2	41	.12	.078	9	15	.12	34	.09	2	2.40	.02	.02	1	5
L5W 800N	1	10	17	60	.3	11	4	166	2.59	7	5	ND	4	11	.2	2	2	42	.09	.092	10	20	.18	55	.07	2	1.90	.02	.05	1	7
L5W 750N	1	11	21	121	.7	11	4	120	2.33	4	5	ND	3	13	.2	2	2	37	.11	.085	11	18	.17	82	.06	2	2.75	.02	.05	1	5
RE L5W 500N	1	9	27	108	.8	8	4	158	2.73	8	5	ND	3	11	.2	2	2	46	.10	.108	10	20	.14	43	.09	3	2.51	.02	.05	1	1
L5W 700N	1	7	23	77	.1	9	4	213	1.38	2	5	ND	1	33	.2	2	2	28	.24	.014	11	15	.24	62	.10	2	1.09	.02	.05	1	13
L5W 650N	1	7	26	79	.6	8	3	118	2.47	9	5	ND	4	12	.2	4	2	44	.08	.073	11	20	.12	41	.11	2	2.47	.01	.05	1	2
L5W 600N	1	11	22	72	.5	11	4	183	2.92	4	5	ND	3	10	.2	2	2	48	.08	.116	10	23	.21	48	.10	2	2.56	.02	.05	1	2
L5W 550N	1	11	22	72	.1	14	5	153	2.29	4	5	ND	1	20	.2	2	2	38	.17	.054	10	20	.26	81	.09	2	2.31	.02	.04	1	1
L5W 500N	1	8	28	110	.9	10	5	160	2.79	8	6	ND	3	11	.2	3	2	47	.10	.112	10	21	.15	44	.09	2	2.60	.02	.05	1	5
L5W 500S	1	7	22	60	.1	6	4	185	2.73	4	5	ND	1	12	.3	2	2	51	.11	.055	10	18	.14	55	.11	2	1.96	.02	.07	1	372
L5W 550S	1	9	30	376	.1	10	3	178	1.38	4	5	ND	1	40	3.1	2	2	27	.33	.032	15	15	.24	65	.13	3	1.49	.02	.03	1	6
L5W 600S	1	5	38	75	.1	6	2	148	1.28	3	5	ND	1	14	.3	2	2	29	.14	.031	8	13	.18	36	.14	2	1.33	.02	.04	1	6
L5W 650S	1	7	58	115	.3	8	3	216	1.40	4	5	ND	1	22	.6	2	2	29	.22	.033	10	15	.27	52	.14	2	1.33	.02	.07	1	32
L5W 700S	1	14	27	338	.6	13	6	502	1.99	15	5	ND	2	54	2.4	2	2	37	.48	.064	15	26	.34	104	.13	2	2.04	.03	.11	1	6
L5W 750S	1	4	24	55	.1	4	1	170	.95	2	5	ND	1	15	.4	2	2	23	.15	.019	8	10	.10	47	.09	2	.73	.02	.05	1	101
L5W 800S	1	13	27	141	.3	11	5	367	2.22	17	5	ND	1	32	.5	2	2	40	.31	.055	13	21	.29	65	.13	3	1.78	.03	.09	1	16
L5W 900S	1	12	22	148	.1	11	5	475	2.27	2	5	ND	1	51	.8	2	2	44	.36	.038	12	19	.35	84	.08	2	2.00	.02	.08	1	9
L5W 950S	1	5	11	33	.1	4	2	138	1.55	2	5	ND	1	10	.2	2	2	37	.08	.012	12	16	.04	46	.11	3	.59	.02	.05	1	9
L5W 1000S	1	12	16	73	.1	11	5	327	2.90	2	5	ND	1	18	.2	2	2	47	.16	.142	10	20	.20	56	.07	2	2.56	.02	.03	1	10
L4W 1000N	1	7	14	46	.2	6	2	173	2.92	3	5	ND	1	13	.2	2	2	54	.12	.094	9	17	.12	40	.12	2	1.52	.01	.04	1	6
L4W 950N	1	11	13	55	.2	9	4	151	2.76	5	5	ND	2	9	.2	2	2	47	.09	.094	9	21	.19	39	.11	2	2.20	.02	.04	1	8
L4W 900N	1	11	12	67	.1	10	5	1145	2.97	2	5	ND	2	24	.2	2	2	45	.11	.214	11	23	.20	87	.08	2	1.91	.02	.05	1	5
L4W 850N	1	12	17	77	.1	12	5	342	3.33	2	5	ND	2	14	.2	2	2	53	.14	.175	10	24	.19	56	.08	2	2.74	.02	.04	1	14
L4W 800N	1	6	13	31	.1	3	2	259	1.31	2	5	ND	1	15	.2	2	2	28	.11	.025	12	12	.06	46	.08	2	.69	.02	.05	1	1
L4W 750N	1	8	20	42	.5	7	2	119	2.47	2	5	ND	2	16	.2	2	2	38	.11	.081	12	17	.12	51	.07	2	2.32	.02	.05	1	1
L4W 700N	1	6	23	36	.3	5	2	91	1.99	3	5	ND	2	12	.2	2	2	36	.10	.096	9	16	.12	42	.08	2	3.09	.02	.01	1	63
L4W 650N	1	7	24	48	.2	7	2	188	1.01	2	5	ND	1	24	.2	2	2	22	.22	.029	12	11	.17	58	.11	2	1.06	.02	.07	1	5
L4W 600N	1	13	15	82	1.6	9	3	431	1.18	2	5	ND	1	92	.5	2	2	20	.97	.061	13	13	.18	91	.03	2	1.51	.02	.07	1	2
L4W 550N	1	14	24	152	1.2	14	7	699	2.57	2	5	ND	1	41	.2	2	2	52	.36	.055	12	23	.37	110	.06	2	2.92	.02	.07	1	9
STANDARD C/AU-S	18	61	38	134	7.4	75	31	1074	3.96	41	21	7	40	53	18.8	15	20	59	.50	.086	40	60	.91	184	.09	35	1.96	.08	.16	11	48

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L4W 500N	1	5	32	111	.5	7	6	182	1.79	6	5	ND	9	17	.2	2	2	31	.15	.037	11	16	.21	55	.08	4	1.34	.01	.03	2	3
L4W 500S	1	5	40	230	.2	8	7	518	1.72	7	5	ND	3	39	1.2	2	4	34	.34	.038	12	19	.30	80	.13	3	1.54	.02	.06	1	5
L4W 550S	1	2	36	108	.2	6	4	208	1.23	3	5	ND	3	24	1.0	2	2	25	.21	.023	9	12	.14	42	.13	5	.96	.01	.03	1	19
L4W 600S	1	24	47	241	1.6	14	9	534	2.77	22	5	ND	1	79	1.8	2	2	40	.56	.102	18	19	.37	141	.03	2	3.90	.02	.09	1	11
L4W 650S	1	4	41	166	.2	8	6	395	1.61	8	5	ND	1	29	.5	2	3	31	.26	.025	8	15	.30	64	.13	4	1.43	.02	.06	1	4
L4W 700S	1	2	33	99	.5	7	4	209	1.24	7	5	ND	1	16	.3	2	2	25	.15	.025	8	12	.19	43	.13	2	1.09	.01	.06	1	15
L4W 750S	1	4	43	141	.1	8	4	220	1.35	9	5	ND	2	23	.3	2	4	27	.22	.023	9	15	.24	48	.12	2	1.02	.01	.05	1	19
L4W 800S	1	5	24	123	.1	8	5	365	1.87	6	5	ND	1	27	.4	2	2	35	.22	.029	11	15	.26	48	.11	2	1.11	.01	.06	1	10
L4W 850S	1	8	32	103	.1	9	7	479	2.21	8	5	ND	1	29	.2	2	2	43	.21	.028	9	17	.31	51	.12	2	1.53	.01	.06	1	13
L4W 900S	1	2	15	48	.2	3	3	168	1.77	4	5	ND	1	10	.2	2	2	39	.10	.042	8	14	.09	31	.10	2	1.07	.01	.04	1	61
L4W 950S	1	6	17	61	.1	7	4	217	1.57	4	5	ND	1	19	.2	2	2	33	.14	.021	11	16	.21	55	.13	2	1.41	.01	.09	1	8
L4W 1000S	1	8	16	57	.3	10	6	435	1.49	4	5	ND	2	41	.7	2	2	29	.32	.030	11	16	.25	66	.10	3	1.05	.01	.08	1	6
L3W 1000N	1	5	12	45	.1	6	6	146	2.71	6	5	ND	2	14	.2	2	2	55	.11	.059	9	20	.12	53	.10	2	1.63	.01	.04	1	12
L3W 950N	1	4	12	49	.1	6	5	137	3.07	5	5	ND	3	11	.2	2	2	53	.09	.138	8	18	.12	39	.11	2	1.91	.01	.03	1	1
L3W 900N	1	15	29	96	1.5	13	17	1088	2.98	8	5	ND	1	44	.2	2	2	44	.25	.131	12	17	.22	188	.04	2	2.65	.01	.08	1	4
L3W 850N	1	4	11	39	.2	3	4	385	1.88	5	5	ND	1	11	.2	2	2	37	.11	.067	9	15	.07	50	.08	2	1.13	.01	.04	1	26
L3W 800N	1	4	18	53	.2	6	5	159	1.97	2	5	ND	3	12	.2	2	2	34	.09	.109	8	15	.14	51	.09	2	1.84	.01	.04	1	1
L3W 750N	1	3	24	40	.3	4	4	175	.98	2	5	ND	1	36	.2	2	2	19	.25	.029	12	10	.11	102	.07	6	1.03	.01	.04	1	5
L3W 700N	1	1	15	18	.2	5	2	111	.43	2	5	ND	1	16	.2	2	3	11	.11	.025	10	5	.04	71	.03	5	.56	.01	.03	1	3
L3W 650N	1	7	11	96	1.0	13	9	346	2.97	2	5	ND	2	17	.2	2	5	56	.17	.094	8	21	.25	70	.22	2	3.69	.01	.03	1	11
L3W 600N	1	4	23	79	.4	8	4	136	1.61	5	5	ND	2	19	.2	2	2	30	.16	.059	9	16	.15	61	.10	2	2.44	.01	.04	1	5
L3W 550N	1	2	37	48	.2	6	3	111	.86	4	5	ND	2	16	.2	2	2	20	.15	.014	11	10	.11	47	.12	2	.94	.01	.03	1	3
L3W 500N	1	2	40	78	.5	7	11	1306	1.52	3	5	ND	1	27	.2	2	2	31	.19	.033	12	12	.14	79	.09	2	1.09	.01	.05	1	7
RE L3W 700N	1	1	14	19	.1	3	2	148	.44	2	5	ND	1	16	.2	2	2	11	.11	.025	10	5	.04	64	.03	3	.57	.01	.03	1	1
L3W 500S	1	18	50	167	.8	14	9	840	2.58	12	5	ND	1	83	1.6	2	2	45	.53	.052	20	19	.39	138	.05	2	3.01	.01	.11	1	9
L3W 550S	1	29	32	199	.9	18	12	1009	3.06	21	5	ND	1	121	2.2	2	2	48	.85	.091	31	21	.48	170	.04	3	4.04	.02	.11	1	2
L3W 600S	1	2	41	63	.3	4	4	194	1.05	5	5	ND	1	27	.6	2	2	26	.21	.020	10	11	.14	54	.14	3	1.03	.01	.04	1	132
L3W 650S	1	18	49	159	.4	12	8	461	2.25	11	5	ND	1	98	1.4	2	2	39	.68	.057	28	19	.41	130	.05	4	2.96	.02	.11	1	12
L3W 750S	1	6	30	73	.2	7	5	235	1.51	3	5	ND	1	32	.4	2	3	33	.25	.016	11	15	.22	59	.15	3	1.08	.01	.05	1	8
L3W 800S	1	15	32	139	.8	11	11	1104	2.58	15	5	ND	1	38	.9	2	3	47	.25	.073	19	18	.32	88	.08	2	2.97	.01	.07	1	9
L3W 850S	1	8	17	72	.3	7	5	264	2.14	7	5	ND	2	20	.2	2	2	36	.16	.045	11	16	.23	71	.11	2	1.71	.01	.10	1	5
L3W 900S	1	9	17	61	.2	7	6	215	2.70	5	5	ND	2	14	.2	2	2	44	.11	.060	9	17	.21	48	.14	2	1.84	.01	.07	1	8
L3W 950S	1	9	10	65	.1	10	7	303	2.61	9	5	ND	1	11	.2	2	2	41	.10	.181	8	18	.20	64	.09	2	2.98	.01	.07	1	1
L3W 1000S	1	15	29	130	.6	11	5	246	1.99	11	5	ND	1	42	.6	2	2	36	.28	.039	21	17	.29	77	.08	3	2.04	.02	.07	1	2
L3W 1050S	2	10	26	123	.3	12	10	670	2.86	11	5	ND	1	55	.2	2	2	48	.42	.053	12	21	.36	82	.11	5	2.46	.02	.07	1	1
L2W 919N	1	6	7	56	.2	11	6	202	2.19	4	5	ND	2	16	.2	2	3	40	.19	.099	8	18	.19	57	.08	2	1.78	.01	.05	1	4
L2W 900N	1	3	11	31	.1	3	3	133	1.56	2	5	ND	1	10	.2	2	2	34	.10	.032	10	12	.08	37	.09	2	.85	.01	.03	1	10
STANDARD C/AU-S	18	59	38	133	7.2	72	32	1066	3.96	41	21	7	39	52	18.9	14	21	58	.50	.084	38	60	.94	183	.09	35	1.93	.07	.14	11	49

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

ACME ANALYTICAL

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppb
L2W 850N	2	4	20	54	.4	9	3	109	1.81	2	5	ND	13	11	.2	2	5	33	.09	.070	11	15	.11	47	.08	2	2.15	.01	.03	3	4
L2W 800N	2	5	21	60	.1	8	6	144	2.00	2	5	ND	6	12	1.6	2	2	35	.11	.078	11	17	.17	56	.09	2	1.92	.01	.04	2	4
L2W 750N	1	5	21	65	.6	6	4	152	2.35	3	5	ND	5	23	.2	2	2	40	.20	.120	9	15	.09	56	.07	2	4.20	.01	.04	1	1
L2W 700N	1	6	25	71	.5	6	6	133	3.78	8	5	ND	2	28	.2	2	2	55	.19	.141	8	19	.14	73	.12	2	2.51	.01	.04	1	3
L2W 650N	1	7	20	86	.8	4	6	179	2.35	3	5	ND	4	12	.2	2	4	39	.14	.144	8	18	.19	46	.11	2	3.76	.01	.04	1	1
L2W 600N	1	5	30	77	.1	8	4	353	2.07	9	5	ND	1	20	.2	2	2	38	.16	.064	10	14	.13	84	.13	2	1.29	.01	.04	1	4
L2W 550N	1	5	31	77	.2	7	4	180	2.14	10	5	ND	1	14	.2	2	2	39	.13	.057	9	15	.14	46	.13	2	1.35	.01	.04	1	9
L2W 500N	1	5	33	142	.6	8	6	942	2.23	12	5	ND	1	19	.2	2	2	38	.20	.069	10	15	.19	83	.12	2	1.48	.01	.05	1	1
L2W 500S	1	11	41	119	.5	10	9	495	2.44	7	5	ND	1	41	.2	2	2	48	.29	.039	12	20	.41	86	.13	2	1.89	.01	.08	1	18
RE L2W 750S	1	20	19	121	.5	9	10	603	2.89	8	5	ND	1	56	.4	2	2	52	.40	.047	15	21	.39	83	.08	2	2.59	.02	.07	1	1
L2W 550S	1	12	28	113	.5	11	7	447	2.34	9	5	ND	1	43	.2	2	2	42	.31	.041	12	19	.36	83	.09	2	2.54	.01	.08	1	108
L2W 600S	1	10	31	112	.2	8	8	719	2.09	10	5	ND	1	55	.7	2	4	40	.42	.038	14	19	.36	77	.08	2	1.97	.01	.08	1	1
L2W 650S	1	8	27	90	.1	7	5	483	1.87	5	5	ND	1	38	.3	2	2	37	.30	.020	10	16	.32	60	.14	2	1.39	.01	.05	1	18
L2W 700S	1	14	16	118	.4	11	8	498	2.67	13	5	ND	1	57	.2	2	2	52	.41	.034	13	21	.45	93	.10	2	2.46	.01	.07	1	3
L2W 750S	1	20	23	117	.6	14	11	601	2.80	9	5	ND	1	55	.7	2	2	51	.39	.047	14	21	.38	82	.08	2	2.51	.01	.07	1	1
L2W 800S	2	15	31	99	.7	11	13	1089	2.71	13	5	ND	1	47	.6	2	2	50	.32	.056	16	18	.28	65	.07	2	2.22	.01	.06	1	3
L2W 850S	1	5	16	63	.1	6	5	217	1.66	2	5	ND	1	16	.2	2	2	33	.13	.021	9	14	.19	34	.16	2	1.03	.01	.04	1	4
L2W 900S	1	5	12	69	.1	6	6	213	2.68	4	5	ND	1	15	.3	2	2	48	.14	.055	9	17	.28	54	.14	3	1.73	.01	.08	1	2
L2W 950S	1	6	17	72	.2	4	4	157	2.12	5	5	ND	3	10	.2	2	2	39	.09	.056	8	16	.15	36	.13	2	2.12	.01	.04	1	8
L2W 1000S	1	8	16	61	.1	7	5	189	2.86	2	5	ND	4	9	.2	2	2	49	.10	.153	8	18	.17	48	.12	2	4.49	.01	.04	1	10
L2W 1050S	1	11	10	70	.1	9	6	349	2.83	3	5	ND	1	15	.2	2	2	48	.17	.092	9	21	.20	65	.13	2	1.47	.01	.06	1	1
L1W 917N	1	3	14	24	.1	1	2	390	1.12	2	5	ND	1	11	.2	2	2	27	.12	.027	9	9	.04	37	.10	3	.55	.01	.03	1	4
L1W 900N	1	5	15	38	.1	7	4	138	1.93	6	5	ND	2	11	.2	2	2	38	.10	.058	8	14	.13	48	.09	2	1.48	.01	.03	1	6
L1W 850N	1	5	18	39	.1	5	4	151	1.62	3	5	ND	2	16	.2	2	2	33	.13	.032	9	11	.12	40	.11	2	.94	.01	.04	1	1
L1W 800N	1	3	20	22	.1	1	2	96	.62	2	5	ND	1	13	.2	2	2	16	.15	.020	10	6	.06	54	.09	2	.49	.01	.04	1	2
L1W 750N	1	7	21	60	.4	9	5	156	2.02	2	5	ND	1	14	.2	2	2	40	.15	.080	9	17	.22	81	.14	2	2.12	.01	.04	1	1
L1W 700N	1	9	24	104	.2	10	7	219	2.82	8	5	ND	1	13	.2	2	2	49	.12	.089	9	18	.21	77	.12	2	3.35	.01	.04	1	33
L1W 650N	1	7	23	112	.2	11	8	251	2.60	9	5	ND	3	12	.2	2	2	47	.11	.076	9	20	.20	45	.14	2	2.06	.01	.04	1	3
L1W 600N	1	6	20	97	.2	8	6	190	2.52	8	5	ND	2	11	.2	2	2	46	.10	.092	9	20	.19	42	.14	2	2.22	.01	.03	1	1
L1W 550N	1	5	25	122	.2	9	6	246	2.29	2	5	ND	2	18	.2	2	2	43	.18	.062	9	16	.20	62	.18	2	1.74	.01	.04	1	9
L1W 500N	1	8	52	190	1.0	11	7	555	1.89	11	5	ND	5	23	.9	2	2	33	.25	.059	12	18	.25	75	.11	4	1.73	.01	.05	1	16
L1W 550S	1	19	29	116	.1	8	7	397	2.03	13	5	ND	1	69	1.1	2	4	38	.54	.041	21	21	.39	89	.10	2	1.80	.02	.14	1	6
L1W 600S	2	18	51	175	.6	12	18	973	3.84	40	5	ND	1	54	.7	2	4	84	.36	.069	9	25	.45	119	.07	2	2.98	.01	.09	1	4
L1W 650S	1	13	26	60	.5	1	3	132	.97	6	5	ND	1	47	.7	2	2	20	.33	.040	12	10	.08	66	.05	2	.91	.01	.05	1	1
L1W 700S	1	7	20	94	.1	4	5	478	1.75	7	5	ND	1	30	.3	2	2	38	.29	.018	7	17	.32	49	.19	3	1.04	.01	.06	1	25
L1W 750S	1	10	13	92	.4	8	5	191	1.97	7	5	ND	1	19	.5	2	2	36	.17	.044	9	18	.20	87	.11	2	1.44	.01	.04	1	2
L1W 800S	1	9	9	66	.2	5	6	189	2.96	10	5	ND	1	17	.2	2	2	46	.14	.186	7	19	.21	39	.10	2	1.90	.01	.06	1	5
STANDARD C/AU-S	18	62	40	134	7.5	71	32	1064	3.96	42	20	7	40	53	18.1	14	21	58	.49	.085	39	60	.94	183	.09	35	1.94	.07	.14	11	50

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
L1W 850S	2	6	8	67	.1	8	5	518	2.09	2	5	ND	6	18	.3	2	2	43	.21	.057	8	22	.14	69	.12	5	.88	.01	.08	2	5
L1W 900S	1	3	7	53	.1	5	4	159	1.68	4	5	ND	2	21	.9	2	2	37	.17	.017	9	17	.09	45	.15	2	.54	.01	.04	1	1
L1W 950S	1	5	10	73	.1	4	5	185	3.05	3	5	ND	2	14	.2	2	2	49	.11	.112	8	20	.18	38	.12	2	1.89	.01	.04	1	3
L1W 1000S	1	3	9	55	.1	7	5	173	2.34	5	5	ND	3	11	.2	2	2	45	.10	.097	9	19	.17	37	.14	2	1.78	.01	.05	1	2
L1W 1050S	2	7	15	67	.1	10	7	219	3.46	5	6	ND	3	10	.2	2	2	60	.10	.106	7	23	.29	39	.14	4	3.30	.01	.05	1	1
LOW 917N	1	1	18	43	.2	7	4	301	2.19	4	5	ND	2	14	.2	2	3	44	.12	.072	9	15	.12	44	.13	2	1.30	.01	.04	1	1
LOW 900N	1	3	13	43	.2	5	4	160	2.14	8	5	ND	3	12	.2	2	2	42	.11	.067	9	15	.12	43	.13	2	1.04	.01	.04	1	5
LOW 850N	1	4	13	54	.1	5	6	209	3.12	7	5	ND	2	16	.2	2	7	59	.15	.100	9	20	.16	52	.14	3	1.31	.01	.05	1	3
LOW 800N	1	3	26	45	.3	7	3	106	1.37	2	5	ND	1	15	.2	2	2	30	.15	.053	10	12	.10	43	.12	4	1.25	.01	.04	1	5
LOW 750N	1	6	18	75	.2	9	6	216	2.58	5	5	ND	2	13	.2	2	2	49	.13	.063	8	18	.17	47	.18	3	2.08	.01	.04	1	14
LOW 700N	1	3	23	51	.1	6	4	264	1.81	2	5	ND	1	17	.2	2	2	41	.16	.047	9	13	.09	47	.14	3	1.11	.01	.04	1	1
RE LOW 500S	1	5	16	62	.3	5	5	177	2.63	10	5	ND	1	23	.2	2	4	50	.19	.072	8	18	.14	66	.11	2	2.53	.01	.06	1	5
LOW 650N	1	4	23	88	.7	11	7	330	2.34	8	5	ND	1	13	.2	2	2	44	.12	.081	8	18	.15	50	.13	2	2.17	.01	.04	1	5
LOW 600N	1	6	32	132	.7	11	5	209	1.88	5	5	ND	2	14	.2	2	2	38	.14	.062	11	18	.20	60	.13	3	2.18	.01	.04	1	8
LOW 550N	1	6	50	199	.7	12	7	397	2.09	15	5	ND	2	19	.2	2	2	37	.19	.073	10	19	.21	63	.12	2	2.05	.01	.05	1	5
LOW 500N	1	3	48	186	.7	13	7	369	2.08	13	5	ND	2	19	.2	2	2	38	.19	.057	11	18	.24	72	.13	2	2.02	.01	.05	1	3
LOW 500S	1	6	24	69	.5	6	4	184	2.64	15	6	ND	1	23	.2	4	3	50	.19	.074	8	18	.15	67	.11	4	2.54	.01	.06	1	8
LOW 550S	1	6	11	53	.2	7	4	161	2.40	13	5	ND	1	14	.2	2	2	46	.13	.058	9	18	.16	48	.11	2	1.63	.01	.07	1	3
LOW 600S	2	14	24	98	.4	9	12	1264	3.35	31	5	ND	1	60	.8	2	4	75	.50	.103	13	23	.32	86	.11	2	2.72	.01	.08	1	4
LOW 650S	1	9	29	76	.6	9	6	250	1.75	7	5	ND	2	26	.6	2	2	34	.21	.032	11	17	.30	55	.08	2	1.79	.01	.07	1	10
LOW 700S	1	6	14	72	.3	10	6	343	1.91	6	5	ND	1	40	.2	2	2	40	.32	.028	9	20	.41	63	.14	2	1.51	.01	.11	1	4
LOW 750S	1	3	6	38	.1	6	4	167	1.54	3	5	ND	1	15	.2	2	2	36	.13	.028	10	17	.09	44	.10	2	.57	.01	.06	1	3
LOW 800S	1	5	15	52	.1	7	5	281	1.74	4	5	ND	1	26	.2	2	3	36	.21	.051	9	15	.15	61	.12	2	1.16	.01	.05	1	4
LOW 850S	1	5	16	51	.1	9	5	176	2.88	10	5	ND	3	11	.3	2	2	57	.10	.149	8	20	.17	48	.16	2	2.12	.01	.05	1	1
LOW 900S	1	5	21	79	.2	8	5	192	1.62	5	5	ND	2	28	.2	2	2	35	.24	.025	10	16	.28	54	.21	2	1.38	.01	.04	1	2
LOW 950S	1	11	13	91	.2	13	13	1452	2.43	10	5	ND	1	67	.5	2	3	44	.51	.055	12	21	.54	109	.12	2	1.49	.02	.12	1	4
LOW 1000S	1	14	20	138	.4	15	12	450	2.87	13	6	ND	1	63	.4	2	3	55	.52	.088	13	28	.53	102	.12	2	2.44	.02	.08	1	1
LOW 1050S	1	12	18	108	.1	17	18	983	2.94	11	5	ND	1	42	.4	2	2	55	.45	.069	13	21	.67	71	.14	2	1.72	.03	.12	1	7
STANDARD C/AU-S	18	63	37	133	7.2	72	32	1098	3.96	43	22	7	40	52	18.6	14	21	58	.50	.083	40	60	.90	183	.08	34	1.93	.07	.14	10	52

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

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
BD SILT 8	2	16	12	550	1.6	17	15	2364	3.24	77	5	ND	1	118	3.8	2	2	55	.92	.104	18	18	.30	196	.03	2	3.64	.02	.12	1	6

Sample type: SILT.

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
BD-PAN 12	2	9	8	348	.3	10	17	3698	3.34	116	5	ND	1	33	3.8	2	2	62	.25	.034	10	10	.21	139	.04	2	1.37	.02	.09	1	6
BD-PAN 13	1	5	5	52	.1	9	5	626	1.88	14	5	ND	3	20	.2	2	2	31	.20	.026	9	8	.20	51	.06	2	.74	.03	.08	1	6

Sample type: PAN CONC..

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb	Hg ppb
24641-X	5	20	321	1027	2.7	5	3	206	.93	65	5	ND	8	8	12.2	6	3	1	.04	.004	4	7	.02	110	.01	2	.26	.01	.14	4	26	25
24642-X	4	17	20	57	.2	18	13	140	.68	87	5	ND	3	27	.5	4	3	12	.56	.132	17	16	.07	102	.04	3	.75	.06	.21	1	13	5
24643-X	2	50	10	88	.4	28	22	891	3.56	31	5	ND	3	76	.2	5	2	86	.97	.131	16	51	.69	213	.08	3	2.58	.16	.15	1	9	10
24644-X	7	57	64	1659	1.5	1	4	70	1.12	20	5	ND	7	7	27.0	3	3	3	.04	.006	7	5	.03	132	.01	4	.24	.01	.13	7	19	80
24711-X	1	203	14	82	.4	35	46	496	5.64	24	5	ND	4	28	2.7	5	2	101	.50	.124	16	60	.79	38	.06	5	1.77	.03	.06	1	13	5
RE 24711-X	1	196	15	76	.6	32	44	493	5.53	16	5	ND	4	28	1.5	4	2	101	.50	.123	16	60	.79	35	.06	2	1.76	.03	.07	1	10	5
STANDARD C/AU-R	20	59	40	140	7.4	75	29	1080	3.96	42	23	7	41	53	18.6	14	21	61	.50	.084	40	61	.90	184	.09	36	1.99	.07	.14	10	479	1500

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

COMP: GRANGES INC.
PROJ: BLACKWATER-DAVIDSON (120)
ATTN: GORDON ALLEN/BRUCE DOWNING

MIN-EN LABS — ICP REPORT

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

FILE NO: 2V-0882-HJ1*.
DATE: 92/09/17
* H.M. SEPERATION * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL %	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA %	CD PPM	CO PPM	CU PPM	FE %	K %	LI PPM	MG %	MN PPM	MO PPM	NA %	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	TI PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU-FIRE PPB
BD-H15	.1	1.24	1	12	70	.1	33	1.66	.1	26	17	9.50	.04	4	.29	1255	1	.02	1	1210	20	1	106	1	8859	270.1	76	1	7	7	55	280

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Granges Inc. PROJECT BLACKWATER DAVIDSON File # 92-2766 SEP - 4 1992

2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** ppb
24645-X	7	89	5	257	.1	76	17	449	11.23	863	5	ND	1	9	1.6	7	2	33	.03	.011	2	16	.01	40	.01	3	.24	.01	.04	1	36
24646-X	1	41	17	39	.4	32	8	128	5.96	589	5	ND	1	121	.5	8	3	25	.06	.058	4	23	.02	351	.01	4	.34	.01	.07	2	22
24647-X	1	63	32	110	.4	304	25	968	4.20	27	5	ND	1	70	.9	3	2	60	4.12	.035	5	111	2.94	486	.01	2	1.18	.01	.11	1	25
24648-X	2	34	23	19	5.8	19	4	82	1.45	235	5	ND	1	38	.5	39	3	6	.10	.007	3	27	.08	761	.01	2	.20	.01	.08	2	151
24649-X	1	14	13	58	.1	17	2	123	1.10	35	5	ND	1	9	.8	2	2	14	.02	.007	6	17	.01	60	.01	2	.20	.01	.07	2	16
RE 24646-X	1	40	16	36	.3	32	8	127	6.12	606	5	ND	1	133	.6	8	2	25	.06	.059	4	24	.02	364	.01	2	.37	.01	.07	2	26
STANDARD C/AU-R	18	58	38	135	7.6	72	31	1043	3.96	42	18	7	37	52	18.7	14	19	57	.49	.084	38	59	.93	190	.08	35	1.99	.06	.14	10	486

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

DATE RECEIVED: AUG 25 1992 **DATE REPORT MAILED:** Sept 2/92 **SIGNED BY** D. Toye .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

ACME AN[illegible]TICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(60[illegible]53-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

SEP - 4 1992

Granges Inc. PROJECT BLACKWATER-DAVIDSON File # 92-2216R Page 2
2300 - 885 W. Georgia St., Vancouver BC V6C 3E8 Submitted by: GORDON ALLEN

SAMPLE#	Hg ppb
9W 00S	15
9W 25S	15
9W 50S	55
9W 75S	35
9W 100S	40
9W 125S	85
9W 150S	5
9W 175S	5
9W 200S	70
9W 225S	120
9W 275S	50
9W 325S	30
9W 350S	30
9W 375S	20
9W 400S	30
9W 425S	20
9W 450S	60
9W 475S	55
9W 500S	20
9W 525S	20
9W 550S	55
9W 575S	45
9W 600S	75
9W 625S	55
9W 650S	25
9W 675S	45
9W 700S	50
9W 725S	45
9W 750S	15
9W 775S	35
9W 800S	30
RE 9W 725S	45
9W 825S	45
9W 850S	60
9W 875S	60
9W 900S	115
9W 925S	55
STANDARD C	1550

- SAMPLE TYPE: P1 ROCK P2 TO P3 SOIL P4 SILT HG ANALYSIS BY FLAMELESS AA. Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 31 1992 **DATE REPORT MAILED:** Sept 2/92 **SIGNED BY**.D. Toye.....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Hg ppb
9W 950S	30
9W 975S	35
9W 1000S	65
RE 9W 950S	35

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

APPENDIX IV

WHOLE ROCK GEOCHEMISTRY

XRAL

X-RAY ASSAY LABORATORIES

A DIVISION OF SGS SUPERVISION SERVICES INC.

1885 LESLIE STREET • DON MILLS, ONTARIO M3B 3J4 • CANADA

TEL: (416)445-5755 TELEX: 06-986947 FAX: (416)445-4152

FACSIMILE COVER LETTER

AUG 18 1992

PLEASE DELIVER THE FOLLOWING TO:

NAME: BRUCE DOWNING

FIRM: GRANGES INC.

FAX NO. 16046878699

FROM:

DEPT.: DATACENTER

TOTAL NUMBER OF PAGES INCLUDING COVER LETTER: 2

PARTIAL REPORT: [X] YES [ ] NO

DATE: 18-AUG-92 PROJECT #: 120 BLACKWATER

REFERENCE #: 12939

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COMMENTS (IF ANY):

X-RAY ASSAY LABORATORIES 18-AUG-92 RE / ----- REF. 12939 PAGE 1

SAMPLE	LI PPM ICP	BE PPM ICP	NA % ICP	NA2O % WR	MG % ICP	MGO % WR	AL % ICP	AL2O3 % WR	SIO2 % WR	P % ICP	P2O5 % WR
24601	25	1.2	.04	1.72	.76	1.65	1.77	17.1	58.7	.18	.44
24602	3	.5	.04	.27	.06	.33	.40	13.1	69.2	.04	.11
24603	36	1.6	.04	.23	.31	.83	2.09	17.3	59.2	.18	.44
24604	4	.6	.04	.18	.07	.37	.51	13.4	71.1	.04	.11
24605	32	1.5	.04	.88	.79	1.62	2.17	16.9	56.7	.18	.44
24606	1	.8	.03	<.01	.01	.29	.23	11.9	71.9	<.01	.03
24607	36	1.5	.03	.10	.50	1.05	2.04	15.5	62.8	.09	.25
24608	<1	<.5	.03	.11	<.01	.13	.23	13.1	73.8	<.01	.03
24609	38	1.6	.03	.17	.27	.69	1.87	15.4	63.5	.07	.19
24610	3	.8	.04	.07	.02	.36	.37	14.0	72.2	<.01	.03
24611	53	1.6	.04	.12	.43	.95	2.60	16.4	58.8	.15	.38
24612	2	.6	.03	.22	.02	.22	.31	12.9	69.4	.02	.06

SAMPLE	K % ICP	K2O % WR	CA % ICP	CAO % WR	SC PPM ICP	TI % ICP	TIO2 % WR	V PPM ICP	CR PPM ICP	CR2O3 % WR	MN % ICP
24601	.33	4.54	.41	.94	2.0	.02	1.07	46	47	<.01	.48
24602	.29	6.41	.09	.35	<.5	<.01	.339	4	61	<.01	.13
24603	1.11	5.75	.42	.85	3.2	.07	1.03	53	52	<.01	.48
24604	.32	5.09	.10	.36	<.5	<.01	.355	4	48	<.01	.21
24605	.50	5.74	.41	.85	2.8	.04	1.03	54	43	<.01	.70
24606	.23	3.81	.02	.23	<.5	<.01	.158	3	47	<.01	.06
24607	.63	6.23	.20	.53	1.4	.04	.615	41	29	<.01	.52
24608	.24	7.48	.01	.23	<.5	<.01	.133	<2	53	<.01	<.01
24609	.79	5.88	.15	.48	1.8	.06	.716	40	44	<.01	.38
24610	.41	4.51	<.01	.22	<.5	<.01	.163	<2	46	<.01	.02
24611	1.40	7.31	.32	.68	3.7	.14	.930	63	46	<.01	.47
24612	.29	5.47	.04	.26	<.5	<.01	.285	2	55	<.01	.16

SAMPLE	MNO % WR	FE % ICP	FE2O3 % WR	CO PPM ICP	NI PPM ICP	CU PPM ICP	ZN PPM ICP	AS PPM ICP	SR PPM ICP	Y PPM XRF	ZR PPM XRF
24601	.87	4.00	7.46	31	39	72.3	7070.	18	19.4	<2	186
24602	.21	1.14	2.37	6	7	49.8	12700.	5	12.6	<2	121
24603	.80	4.82	8.92	22	26	54.7	1220.	24	24.2	<2	172
24604	.33	1.26	2.68	6	4	66.5	9210.	30	12.1	<2	109
24605	1.23	5.28	9.37	9	10	50.9	316.	<3	12.9	5	192
24606	.13	3.28	5.83	6	<1	208.	757.	70	7.6	<2	87
24607	.83	4.95	9.00	7	29	68.5	3690.	20	55.0	<2	170
24608	.04	.60	1.51	3	1	75.1	3480.	114	2.7	3	81
24609	.61	4.55	8.04	8	39	95.4	7260.	126	32.5	<2	156
24610	.08	1.67	3.89	7	1	298.	2110.	240	2.0	<2	88
24611	.90	5.66	10.2	15	14	50.0	2700.	28	17.2	<2	191
24612	.27	1.58	3.21	2	2	130.	12200.	132	17.3	<2	100

SAMPLE	MO PPM ICP	AG PPM ICP	CD PPM ICP	SN PPM ICP	SB PPM ICP	BA PPM ICP	U PPM ICP	PB PPM ICP	BI PPM ICP	LOI % WR	SUM % WR
24601	3	2.7	14	<10	17	28	<10	488	<3	4.00	98.5
24602	6	13.1	63	<10	17	27	<10	2690	9	2.40	95.1
24603	2	1.0	2	<10	<5	39	<10	30	<3	3.70	99.1
24604	6	9.5	52	<10	9	19	<10	2410	<3	2.80	96.8
24605	3	1.2	<1	<10	6	30	<10	19	<3	3.95	98.7
24606	4	6.4	5	<10	134	9	<10	471	25	4.40	98.7
24607	1	2.1	21	<10	7	32	<10	57	<3	2.80	99.7
24608	12	1.0	27	<10	10	23	<10	39	<3	1.85	98.4
24609	6	3.6	43	<10	5	57	<10	167	4	2.80	98.5
24610	4	5.5	16	<10	37	25	<10	320	4	3.90	99.4
24611	4	1.2	16	<10	<5	81	<10	30	<3	2.20	98.9
24612	30	1.7	87	<10	6	32	<10	24	<3	3.10	95.4

XRAL

X-RAY ASSAY LABORATORIES

A DIVISION OF SGS SUPERVISION SERVICES INC.

1885 LESLIE STREET • DON MILLS, ONTARIO M3B 3J4 • CANADA

TEL: (416)445-5755 TELEX: 06-986947 FAX: (416)445-4152

FACSIMILE COVER LETTER

SEP - 2 1992

PLEASE DELIVER THE FOLLOWING TO:

NAME: BRUCE DOWNING

FIRM: GRANGES INC.

FAX NO. 16046878699

FROM:

DEPT.: DATACENTER

TOTAL NUMBER OF PAGES INCLUDING COVER LETTER: 2

PARTIAL REPORT: [ ] YES [X] NO

DATE: 01-SEP-92 PROJECT #: 120

REFERENCE #: 12927

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COMMENTS (IF ANY):

X-RAY ASSAY LABORATORIES 01-SEP-92 REPORT 20197 REF. 12927 PAGE 1

SAMPLE	AU PPB NA	LI PPM ICP	BE PPM ICP	CO2 % COULOM	NA PPM NA	NA % ICP	NA2O % WR	MG % ICP	MGO % WR	AL % ICP	AL2O3 % WR
24621	<2	<1	<.5	.01	29000	.56	4.17	.05	.47	1.00	14.3
24622	<2	5	1.2	.90	29000	.09	4.15	.11	.48	.37	13.6
24705	<2	29	.6	.01	30000	.13	4.22	.61	1.13	.91	14.1

SAMPLE	SIO2 % WR	P % ICP	P2O5 % WR	S % LECO	K % ICP	K2O % WR	CA % NA	CA % ICP	CAO % WR	SC PPM NA	SC PPM ICP
24621	71.1	.02	.06	<.01	.16	2.85	1.5	.22	1.93	2.21	<.5
24622	69.2	.05	.13	.02	.19	3.71	.9	.92	1.81	7.38	1.4
24705	69.2	.06	.16	<.01	.57	3.76	1.1	.29	2.16	8.13	3.4

SAMPLE	TI % ICP	TIO2 % WR	V PPM ICP	CR PPM NA	CR PPM ICP	CR2O3 % WR	MN % ICP	MNO % WR	FE % NA	FE % ICP	FE2O3 % WR
24621	.07	.277	5	85.0	60	<.01	.02	.09	1.38	.55	1.98
24622	<.01	.381	18	120.	96	<.01	.06	.10	1.85	1.44	2.75
24705	.14	.468	46	130.	103	.01	.05	.11	2.25	1.93	3.31

SAMPLE	CO PPM NA	CO PPM ICP	NI PPM NA	NI PPM ICP	CU PPM ICP	ZN PPM NA	ZN PPM ICP	AS PPM NA	AS PPM ICP	SE PPM NA	BR PPM NA
24621	2.5	<1	<50	2	3.4	50	13.7	16	8	<1	5.0
24622	7.5	6	<50	8	18.8	60	45.5	9	<3	<1	3.8
24705	8.8	6	<50	11	12.7	70	46.7	4	<3	<1	4.6

SAMPLE	RB PPM NA	SR PPM NA	SR PPM ICP	Y PPM XRF	Y PPM ICP	ZR PPM XRF	ZR PPM ICP	MO PPM NA	MO PPM ICP	AG PPM NA	AG PPM ICP
24621	100	500	28.0	<2	2.8	143	9.5	7	5	<2	.3
24622	200	<100	23.6	4	8.3	102	13.5	6	7	<2	.3
24705	190	300	14.3	5	6.3	113	15.8	9	6	<2	.1

SAMPLE	CD PPM ICP	SN PPM ICP	SB PPM NA	SB PPM ICP	CS PPM NA	BA PPM NA	BA PPM ICP	LA PPM NA	CE PPM NA	ND PPM NA	SM PPM NA
24621	<1	<10	5.1	<5	35.4	1100	62	25.9	47	17	2.87
24622	<1	<10	1.7	<5	4.4	680	82	17.7	37	17	3.59
24705	<1	<10	.8	<5	4.2	720	33	20.1	41	19	3.96

SAMPLE	EU PPM NA	TB PPM NA	YB PPM NA	LU PPM NA	HF PPM NA	TA PPM NA	W PPM NA	W PPM ICP	IR PPB NA	PB PPM ICP	BI PPM ICP
24621	.65	.3	1.17	.17	4.6	1.0	<1	<10	<5	12	<3
24622	.56	.5	1.75	.25	3.8	1.6	<1	<10	<5	9	<3
24705	.61	.5	1.61	.24	4.0	1.5	<1	<10	<5	<2	<3

SAMPLE	TH PPM NA	U PPM NA	LOI % WR	SUM % WR
24621	11.0	5.5	2.35	99.6
24622	12.0	7.8	2.65	99.0
24705	13.0	9.1	.85	99.5

XRAL

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1885 LESLIE STREET • DON MILLS, ONTARIO M3B 3J4 • CANADA
TEL: (416)445-5755 TELEX: 06-986947 FAX: (416)445-4152

CERTIFICATE OF ANALYSIS

REPORT 20434

TO: GRANGES INC.
ATTN: BRUCE DOWNING
2300 - 885 W. GEORGIA STREET
VANCOUVER, BRITISH COLUMBIA
V6C 3E8

CUSTOMER No. 1984

DATE SUBMITTED
31-Aug-92

OCT 14 1992

REF. FILE 13168-T6

Total Pages 9

5 ROCKS BLACKWATER-DAVIDSON Proj. 120

	METHOD	DETECTION LIMIT
AU PPB	NA	2.
LI PPM	ICP	1.
BE PPM	ICP	.5
CO2 %	COULOM	.01
NA PPM	NA	50.
NA %	ICP	.01
WRMAJ %	WR	.01
MG %	ICP	.01
AL %	ICP	.01
P %	ICP	.01
S %	LECO	.01
K %	ICP	.01
CA %	NA	.2
CA %	ICP	.01
SC PPM	NA	.01
SC PPM	ICP	.5
TI %	ICP	.01
V PPM	ICP	2.
CR PPM	NA	.5
CR PPM	ICP	1.
MN %	ICP	.01
FE %	NA	.005
FE %	ICP	.01
CO PPM	NA	.5
CO PPM	ICP	1.
NI PPM	NA	50.
NI PPM	ICP	1.
CU PPM	ICP	.5
ZN PPM	NA	20.
ZN PPM	ICP	.5
AS PPM	NA	1.
AS PPM	ICP	3.
SE PPM	NA	1.
BR PPM	NA	.5
RB PPM	NA	10.
SR PPM	NA	100.
SR PPM	ICP	.5
Y PPM	XRF	2.
Y PPM	ICP	.1
ZR PPM	XRF	3.
ZR PPM	ICP	.5
MO PPM	NA	2.
MO PPM	ICP	1.
AG PPM	NA	2.
AG PPM	ICP	.1
CD PPM	ICP	1.
SN PPM	ICP	10.
SB PPM	NA	.1
SB PPM	ICP	5.
CS PPM	NA	.5
BA PPM	NA	50.
BA PPM	ICP	1.
LA PPM	NA	.1
CE PPM	NA	1.
ND PPM	NA	3.
SM PPM	NA	.01
EU PPM	NA	.05
TB PPM	NA	.1
YB PPM	NA	.05
LU PPM	NA	.01
HF PPM	NA	.2
TA PPM	NA	.5
W PPM	NA	1.
W PPM	ICP	10.
IR PPB	NA	5.
HG PPB	WET	5.
PB PPM	ICP	2.
BI PPM	ICP	3.
TH PPM	NA	.2
U PPM	NA	.1

DATE 29-SEP-92

CERTIFIED BY ....
Jean H.L. Opdebeeck, General Manager

Member of the SGS Group (Société Générale de Surveillance)

SAMPLE	AU PPB	LI PPM	BE PPM	CO2 %	NA PPM	NA %	MG %	AL %	P %	S %
24633	2	<1	.6	.41	14000	.05	.02	.34	<.01	.18
24635	42	11	1.4	.06	1900	.08	.35	2.59	.06	.19
24636	69	<1	<.5	<.01	430	.02	.01	.39	<.01	.15
24637	22	<1	<.5	<.01	1400	.02	<.01	.28	<.01	.81
24638	5	<1	<.5	<.01	680	.02	.01	.42	<.01	.07

SAMPLE	K %	CA %	CA %	SC PPM	SC PPM	TI %	V PPM	CR PPM	CR PPM	MN %
24633	.29	<.3	.28	2.27	<.5	<.01	<2	270.	164	.11
24635	.40	1.6	1.38	3.87	.8	.03	24	280.	174	.14
24636	.28	<.2	.02	2.24	<.5	<.01	<2	270.	193	.13
24637	.28	<.2	<.01	2.91	<.5	<.01	2	190.	114	.02
24638	.36	<.3	.02	2.73	<.5	<.01	<2	360.	242	.09

SAMPLE	FE %	FE %	CO PPM	CO PPM	NI PPM	NI PPM	CU PPM	ZN PPM	ZN PPM
24633	.889	.52	1.2	<1	<50	1	4.8	590	626.
24635	2.03	1.73	3.3	2	<50	4	14.6	830	871.
24636	1.45	.31	.7	<1	<50	2	3.9	50	21.8
24637	1.20	.94	.9	<1	<50	3	65.2	30	18.3
24638	.791	.35	.9	<1	<50	3	6.3	140	107.

SAMPLE	AS PPM	AS PPM	SE PPM	BR PPM	RB PPM	SR PPM	SR PPM	Y PPM	Y PPM
24633	18	16	<1	4.0	140	<100	30.1	<2	4.5
24635	41	35	<1	3.7	220	<100	28.9	<2	2.5
24636	290	33	<1	4.5	150	<100	1.8	<2	1.3
24637	8	6	<1	3.2	230	<100	2.0	<2	2.1
24638	150	156	<1	2.5	140	<100	3.8	<2	3.8

SAMPLE	ZR PPM	ZR PPM	MO PPM	MO PPM	AG PPM	AG PPM	CD PPM	SN PPM
24633	106	16.4	10	8	<2	<.1	4	<10
24635	153	3.7	7	6	<2	.3	4	<10
24636	104	9.7	9	8	<2	2.2	<1	<10
24637	111	8.9	4	4	<2	2.2	<1	<10
24638	83	7.5	13	12	<2	.1	<1	<10

SAMPLE	SB PPM	SB PPM	CS PPM	BA PPM	BA PPM	LA PPM	CE PPM	ND PPM
24633	8.9	<5	12.2	970	43	29.2	52	18
24635	4.4	<5	4.7	2100	109	25.5	47	17
24636	1.7	<5	2.2	240	23	23.6	41	14
24637	2.0	<5	2.7	2200	57	24.8	45	16
24638	7.4	7	2.6	440	71	35.5	65	24

SAMPLE	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	HF PPM	TA PPM	W PPM	W PPM
24633	2.85	.64	.3	1.07	.17	3.5	1.0	<1	<10
24635	2.85	.82	.3	1.27	.20	4.5	.5	<1	<10
24636	2.01	.42	.3	.96	.14	3.4	.9	<1	<10
24637	2.48	.54	.3	1.10	.17	3.6	.7	10	<10
24638	3.98	.31	.4	1.66	.26	3.0	1.4	<1	<10

SAMPLE	IR PPB	HG PPB	PB PPM	BI PPM	TH PPM	U PPM
24633	<5	206	20	<3	12.0	4.9
24635	<5	<5	32	<3	8.9	4.4
24636	<5	7	20	<3	5.3	2.3
24637	<5	<5	60	<3	10.0	4.4
24638	<5	<5	25	<3	7.1	4.4

XRAL

SAMPLE \ %	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	CR2O3	LOI	SUM
24633	74.2	13.5	.67	.22	2.00	4.23	1.43	.17	.168	.03	.04	1.70	98.4
24635	67.6	15.2	2.45	.98	.21	6.92	3.17	.90	.450	.17	.03	1.35	99.4
24636	74.4	13.1	.36	.33	<.01	3.76	2.36	1.93	.170	.03	.03	2.10	98.6
24637	72.6	13.4	.28	.24	.12	7.80	1.73	.19	.189	.04	.02	1.65	98.3
24638	76.1	12.3	.41	.24	<.01	4.93	1.27	1.48	.138	.03	.05	1.65	98.6

XRF W.R.A. SUMS INCLUDE ALL ELEMENTS DETERMINED. FOR SUMMATION, ELEMENTS ARE CALCULATED AS OXIDES

APPENDIX V

PETROGRAPHIC REPORTS

PETROGRAPHIC REPORT ON THIRTEEN THIN SECTIONS

Report for: Gordon Allen
Granges Inc.
2300-885 West Georgia St.
Vancouver, B.C.
V6T 2Z4.

Aug. 28, 1992

Invoice attached

Samples submitted: 24601, 2, 3, 4, 5, 7, 9, 11, 12 from DDH DAV-11; GA92-21; ~~29621~~, 24622, 24705.
(24620) 24621

SUMMARY:

The samples from DAV-11 are mainly fragmental mafic-intermediate volcanics (24601, 03, 04, 07, 09) but there are some finely (24611) to coarsely (24605) porphyritic flow rocks and also some more felsic variants (24602, 12). Most were probably andesite to basaltic andesite in composition, and were composed of plagioclase and mafic (?pyroxene) phenocrysts before severe alteration. Only two (24602 and 05) do not show clear fragmental textures.

Alteration in this suite is generally strong to intense, mainly phyllic (sericite-quartz-chlorite) in type (24601, 02, 03, 04, 12) but grading into mafic potassic with the addition of significant chlorite and secondary biotite in some samples (24604, 05, 07, 09, 11). There may be minor amounts of ?ankeritic carbonate. Sulfides, mainly pyrite (generally partly altered to limonite) are noted in 24602, 04, 07, 09, and 12; pyrrhotite and minor chalcopyrite in 07 appear to occur as <u>clasts</u> of massive sulfide; there may be sphalerite in 12.

Sample GA-92-21 is an intensely quartz-sericite altered ?felsic fragmental somewhat like 24602 and 12, containing an unidentified isotropic mineral in some clasts. Sample 29621 is an ?intermediate porphyritic volcanic characterized by abundant calcic andesine phenocrysts and amygdules of quartz, chalcedony and ?zeolite. Both 24622 and 24705 are much more felsic, fragmental volcanics characterized by quartz, K-feldspar and plagioclase phenocrysts or shards and variable clasts composed mainly of plagioclase microlites, in an altered matrix. K-feldspar may be sanidine in 24622 but orthoclase in 24705, and the plagioclase may be albite in 24622 but oligoclase in 24705; alteration is to ankeritic carbonate and sericite in 24622, but to green secondary biotite in 24705.

Craig H.B. Leitch, Ph.D, P.Eng.
(604) 921-8780 or 666-4902

<u>24601: SERICITE-CHLORITE-QUARTZ ALTERED, FINELY PORPHYRITIC FRAGMENTAL INTERMEDIATE VOLCANIC ROCK</u>

This sample comes from drill core DAV-11 82'. The rock is mildly magnetic, dark grey-green, and finely porphyritic. It is scratched by steel, but does not react to cold dilute HCl. In thin section, the modal mineralogy is roughly:

Sericite	45%
Chlorite	25%
Quartz (partly secondary?)	15%
Opaque (?Fe-Ti oxides: hematite, magnetite)	10%
Limonite	3%
Sphene (?)	2%
Zircon (?)	tr

This is a moderately altered rock, consisting largely of relict crystals of plagioclase and a mafic mineral, now altered to sericite and chlorite-sericite respectively, in a felsic groundmass. There is a suggestion of a vague fragmental texture, with perhaps 50% subrounded to subangular clasts up to 2 cm diameter that are slightly darker (richer in sericite and chlorite, poorer in quartz) than the matrix separating them.

Former plagioclase phenocrysts were euhedral and up to 2 mm long. They are pseudomorphed by fine (10 μm) flakey sericite, lesser limonite and minor quartz and chlorite.

Former mafic phenocrysts were less euhedral but larger, up to 3 mm in diameter. These somewhat rounded patches consist of quartz, opaques, sericite and chlorite. More common are fine (<0.5 mm) eu- to subhedral patches of chlorite and lesser sericite that may represent a different mafic mineral

The groundmass consists of quartz, both as small clear ?shards up to 0.1 mm long and extremely fine (10-20 μm) anhedral grains, mixed with sericite and chlorite, between them. Quartz also forms larger subhedral domains up to 0.5 mm across that poikilitically enclose all other minerals. These may be secondary, although they appear to be more common in the clasts and therefore suggest such "silicification" was pre-brecciation.

Opaques form subhedral crystals up to 0.5 mm diameter as well as abundant 20 μm grains in the matrix. They are probably mostly Fe oxides such as martite (hematite after magnetite), and imply a mafic to intermediate protolith.

<u>24602: INTENSELY QUARTZ-SERICITE (± SULFIDE) ALTERED ?FELSIC VOLCANIC ROCK CONTAINING ?CLASTS OF CHALCEDONIC QUARTZ</u>

From DAV-11 94′, this rock is a pale buff- to beige-green, fine-grained, strongly altered and fractured ?volcanic with rare ?sulfides and minor Fe-oxides. Large (to 0.7 cm) fragments are present, and the rock is characterized by 1-2 mm rounded ?spheroids or relict phenocrysts of quartz and ?feldspar. There is no reaction to a magnet or dilute HCl; the rock is mainly harder than steel. In thin section, the mineralogy is approximately:

Quartz (partly chalcedonic)	60%
Sericite	30%
Opaque (mainly Fe-Ti oxides; minor sulfide)	5%
Carbonate (?dolomite or ankerite)	2%
Chlorite	2%
Sphene (?), rutile, leucoxene	1%

This rock has been intensely and pervasively quartz-sericite altered, so that its original texture is hard to distinguish. What appear to be clasts of extremely fine-grained, chalcedonic silica are up to 1.5 mm across; they are set in a fine, strongly sericite-quartz altered matrix which has a disrupted texture (orientations of sericite foliations trend in random directions).

The ?clasts consist mainly of feathery-textured ?chalcedony (birefringence slightly less than quartz) as anhedral, spindly grains to 50 μm long. In places there are minor amounts of sericite, mainly as fractures crossing the "clasts", quartz as anhedral crystals to 50 μm, chlorite flakes to 30 μm diameter, and patches of carbonate up to 0.5 mm across composed of anhedral crystals up to 50 μm long. The lack of reaction of the carbonate suggests dolomite or ankerite, although the amount is so small that it is hard to be sure. Opaques are also found in the clasts, usually associated with the carbonate.

The matrix consists of very fine sericite as subhedral flakes rarely over 20 μm in diameter, cementing anhedral irregular quartz grains up to 0.1 mm across and scattered opaques up to 0.5 mm across. Some opaque grains are associated with relatively coarse (up to 0.1 mm) chlorite and quartz, suggesting these are secondary (possibly sulfide or limonite after sulfide). Traces of relics of former Ti-minerals, such as ?sphene and rutile or leucoxene, are also present. Coarse secondary quartz also grows as haloes or coronas on brown, chalcedonic clasts.

This is a complex sample: it could have been a ?felsic volcanic containing spherulitic chalcedony that has been intensely quartz-sericite (± minor sulfide) altered. However, the presence of iron oxide grains distributed similarly to those in the sample from 82′, and the proximity to that sample, suggest that it could merely be a highly altered version of 24601. Field relations will have to be the guide.

<u>24603: SERICITE-CHLORITE-QUARTZ-?BIOTITE ALTERED FRAGMENTAL INTERMEDIATE TO MAFIC VOLCANIC</u>

From DAV-11 at 115'; intensely altered, fine-grained, buff- to olive green rock cut by a network of fine grey microfractures. Speckled by fine oxides that are not magnetic; very rare, fine sulfides possible. Similar in general appearance to 24601, with vaguely fragmental texture (approx. 50% subrounded clasts to ?1 cm) and light green mafic relics to 1.5 mm long. In thin section, the minerals are roughly:

Sericite	45%
Quartz (partly secondary)	35%
Chlorite	10%
Opaques (Fe-Ti oxides)	5%
Biotite (?secondary)	3%
Carbonate (?ankerite or dolomite)	1%
Apatite	<1%

The fragmentary nature of this rock is clearly seen in thin section, where the clasts are angular to subangluar, up to 1 cm across, and rather scattered (30-40% of the rock). The clasts consist of euhedral relics of ?plagioclase and mafic crystals up to 2 mm long in a matrix of crystalline quartz that poikilitically encloses other alteration products such as sericite, chlorite and opaques. Former ?plagioclase crystals are pseudomorphed by fine flakes of sericite and chlorite-biotite mixture ("hydrobiotite") all about 10-25 μm in diameter. The distribution of the hydrobiotite (cores and rims of phenocrysts) suggests it has been pseudomorphed by limonite in 24601. Mafic crystals have square to rectangular outlines rarely to 1.5 mm long; the shape suggests pyroxene rather than amphibole as a precursor. They are pseudomorphed by chlorite and hydrobiotite plus minor opaques, carbonate and quartz. Some of the opaques replacing mafics can be seen to be sulfide (?pyrite) in hand specimen. Secondary quartz between the phenocrysts forms subhedral crystals up to 0.7 mm diameter; subhedral patches of opaques, probably aggregate crystals of Fe-Ti oxides, are up to 0.25 mm and have minor apatite associated as 20-100 μm crystals.

The matrix to the clasts is composed of completely sericitized ?plagioclase phenocrysts or shards, shards of quartz, and fine Fe-Ti oxides in a finely ?comminuted (10-20 μm) matrix of the same. Microfractures are difficult to recognize, but consist mainly of quartz and sericite (?± some opaques) in zones up to 0.15 mm thick that cross both matrix and clasts.

This may have been a mafic-intermediate fragmental volcanic such a an andesite or basaltic andesite. Alteration is principally phyllic (quartz-sericite-chlorite). The significance of the hydrobiotite is not clear, but it is possible that it represents a transition to mafic potassic alteration as seen for instance at porphyry copper deposits in the Phillipines or at Island Copper.

144' (43.89 m)

24604: INTENSELY QUARTZ-SERICITE-CHLORITE ALTERED FRAGMENTAL VOLCANIC WITH MINOR OXIDIZED SULFIDES

From DAV-11 at unknown depth, this sample is light grey-green with obvious fragments (clasts are of varied lithologies including quartz-rich, finely porphyritic and greenish mafic-rich). There is also scattered in situ limonite which appears to be after sulfide (?pyrite). A few dark brown patches look like sphalerite but are strongly magnetic. Pyrite and ?other dark sulfides are seen along fractures, now partly coated by jarosite. There is no reaction to cold dilute HCl. In thin section, the minerals are approximately (a polished surface would be required to identify opaques):

Sericite (muscovite and ?illite)	35%
Quartz (partly secondary)	35%
Chlorite	20%
Opaques (?limonite, pyrite, magnetite)	7%
K-feldspar (?orthoclase)	2%
Sphalerite	<1%
Apatite	<1%

Fragments in this rock are angular, varied and rarely over 1 cm long; they comprise about 40% of the rock. The most common type consist mainly of fine (25 μm) sericite with lesser quartz as subhedral crystals up to 0.25 mm long, possibly partly formed as veins, with some opaques (?sulfides) in them. Other clasts are recognizably volcanic, containing euhedral phenocrysts of ?plagioclase and mafics up to 1 mm long pseudomprhed by sericite and chlorite, plus coarse (up to 0.5 mm) crystals of quartz, possibly phenocrysts, and smaller opaque crystals, possibly after sulfides. Other clasts are composed of fine sericite and ?clay or hydrobiotite, plus opaques; they look more mafic. Chlorite is found as large flakes to 0.2 mm diameter in some almost entirely pure clasts, or as ? extremely fine flakes of 10 μm size making up most of other clasts. There are rare clasts that are composed of coarse K-feldspar or quartz and opaques. The K-feldspar is clear and could be secondary; the low negative 2V suggests orthoclase.

The matrix consists of secondary quartz as anhedral interlocking grains mostly concentrated at the margins of the sericitic clasts, plus fine-grained quartz and sericite.

Opaques form large crystals up to 1 mm across, some with cubic outlines suggestive of pyrite. Most opaques consist of red to red-brown limonite that probably pseudomorphs former sulfides, but some could be magnetite or other Fe-Ti oxides. One grain with extreme relief and isotropism suggests an Fe-poor sphalerite. Rare fine apatite crystals are associated with some opaques.

This is a similar fragmental to 24601 and 3 but with more varied lithlogies in the clasts; alteration is principally phyllic (quartz-sericite-pyrite) but with a hint of potassic if the K-feldspar is secondary. The rock may originally have been more felsic than 24601/3.

24605: SERICITE-CHLORITE-BIOTITE-QUARTZ ALTERED, COARSELY PORPHYRITIC MAFIC-INTERMEDIATE VOLCANIC

From DAV-11 at 193': a dark grey-green, highly altered porphyritic volcanic rock cut by abundant stringers and replacements of fine pyrite and by narrow dark and rare light-coloured fractures. The rock is not magnetic and does not react to cold dilute HCl. In thin section, the modal mineralogy is roughly:

Sericite	25%
Chlorite	25%
Biotite (secondary)	15%
Quartz	15%
Opaque (mainly pyrite; limonite)	10%
?K-feldspar (groundmass)	7%
Carbonate (?dolomite or ankerite)	3%
Apatite	<1%

The texture of this rock before strong phyllic-potassic (quartz-sericite-chlorite-biotite) alteration is still clear, with coarse plagioclase and smaller mafic phenocrysts set in a fine-grained groundmass.

Plagioclase phenocrysts were euhedral, up to 3.5 mm long, and composed about 30% of the rock. They are now pseudomorphed by fine (10-20 μm) sericite with minor carbonate as subhedral crystals to 50 μm (high relief, no reaction to acid, Fe-staining or replacement by limonite suggests dolomite or ankerite).

Euhedral relic mafic sites are up to 2 mm across, with squarish outlines suggestive of former pyroxene. These sites are pseudomoprhed by fine (10-25 μm) chlorite, secondary biotite, and opaque. Sericite and minor quartz and apatite may also be present in these sites; apatite forms fine euhedra to 50 μm long. The proportions of chlorite and biotite vary from place to place.

The groundmass consists of fine-grained (5-30 μm) alteration minerals that include subhedral quartz, flaky sericite, chlorite, and biotite, opaques and possibly some feldspar that may be potassic to judge by its non-reaction to sericite. If the character of this feldspar is important to the exploration program (i.e. is it indicative of potassic alteration), I recommend staining of the cut slabs by sodium cobaltinitrite.

Heaviest replacement of original minerals is found along the dark sulfide-rich fractures, and these sulfides are closely associated with both chlorite and biotite, as well as sericite; in places, euhedral carbonate to 0.1 mm is found. This suggests that the biotite is in fact secondary and related to sulfide introduction.

The precursor rock appears to have been a coarsely porphyritic mafic-intermediate volcanic (depending on relative abundances of primary quartz, plagioclase and ?K-feldspar). If there is K-feldsapr in the groundmass, it could be primary or secondary; however, (mafic) potassic alteration is clearly indicated by the secondary biotite. Most quartz appears secondary; there is no phyric quartz.

24607: INTENSELY SERICITE-CHLORITE-BIOTITE-QUARTZ ALTERED FRAGMENTAL ?INTERMEDIATE-MAFIC VOLCANIC ROCK WITH ?CLASTS OF MASSIVE SULFIDE (PYRRHOTITE-CHALCOPYRITE)

From DAV-11 at 263', this appears to be a fragmental rock containing pale-coloured (?sericitic) and dark (?chloritic) clasts to 2.5 cm long in a purplish-grey matrix. There are rare clasts to 1.5 cm long that appear to be massive pyrrhotite with minor chalcopyrite, although this cannot be confirmed in thin section in theabsence of a polished surface. Irregular vein-like areas of greenish sericite cut the rock. The rock is weakly to locally strongly magnetic, probably due to pyrrhotite, but does not react to cold dilute HCl even after powdering in spite of a brown stain on the outside of the rock. Mineralogy in section is:

Sericite	25%
Chlorite	25%
Biotite (secondary)	25%
Quartz (secondary)	20%
Opaque (pyrrhotite, limonite)	3%
?Carbonate (ankerite)	2%
Semi-opaque (?rutile, leucoxene)	<1%
Apatite	tr

This is an intensely, thoroughly altered rock that nevertheless preserves the original fragmental texture. Clasts are up to 5 mm in diameter, and are subrounded to angular, comprising about 60-70% of the rock. They range from green and chloritic to brown and biotitic to pale, sericitic and rarely quartz-limonite after sulfide.

Sericitc clasts consist of 15-25 μm flakes of muscovite with lesser subhedral quartz to 75 μm long and spots of a higher relief mineral (20 μm size) that may be carbonate. Chloritic clasts are composed of subhedral chlorite to 50 μm in diameter intimately mixed with lesser biotite to 20 μm diameter, and euhedral to subhedral quartz crystals to 0.2 mm long plus irregular opaques to 2 mm long. Biotitic clasts consist of finely (5-15 μm) brown biotite with minor euhedral chlorite to 25 μm, quartz to 50 μm, and opaque blebs to 0.1 mm. Rare euhedral apatite crystals are up to 75 μm long.

The matrix consists mainly of fine (20-30 μm) sericite and lesser subhedral quartz, with scattered clots of biotite, chlorite, and opaques plus minor semi-opaque ?rutile or leucoxene).

The precursor appears to have been a fragmental ?mafic-intermediate volcanic, strongly phyllic-potassic altered (to quartz-sericite-chlorite-biotite). If the massive sulfides do form clasts as they appear to, there could be the possiblity of discovering a massive sulfide lens in the vicinity.

<u>24609: HIGHLY QUARTZ-SERICITE-CHLORITE ±BIOTITE ALTERED COARSE HETEROLITHIC FRAGMENTAL VOLCANIC; MINOR SULFIDE</u>

From DAV-11 at 349′, a coarse variegated fragmental volcanic rock with angular clasts up to 3 cm long ranging from dark brown to green to pale green, in a white matrix. There are minor sulfides, which are magnetic, indicating probable pyrrhotite, and limonite. There is no reaction to HCl; in thin section the mineralogy is approximately:

Sericite	35%
Quartz (mainly secondary)	35%
Chlorite	15%
Biotite (secondary)	5%
Opaque (mainly limonite)	5%
?Carbonate (dolomite or ankerite)	3%
Semi-opaque (rutile or leucoxene)	1%
Apatite	<1%

The largest clasts in this rock are porphyritic volcanic rock, composed of plagioclase and ?mafic phenocrysts to 2 mm long pseudomorphed by sericite and minor ?dolomitic or ankeritic carbonate, now partly altered to limonite, plus biotite, quartz and opaques, in a matrix of 10-25 μm quartz, sericite, opaques, semi-opaque (?rutile or leucoxene) and opaques (?limonite after sulfide).

Other clasts are dark green (matted 25 μm chlorite and lesser pale brownish biotite flakes, plus minor subhedral 0.2 mm quartz); fine (0.05 mm) anhedral quartz and interstitial sericite; and coarser (0.1 -0.2 mm) quartz, limonite (after ?sulfide), chlorite, minor biotite, ?carbonate.

The matrix consists of strongly secondary, anhedral interlocking 5-25 μm quartz and interstitial sericite; there may be some remnant feldspar. The quartz is coarser around patches of sericite.

Some clasts are cut by networks of thin (0.1-0.2 mm) quartz veinlets; these veins end at the clast boundaries, implying veining and alteration before fragmentation. However, both fragments and matrix are also cut by thin limonite-sericite-chlorite fractures.

The alteration in this sample is intense, but more phyllic (less biotite) than 24607. The host rock appears to be similar to other rocks in the suite, a mafic-intermediate volcanic fragmental composed of clasts from porphyritic volcanics similar to some other samples (e.g. 24601, 24605).

<u>24611: QUARTZ-CHLORITE-BIOTITE-SERICITE ALTERED, ?AUTO-BRECCIATED PORPHYRITIC VOLCANIC, POSSIBLY CONTAINING MEGACRYSTIC K-FELDSPAR</u>

From DAV-11 at 374.5', a dark grey-brown ?volcanic rock with scattered euhedral relict phenocrysts to 2.5 mm long, but otherwise massive-appearing. Not magnetic, no reaction to cold dilute HCl. In thin section, the modal mineralogy is roughly:

Quartz (mainly secondary)	30%
Chlorite	25%
Biotite (secondary)	20%
Sericite	15%
K-feldspar (?) (primary phenocrysts)	5%
Opaque	5%
Apatite	<1%
?Allanite	tr

In thin section, this is a fragmental rock but the clasts and matrix are similar enough to suggest an auto-brecciated ?flow rock. Clasts seem to fit roughly together (therefore do not appear to have moved far) and form about 70% of the rock. Clasts consist of mainly finely porphyritic volcanic rock, characterized by <1 mm (rarely 1.5 mm) euhedral ?mafic relics and rare larger ?K-feldspar relics to 3 mm long. The former are pseudomorphed by 25 μm chlorite and biotite, and rare 20-50 μm sericite (muscovite). The latter are composed of rims of mainly sericite, with cores of chlorite, biotite and quartz or ?relic feldspar. It is not possible to identify these feldspars with certainty, but in view of the strong alteration in this sample and the general sericitzation of plagioclase in this suite, plus the large size of the crystals ("megacrysts"), it is possible that they were originally K-feldspar. In some altered ?mafic sites, Opaques form subhedral grains to 1 mm diameter; the association with secondary quartz suggests these may be sulfides. Rarely, euhedral 0.15 mm crystals with pleochroic haloes surrounding them in chlorite may be allanite (epidote containing radioactive U/Th and REE).

The groundmass to the phenocrysts consists of anhedral to subhedral interlocking secondary quartz to 0.1 mm diameter, with interstitial sericite, chlorite and biotite. Opaques form subhedral grains to 0.1 mm diameter; these may have originally been primary Fe- or Ti oxides. Rare euhedral apatite crystals are up to 0.15 mm long.

The matrix to the clasts is similar to the clasts but slightly less dark, i.e. more quartz-sericitic; it may be more altered than the clasts. It contains similar altered phenocrysts to the clasts, with the addition of a few quartz ?phenocrysts or shards up to 0.3 mm long. This suggests the matrix could also be slightly more felsic than the clasts, which appear to be mafic-intermediate (basaltic andesite, but possibly alkalic due to the ?K-feldspar) in composition.

<u>24612: INTENSELY QUARTZ-SERICITE ALTERED FELSIC-INTERMEDIATE ?VOLCANIC FRAGMENTAL MINERALIZED WITH PYRITE AND ?SPHALERITE</u>

From DAV-11 at unspecified footage; pale buff-beige coloured, highly altered fragmental volcanic (or ?hydrothermal breccia) with minor sulfides including pyrite and ?sphalerite. A crackling of fine dark fractures is also probably sulfide, possibly mainly pyrite. The rock is not magnetic and does not react to cold dilute HCl. In thin section, the mineralogy is approximately:

Quartz (mainly secondary)	50%
Sericite	35%
Biotite (secondary; bleached)	7%
Feldspar (?mainly K-feldspar)	5%
Opaques (pyrite, limonite)	3%

Clasts in this specimen are angular, varied in lithology, and range up to at least 2.5 cm diameter. They comprise about 50% of the rock (i.e. matrix-supported). Most of the clasts are composed of variable amounts of quartz and sericite, with no internal structure preserved; a few are of recognizable porphyritic volcanic rock, similar to 24611 with scattered large phenocryst relics to 1 mm long, possibly after feldspar. The matrix, however, is a little more crystalline, apparently mainly quartz and feldspar about 0.15 mm long largely altered to sericite, suggesting this could be clast of a high-level intrusive similar in composition to 24611.

In the majority of the clasts, quartz forms anhedral interlocking slightly sutured grains dusted by inclusions of fluid and sericite, either about 0.05-0.1 or 0.25-0.5 mm in diameter. Quartz is concnentrated in the cores of the clasts, and is fringed by opaque where the quartz is coarse. The outer layer of the clasts is composed of fine sericite.

Opaques form subhedral crystals to aggregates up to 1 mm across; most appears to be limonite. No sphalerite can be recognized in transmitted light.

The matris to clasts consists mainly of secondary quartz and lesser sericite; the quartz is coarsest in patches at the centers of matrix areas. There are shards (broken phenocrysts) of quartz and ?K-feldspar up to 0.7 mm scattered in the matrix.

Note the absence of chlorite and scarcity of biotite, plus the presence of phyric quartz and ?K-feldspar in this phyllic (quartz-sericite) altered rock, perhaps implying a more felsic original composition than the others from this drill hole. The sulfide mineralization, apparently including ZnS, is of note in its abundance and style. A polished surface would be required to confirm the presence of sphalerite.

GA92-21: INTENSELY QUARTZ-SERICITE ALTERED, ?FELSIC FRAGMENTAL VOLCANIC CONTAINING ?SPHALERITE OR ?GARNET

Light grey-buff fragmental volcanic, containing varied clasts ranging from very fine-grained, flow-banded ?felsic to finely porphyritic ?intermediate. One clast is distinctly stained by Fe oxides and contains a dark brown, unusual mineral that is harder than steel, with a chonchoidal fracture. This clast is slightly magnetic; the rock shows no reaction to cold dilute HCl. In thin section, the modal mineralogy is roughly:

Quartz (secondary)	50%
Sericite	45%
Unknown (?garnet, ?sphalerite, ?spinel)	3%
Opaque (?Fe-Ti oxides)	2%

This rock consists of about 50-60%, mainly 3-5 mm but occasionally 3-5 cm subrounded to subangular clasts in a highly altered matrix. The majority of the clasts are composed of relatively coarse, distinctly secondary quartz and sericite, some with variable amounts of an unidentified isotropic mineral. Some clasts consist entirely of this mineral (ti is the hard, conchoidal-fracturing brown mineral seen in hand specimen). Other clasts consist of extremely fine-grained (10 µm) quartz and minor sericite (these are the flow-banded ?rhyolite seen in hand specimen).

The main clast type contains anhedral to subhedral interlocking clear quartz crystals up to 0.3 mm diameter, with patches, foliae, and relict crystals pseudomorphed by sericite. Texture of these clasts might better be described as spherulitic than porpyhyritic, suggesting more felsic protolith than the intermediate-basic porphyries encountered in the DAV-11 suite. The clasts are crossed by sericitic fracture planes in places; these fractures are not evident in the matrix. Rare quartz veins up to 0.2 mm thick cross the fine ?rhyolite clasts but do not appeear to cut the matrix.

The matrix is difficult to separate from the clasts in section, but appears to be composed of quartz and sericite plus minor fine (5-50 µm) opaque to semi-opaque material that is probably Fe-Ti oxides such as leucoxene, sphene or rutile.

The unidentified isotropic mineral has high relief, a slight brown colour, and occurs as anhedral to ?subhedral masses up to 4 mm across. It lacks any zoning or crystal shape characteristic of garnet and the characteristic dodecahedral cleavage of sphalerite. Rare rectangular parting suggests it might be a spinel. It is difficult to say why the brown areas would be magnetic. A polished section and SEM analysis would be necessary to confirm this, if the geochemistry (not available at time of writing) does not suggest any other possiblity.

<u>29621: QUARTZ-CHALCEDONY-?ZEOLITE AMYGDULAR, ?INTERMEDIATE VOLCANIC WITH ANDESINE PHENOCRYSTS IN A SERICITIC MATRIX</u>

Purple and pale greenish volcanic rock characterized by fine grey phenocrysts and larger white amygdules that are harder than steel and do not react to cold dilute HCl. The purplish-brown material generally surrounds these white amygdules. The rock is not appreciably magnetic. In thin section, the modal mineralogy is approximately:

Quartz (partly secondary)	30%
Plagioclase (calcic andesine)	20%
Clay-sericite	20%
?Zeolite	15%
Chalcedonic quartz (amygdules)	5%
Chlorite, hydrobiotite	5%
Opaque (limonite, Ti oxides: ?sphene)	5%
Zircon	tr

Plagioclase forms euhedral phenocrysts up to 1.5 mm long that are clear and unaltered. They display complex oscillatory zoning that does not however vary much in composition from core to thin rims. The composition is calcic andesine, from about An_{47} (core) to An_{42} (rim) based on extinction angles of Y^010=28 to 23°, Z^001=33 to 28°.

The larger, white amygdules are filled by quartz as anhedral, interlocking, sutured and undulose-extinguishing grains up to 0.3 mm diameter. Many are filled with needle-like crystals up to 0.25 mm long that appear pseudomorphed by sericite; their original identity is not clear, but they have a radial pattern. The margin of these amygdules is composed of a layer of clear, finer quartz and dusty chalcedony (the purplish-brown zones in hand sample). Other amygdules consist of feathery, bladed euhedral crystals up to 1 mm long, with parallel extinction, low first-order birefringence and relief lower than quartz. These properties fit the zeolites, such as natrolite or thomsonite but positive identification would require X-ray analysis.

There are scattered, small mafic phenocrysts that are mostly replaced by chlorite and lesser brownish biotite or hydrobiotite, plus minor opaques and ?sphene. The elongate shape of these relics (euhedral, up to 1.5 mm long) suggests they were more likely to have been amphibole than pyroxene.

The matrix consists largely of fine (5-15 μm) sericite possibly after feldspar, and ?quartz. Opaques include cubic crystals of ?limonite after pyrite up to 0.5 mm across. There are rare euhedral zircon crystals to 75 μm long.

The presence of amphibole rather than pyroxene, and calcic andesine, suggest an intermediate volcanic protolith for this slightly (clay-sericite) altered, highly amygdular ?flow rock.

<u>24622: FELSIC FRAGMENTAL VOLCANIC (?QUARTZ-SANIDINE-ALBITE PHYRIC RHYOLITE), MINOR CARBONATE-SERICITE-?QUARTZ ALTERED</u>

Light brown, fragmental volcanic rock containing scattered angular clasts to 1 cm diameter and abundant white (feldspar) and grey (quartz) phenocrysts and shards, plus brwon limonitized mafic relics of 1-2 mm size. There is minor reaction to cold dilute HCl after scratchin; the rock is harder than steel, and some parts are mildly magnetic. In the thin section, the modal mineralogy is roughly:

Quartz (phenocrysts)	20%
(groundmass; partly secondary)	15%
Feldspar phenocrysts (K-feldspar: ?sanidine)	20%
(plagioclase: ?albite)	15%
(groundmass)	15%
Clay, sericite	5%
Opaque (Fe-Ti oxides)	5%
Carbonate (?ankerite)	3%
?Zeolite	2%
Chlorite	<1%
Apatite	tr

Euhedral quartz phenocrysts are abundant in this rock, up to 2 mm diameter. They are clear and unstrained, but show evidences of resorption at their margins, and are crossed by thin fractures or veinlets of secondary silica and sericite. Feldpar phenocrysts include both K-feldspar and plagioclase. The K-feldspar is possibly sanidine: the crystals are euhedral, up to 1.5 mm diameter, and with a small 2V of less than 40°. The crystals show minor alteration to sericite, clay, and include plagioclase crystals. Plagioclase forms eu- to subhedral crystals up to 2 mm long with polysynthetic twinning extinction angles Y^010 up to 17° and relief similar to K-feldspar indicating albite compositions. Most crystals are heavily altered to clay, in contrast to the K-feldspar.

Mafic ?relics are up to 1.5 mm long, and are subhedral patches of carbonate and sericite plus opaques. The carbonate is generally iron-stained; with its lack of reaction, it may be ankeritic. Subhedral crystals up to 1 mm across are found, as are aggregates of smaller anhedral crystals. Opaques are eu- to subhedral and up to 0.3 mm across; they may be mainly hematite (?martite) and limonite. Minute crystals of apatite up to 0.1 mm long are associated.

Rounded ?fragments or ?amygdules are variably filled with quartz, carbonate, or a feathery bladed mineral with low relief that may be a zeolite (similar to that seen in 29621), plus opaque oxides. The clasts or amygdules are rounded and up to 1.5 mm diameter. The groundmass of clasts is variable, formed of microlites of plagioclase, or quartz and feldspar in spherulitic texture, plus limonite. Matrix to the clasts is very fine-grained quartz (partly secondary, up to 50 μm size), ?feldspar and sericite plus minor limonite. The original composition of this rock appears to be felsic, possibly rhyolitic; it has undergone mild clay-sericite and carbonate alteration.

24705: FELSIC FRAGMENTAL VOLCANIC (ORTHOCLASE-OLIGOCLASE-QUARTZ PHYRIC ?RHYODACITE, ALTERED TO GREEN BIOTITE

Dark grey-purplish fragmental volcanic rock containing abundant white feldspar and lesser grey quartz phenocrysts, plus common subrounded clasts to less than 1 cm diameter. The rock is strongly magnetic but shows no reaction to cold dilute HCl; it is mainly harder than steel. In thin section, the mineralogy is approximately:

Feldspar	phenocrysts (K-feldspar: ?orthoclase)	20%
	(Plagioclase: ?oligoclase)	15%
	groundmass (mainly plagioclase)	20%
Quartz	phenocrysts	15%
	groundmass	10%
Green biotite (secondary)		15%
Opaque (Fe-ti oxides: magnetite, limonite)		3%
Clay-sericite		2%

Feldspar phenocrysts are euhedral and up to 2 mm long. They include both K-feldspar and plagioclase; the former may be orthoclase (2V about 60-70°) and the latter may be oligoclase (An_{27}: extinction Y^010 about 10°, relief positive compared to K-feldspar). Both suffer minor clay alteration, but the plagioclase, although fractured, is relatively clear and displays original compositional zoning. K-feldspar contains inclusions of plagioclase.

Quartz forms euhedral phenocrysts and broken shards up to 1.5 mm diameter that are clear, relatively unfractured, and mainly lack any evidence of resorption.

Mafic relict phenocrysts are smaller, up to 1 mm long, with subhedral to euhedral outlines. They are pseudomorphed by fine flakey green secondary biotite up to 0.1 mm diameter and opaques. Opaques are eu- to subhedral, up to 0.5 mm across, and may include magnetite and limonite.

Fragments are variable in composition, ranging from clasts rich in plagioclase pohenocrysts and a groundmass of plagioclase microlites to clasts with a matrix composed of 50% opaques to clasts composed of K-feldspar phenocrysts in a matrix of secondary green biotite.

The matrix to the fragments consists of secondary quartz, green biotite, and minor opaque (?limonite).

This is similar to 24622 in its phenocryst makeup (quartz, K-feldspar, plagioclase, minor mafic relics) but K-feldspar may be orthoclase, plagioclase oligoclase rather than albite, indicating a slightly less felsic rock, perhaps a rhyodacite. Also, the alteration is distinct, being mafic potassic (green biotite). However, there does not appear to be any sulfide associated with this alteration.

PETROGRAPHIC REPORT ON FIVE THIN SECTIONS

Report for: Gordon Allen
Granges Inc.
2300-885 West Georgia St.
Vancouver, B.C.
V6T 2Z4.

Sept. 7, 1992

Your reference: letter dated August 24, 1992.
Invoice included with report dated Aug 28, 1992.

Samples submitted: 24633, 24635-24638.

<u>24633: MILDLY SERICITE-QUARTZ ALTERED, FINELY ALBITE PORPHYRITIC FELSIC VOLCANIC OR HIGH-LEVEL INTRUSIVE</u>

Fine-grained, light grey-green homogeneous volcanic rock characterized by small (1 mm) white ragged phenocrysts. Sulfides are not evident in hand specimen. The rock is not magnetic and mainly harder than steel; some of the phenocrysts react to cold dilute HCl. In a polished thin section, the mineralogy is approximately:

Feldspar phenocrysts (plagioclase: albite)	10%
groundmass (?mainly plagioclase)	60%
Quartz (groundmass)	15%
Sericite (after feldspar)	10%
Carbonate (calcite)	3%
Opaque (pyrite, pyrrhotite)	2%
Sphalerite	<1%
Sphene, rutile	<1%

Feldspar phenocrysts are euhedral to subhedral, and up to 1 mm long; in places they are glomeratic to 2 mm across. They are mainly clear, but altered partly to completely in places to carbonate and sericite. Extinction angles Y^010 of 14° and relief lower than quartz indicate albite composition about An_5. Carbonate replacing plagioclase forms subhedral crystals up to 0.5 mm across; reaction to HCl indicates it is mostly calcite. Sericite forms very fine flakes of 5-15 μm diameter.

There are also microphenocrysts (?) of opaque that are mostly pyrite, as fine euhedral cubes to 0.25 mm diameter, and rare pyrrhotite, as subhedral grains to 0.1 mm long. In places, these are surrounded by sphene up to 0.3 mm long, generally with fine (25 μm) inclusions of euhedral rutile. At the centers of some carbonate replacements, there are subhedral crystals of sphalerite up to 0.25 mm across with deep red-brown internal reflections indicating a moderately high Fe content, some with fine (5 μm) inclusions of ?chalcopyrite. Sphalerite (and rutile) also appear to pseudomorph former ?mafic phenocrysts up to 0.4 mm long.

The groundmass consists of small (0.1-0.2 mm long) ragged anhedral quartz crystals or groups of crystals set in a mass of subhedral to anhedral crystals of alkali feldspar

(?plagioclase) that are mainly partly altered to fine sericite. Relief less than quartz suggests it is also albitic; if it is important to distinguish it from K-feldspar, staining by sodium cobaltinitrite is recommended. Minor rutile and limonite is also found in the groundmass.

This is a felsic igneous rock that could be an extrusive volcanic or a high-level intrusive (?dyke) rock, possibly of dacitic composition. It is mildly altered to carbonate, sericite and possibly a little seocndary quartz, plus minor pyrite.

24635: QUARTZ-BIOTITE-CHLORITE-SERICITE-GARNET ± CARBONATE-EPIDOTE-PYRRHOTITE ALTERED, QUARTZ-FELDSPAR PORPHYRY

Grey, altered finely porphyritic volcanic rock characterized by small white altered feldspar sites and dark mafic sites, cut by irregular fractures and vein-like areas with magnetic sulfide (pyrrhotite) surrounded by bleached areas. In thin section, the mineralogy is approximately:

Quartz (largely secondary)	35%
(phenocrysts)	5%
Feldspar (?plagioclase, possibly albitic)	35%
(K-feldspar, phenocrysts)	2%
Biotite (secondary)	5%
Sericite	5%
Chlorite	5%
Opaque (pyrrhotite, trace sphalerite)	3%
?Garnet	3%
Carbonate (calcite)	2%
Epidote	<1%
Sphene, apatite	tr

Where least altered, this rock consists of scattered small quartz, K-feldspar and relict ?plagioclase feldspar and mafic phenocrysts in a crystalline groundmass, suggesting a ?rhyodacitic porphyry. Quartz phenocrysts are highly resorbed, with coronas of secondary silica and feldspar, sub- to euhedral and up to 1 mm in diameter. K-feldspar phenocrysts are euhedral, up to 1.5 mm long, and are replaced at their margins by fine sericite, some opaques, and rare chlorite. Feldspar relics are also up to 1 mm long (although they are glomeratic up to 3/5 mm in places), euhedral, and replaced by finely matted secondary alkali feldspar (30-50 μm), secondary biotite and lesser sericite (20 μm), minor quartz (to 0.1 mm), and rare garnet (0.2 mm) and chlorite (to 30 μm). Relict mafics are less euhedral, up to 0.7 mm long, and are replaced by secondary biotite, garnet, opaques, and minor sericite, quartz and chlorite. Garnet crystals are euhedral and up to 0.2 mm diameter. The groundmass consists mainly of alkali feldspar, probably mostly albitic plagioclase (but staining tests would be required to confirm this) as ragged, anhedral, highly interlocked crystals about 0.1- 0.2 mm long with minor sericite, chlorite, and opaques of 15-40 μm diameter. Secondary quartz is common in places as anhedral irregular interlocking grains to 0.15 mm across. Apatite forms fine euhedral elongate prisms up to 0.1 mm long mixed with plagioclase in silicified areas.

not replacement

Strongly altered areas, generally central to the silicified areas, consist of coarser secondary quartz (to 0.4 mm), eu- to subhedral garnet crystals to 0.5 mm but aggregating to 3 mm, anhedral opaques (pyrrhotite) to 0.7 mm, and minor epidote (subhedral, to 0.05 mm), carbonate (calcite, to 0.05 mm), Fe-chlorite (25 μm), subhedral red-brown (moderate Fe) sphalerite as subhedral crystals to 0.1 mm, plus traces of sphene (subhedral, 30 μm) and apatite (euhedral prisms, to 75 μm long).

<u>24636: INTENSELY SERICITE-QUARTZ ALTERED ?FELSIC VOLCANIC ROCK, WITH PATCHES OF BROWN ?GARNET OR SPHALERITE</u>

Light grey-buff, strongly altered ?felsic rock containing common brown patches of ?limonite up to 0.5 cm across. A vaguely preserved texture suggests a formerly porphyritic rock overprinted by areas of intense sericitization. The rock is mainly hard and siliceous, non-magnetic and unreactive to cold dilute HCl. In thin section, the modal mineralogy is:

Sericite	50%
Quartz (secondary)	40%
Isotropic mineral ?garnet or sphalerite)	10%
Limonite (brown stain)	<1%

In thin section, the rock consists of swirling areas of intense sericite and secondary quartz, hosting patches of a brown, isotropic mineral. Most of the sericite is as very fine (5-20 μm) flakes, interstitial to secondary quartz as anhedral to subhedral grains up to 0.1 mm diameter. Where the secondary quartz is coarser 0.25 mm), some sericite forms euhedral flakes up to 0.1 mm diameter. Some of the patches of coarser quartz appear to be replacing former phenocrysts (sub- to euhedral outlines, to 1.5 mm long). Many of these areas have plucked out during section preparation, leaving holes or vugs.

The identity of the isotropic, high relief mineral that forms the brownish patches in this rock is uncertain. The patches are irregular in outline and up to 3.5 mm diameter, composed of a variably brown, isotropic mineral, quartz, minor opaque (?limonite), sericite, and vugs. Individual crystals of the isotropic mineral are anhedral and up to 1 mm diameter. Away from the patches, this mineral is clear (not stained brown) and has sub- to euhedral polygonal outlines that strongly suggest garnet. Within the patches, however, the variable brown colour and anhedral character do not look like garnet. Sphalerite (very low iron variety) would be a possibility, but the absence of cleavage does not support this. If geochrmistry is available for this rock, a substantial Zn content would confirm sphalerite; failing this, I suspect this mineral is garnet. Note that garnet has also been tentatively identified in 24635 and GA-92-21.

Minor limonite staining found in the rock appears to be transported, as opposed to the in situ limonite found rarely in the patches of isotropic mineral.

The precursor to this rock is not clear, but general indications are of a felsic-?intermediate volcanic rock (note however, that quartz-sericite alteration can also affect a mafic rock in much the same way). The garnets are unusual, although certain epithermal bulk-tonnage Au-Ag prospects in B.C. (e.g. Wolf, Capoose in central B.C.) are known to contain them as an alteration phase.

<u>24637: INTENSELY QUARTZ-SERICITE ALTERED, BRECCIATED ?FELSIC VOLCANIC ROCK, WITH MINOR PYRITE AND ?GARNET</u>

Light grey-white, siliceous, brecciated, intensely altered ?felsic rock somewhat similar to 24636. Whiter areas appear to be associated with fractures crossing the rock. Sulfide (mainly pyrite, but with traces of a dark phase) are common as disseminated patches to 2 mm across; limonite is developed on the outside of the rock in response to weathering of pyrite. There are rare brownish patches similar to those seen in 24636. The rock is not magnetic and does not react to HCl. In thin section, mineralogy is:

Sericite	50%
Quartz (secondary)	45%
Opaque (?pyrite)	3%
Isotropic mineral (?garnet)	1%
Limonite	<1%
Zircon	tr

Most of this rock is composed of swirling areas of secondary quartz with interstitial, fine sericite. Much of the quartz is in the form of anastamosing, highly irregular veins up to 0.5 mm thick, composed of anhedral grains with signs of strain (undulose extinction, sutured boundaries). Other areas of similar quartz up to 1 mm diameter may be relict quartz phenocrysts. Sericite forms mainly 5-25 μm flakes between quartz grains, but locally with coarser quartz it forms coarser euhedral flakes to 0.15 mm diameter. In places there are patches of mainly fine sericite with subhedral outlines, up to 1 mm long, that could represent former feldspar phenocrysts.

Scattered through the rock are patches of opaque, probably mainly pyrite, as eu- to subhedral crystals up to 1 mm long. They are surrounded by fringing subhedral quartz crystals up to 0.1 mm diameter, occasionally containing minor fine ?epidote as subhedral crystals to 25 μm long, and an isotropic mineral with high relief (?garnet) as euhedral crystals to 0.1 mm diameter. Irregular patches of a similar isotropic mineral are also found up to 2.5 mm across. This mineral is similar to that found in 24635 and 24636; it varies from faintly brownish and anhedral in places, to rarely clear and euhedral. It may be garnet. Zircons are euhedral and up to 0.1 mm long; they are scattered through the altered matrix of the rock. Limonite is present along and near several thin fractures along the outer skin of the rock; some is in situ from the oxidation of ?pyrite.

The texture of this specimen is interesting, in many places appearing to be a breccia formed of highly quartz-sericite or sericite altered, angular to subangular clasts up to 7 mm across in a somewhat coarser quartz ± sericite matrix. Some of the larger clasts themselves appear fragmental, implying multiple episodes of brecciation or fragmentation of a volcanic fragmental. The original composition of the rock is difficult to be sure of; it likely was felsic, to judge from the possible quartz and feldspar phenocrysts.

24638: QUARTZ-FELDSPAR PORPHYRITIC, SPHERULITIC FELSIC VOLCANIC OR HIGH-LEVEL INTRUSIVE, WITH PATCHES OF ?GARNET

Light grey-buff, highly altered porphyritic ?felsic volcanic rock containing rounded patches of brownish mineral similar to those seen in 24636. Both matrix and patches are harder than steel; quartz and relict white feldspar phenocrysts are visible. The rock is not appreciably magnetic. In thin section, the mineralogy is:

Relict alkali feldspar (sericitized)	40%
Sericite (mainly after feldspar)	20%
Quartz (groundmass)	20%
(phenocrysts)	15%
Isotropic mineral (?garnet)	5%
Opaque (limonite)	<1%

This rock consists of quartz phenocrysts and patches of an isotropic mineral, possibly ?garnet, in a spherulitic matrix of alkali feldspar. There are traces of limonite, partly in situ (?after sulfide) in the patches of ?garnet.

Quartz forms euhedral to subhedral, embayed (resorbed) phenocrysts and broken shards up to 2 mm in diameter, altered in places to sericite or including/rimmed by sericite. Most phenocrysts, as are the patches of ?garnet, are surrounded by a corona of feldspar (white in hand specimen) that is slightly less sericitized than the matrix.

The patches of high-relief, isotropic mineral are pale brown in hand specimen and section, anhedral to rarely ?subhedral in outline, and lack cleavage. They are tentatively identified as garnet, as found in 24635, 36, and 37. Some show minor alteration to sericite, and most include small crystals of quartz and traces of limonite.

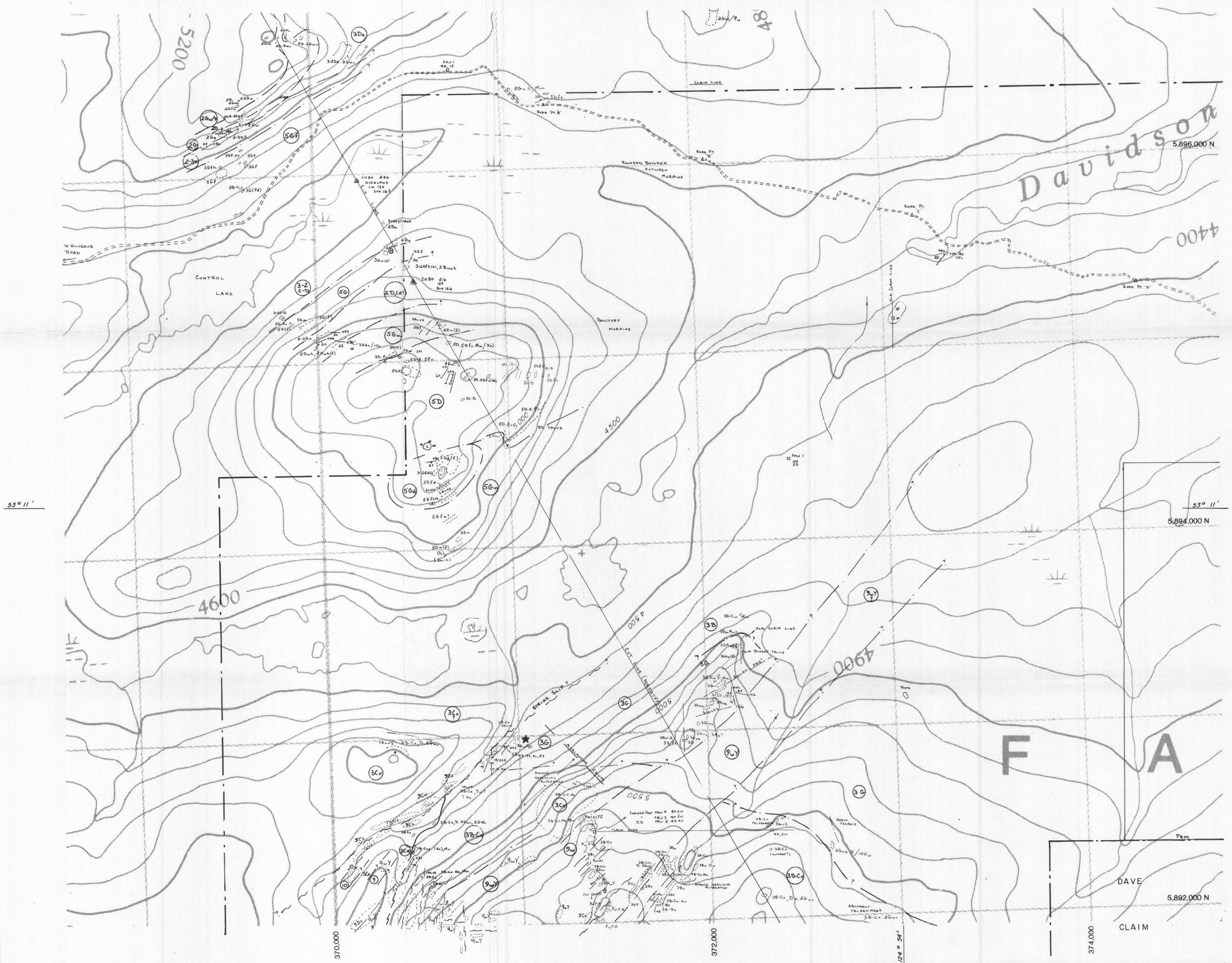
Small patches of coarser (to 50 μm) sericite plus minor opaque (limonite) with an- to subhedral outlines, up to 0.7 mm long, appear to be relict mafic crystals, of presently indeterminate type. There also clearly were feldspar phenocrysts, up to about 1 mm long, originally present. Most of these are now completely pseudomorphed by sericite and probably were formerly plagioclase (about 15% of the rock). A few (<5%) are still partly clear and may be relict K-feldspar crystals.

The matrix is rather coarsely crystalline for a volcanic rock, consisting mainly of 0.2-0.3 mm diameter radiating spherulites of ?alkali feldspar, all more or less sericitized. Small (50 μm) anhedral to rarely subhedral crystals of quartz are sprinkled throughout, mainly interstitial to the feldspar spherulites, mixed with fine flakes of sericite averaging about 10-20 μm in diameter. Rare grains of opaque (limonite) to 25 μm diameter are scattered through the matrix.

This appears to be a felsic ?volcanic or high-level intrusive (dyke) rock, possibly rhyodacitic in original composition, altered to sericite and patches of ?garnet plus traces of limonite.

Craig H.B. Leitch, Ph.D, P.Eng (666-4902)

C.H.B. Leitch



LITHOLOGY LEGEND

1 MAFIC VOLCANIC
2 INTERMEDIATE VOLCANIC
3 UNDIFFERENTIATED FELSIC VOLCANIC
4 DACITE
5 RHYOLITE
6 LIMESTONE
7 CLASTIC SEDIMENT
8 MAFIC INTRUSION
9 INTERMEDIATE INTRUSION
10 FELSIC INTRUSION

ROCK UNIT LETTER QUALIFIERS

The first letter indicates the type of rock; if omitted a dash should be inserted before additional letters are used.

A FINE-GRAINED TUFF (<0.5mm)
B MEDIUM-GRAINED TUFF (0.5mm-2mm)
C COARSE-GRAINED TUFF (>2-6.4mm)
D LAPILLI TUFF (>6.4mm-6.4cm)
E TUFF BRECCIA (>6.4 cm; matrix supported)
F VOLCANIC BRECCIA (>6.4cm; clast supported)
G FLOW
H FLOW BRECCIA
J ARGILLITE
K SILTSTONE
L SANDSTONE / WACKE
M CONGLOMERATE
N CHERT (CHERTY)
O DEBRIS FLOW
R DOLOMITIC (ANKERITIC) CARB.
T TUFFACEOUS SED.
W APHANITIC
X FINE-GRAINED
Y MEDIUM-GRAINED
Z COARSE-GRAINED

The second and third letters are optional and further define the rock.

a amygdaloidal
b bedded
c calcareous
d spherulitic
e fossiliferous
f flow banded
g graphitic
h hematitic
i hornfels
j argillaceous
k chloritic
l leucocratic
m magnetic-bearing (magnetic, no pyrrhotite)
n massive
o welded tuff
p pillowed
q quartz
r sheared
s siliceous/cherty
t phyllitic
u fragment
v quartz phyric
w feldspar phyric
x quartz-feldspar phyric
y mafic phyric
z mafic-feldspar phyric

Additional Qualifiers:

r	-	As a prefix to the basic rock type indicates rubble or abundant float giving an indication of underlying geology.
( )	-	A letter in parentheses indicates that this particular characteristic is poorly defined, vague, or a minor constituent.
.	-	A period within the code separates the basic lithology from additional information such as fragment type, mineralization, or alteration.
bx	-	Breccia. Separated from the main rock description by a period.
cr	-	Crenulated foliation or bedding.
/	-	A slash within the code between two rock types indicates uncertainty.
,	-	A comma within the code between two rock types indicates that both are present.
-	-	A dash within the code between two lithologies indicates a rock type gradational or intermediate between the two.

MINERALS

Au NATIVE GOLD
Ag NATIVE SILVER
az AZURITE
bo BORNITE
cp CHALCOPYRITE
el ELECTRUM
ep EPIDOTE
gl GALENA
go GOETHITE
hg CINABAR
hm HEMATITE
li LIMONITE
mg MAGNETITE
mc MALACHITE
ms MANGANESE STAIN
mo MOLYBDENITE
py PYRITE
po PYRRHOTITE
qz QUARTZ
sb STIBNITE
sl SPHALERITE
th TETRAHEDRITE

ALTERATION

Cl CHLORITE
Cb CARBONATE (ANKERITIC)
Se SERICITE
Si SILICA
Ka KAOLINITE
Kf K-FELDSPAR

Alteration Intensity:
0-Trace
1-Weak
2-Moderate
3-Strong

SYMBOLS

BEDDING:
TOPS UNKNOWN
TOPS UP
OVERTURNED
HORIZONTAL
FLOW BANDING, OR PLANE OF FLATTENING
FOLIATION, CLEAVAGE
FOLIATION PARALLEL TO BEDDING
LINEATION (PLUNGE, TREND):
F - fold axis
P - pencil lineation
M - mineral lineation
S - slickenside
JOINT
FAULT, SHEAR
THRUST FAULT
VEIN
Qv QUARTZ VEIN
Cv CARBONATE VEIN
QCv QUARTZ-CARBONATE VEIN
Hv CHLORITE VEIN
Pv PYRITE VEIN
GEOLOGICAL CONTACT; DEFINED, INTERPRETED
UNCONFORMABLE CONTACT ('U's on upper unit)
FOLD AXES:
ANTIFORM (WITH PLUNGE DIRECTION)
SYNFORM (WITH PLUNGE DIRECTION)
ZONE OF TIGHT FOLDING (WITH PLUNGE)
GLACIAL STRIATION
LINEAR TOPOGRAPHIC FEATURE
LIMIT OF SURFICIAL FEATURE
RIDGE
VALLEY
CLIFF
MORAINE
NARROW DYKE OR BED
OUTCROP
OUTCROP SEEN BUT NOT VISITED
OV OVERBURDEN
FOSSIL LOCALITY
AIRPHOTO TARGET
HELIPAD (GOOD)
HELIPAD (POOR)
FIELD NOTE LOCATION
ROCK SAMPLE LOCATIONS:
HAND SPECIMEN
HAND SPECIMEN - THIN SECTION
For Analyses:
BEDROCK (Grab unless noted; C=Chip, H=Channel)
BEDROCK - WHOLE ROCK, THIN SECTION
FLOAT
STREAM SEDIMENT
SOIL

Property Boundary - approximate

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

NOTE CONTOUR INTERVAL = 100 FEET

PROPERTY BOUNDARY LOCATED RELATIVE TO PEM
L.C.P. FOLLOWING GOV'T CLAIM MAP.

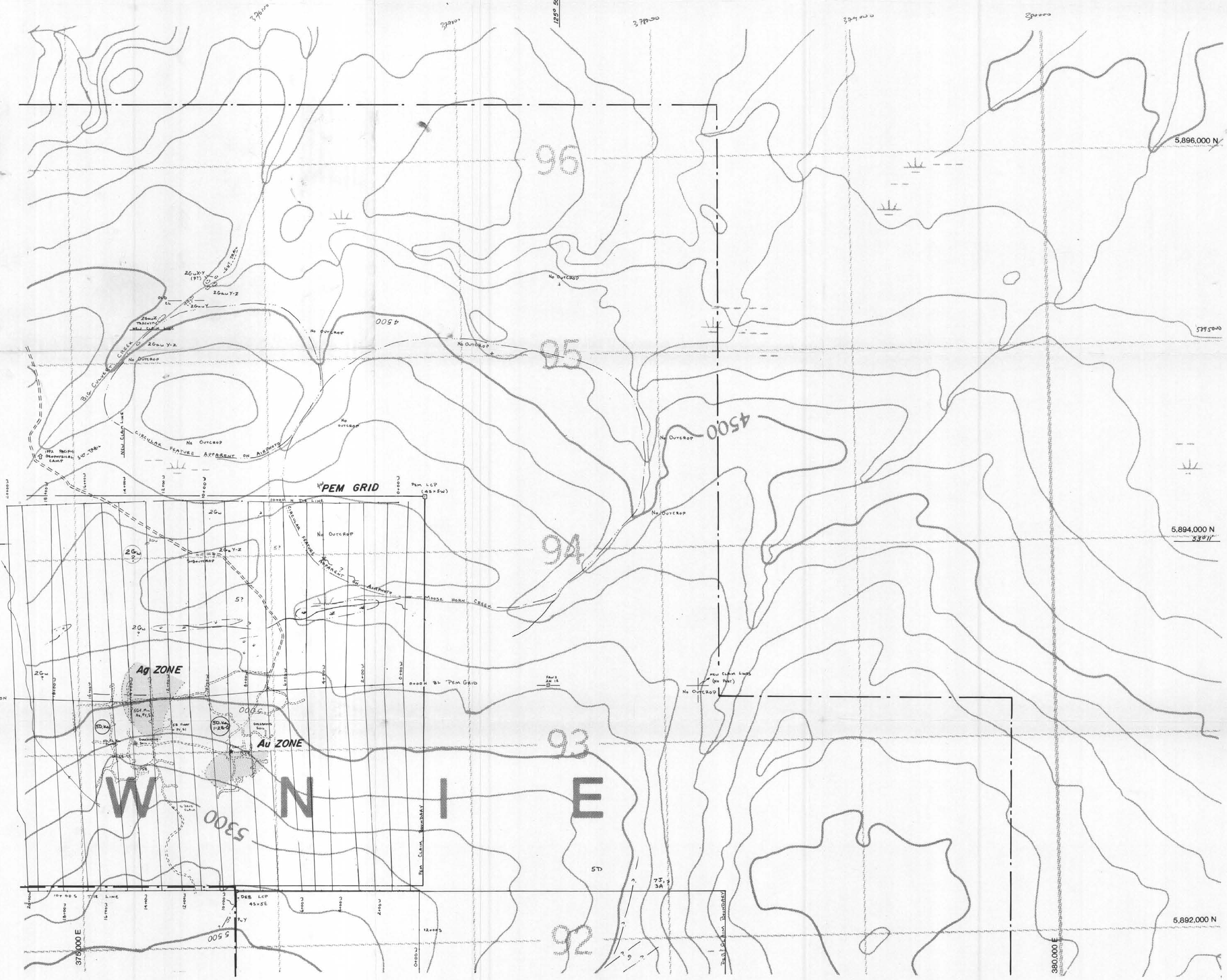
METRES
0 500 1000
0 KILOMETRES 1

FIGURE: 6

NORTH - WEST QUADRANT

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	GEOLOGY	SCALE: 1:10,000
DATE: JULY, AUGUST 1992		BLACKWATER-DAVIDSON J.V. OMENICA MINING DISTRICT, B.C.	PROJECT No.: 120
			N.T.S. No.: 93 F/2

NW



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O DEBRIS FLOW
R DOLOMITIC (ANKERITIC) CARB.
T TUFFACEOUS SED.
W APHANITIC
X FINE-GRAINED
Y MEDIUM-GRAINED
Z COARSE-GRAINED

The second and third letters are optional and further define the rock.

a amygdaloidal
b bedded
c calcareous
d spherulitic
e fossiliferous
f flow banded
g graphitic
h hematitic
i hornfels
j argillaceous
k chloritic
l leucocratic
m magnetite-bearing (magnetic, no pyrrhotite)
n massive
o welded tuff
p pillowed
q quartz
r sheared
s siliceous/cherty
t phyllitic
u fragment
v quartz phyric
w feldspar phyric
x quartz-feldspar phyric
y mafic phyric
z mafic-feldspar phyric

Additional Qualifiers:

f	-	As a prefix to the basic rock type indicates rubble or abundant float giving an indication of underlying geology.
( )	-	A letter in parentheses indicates that this particular characteristic is poorly defined, vague, or a minor constituent.
.	-	A period within the code separates the basic lithology from additional information such as fragment type, mineralization, or alteration.
bx	-	Breccia. Separated from the main rock description by a period.
cr	-	Crenulated foliation or bedding.
/	-	A slash within the code between two rock types indicates uncertainty.
,	-	A comma within the code between two rock types indicates that both are present.
-	-	A dash within the code between two lithologies indicates a rock type gradational or intermediate between the two.

MINERALS

Au NATIVE GOLD
Ag NATIVE SILVER
az AZURITE
bo BORNITE
cp CHALCOPYRITE
el ELECTRUM
ep EPIDOTE
gl GALENA
go GOETHITE
hg CINABAR
hm HEMATITE
li LIMONITE
mg MAGNETITE
mc MALACHITE
mn MANGANESE STAIN
mo MOLYBDENITE
py PYRITE
po PYRRHOTITE
qz QUARTZ
sb STIBNITE
sl SPHALERITE
tt TETRAHEDRITE

ALTERATION

Cl CHLORITE
Cb CARBONATE (ANKERITIC)
Se SERICITE
Si SILICA
Ka KAOLINITE
Kf K-FELDSPAR

Alteration Intensity:
0-Trace
1-Weak
2-Moderate
3-Strong

SYMBOLS

BEDDING: TOPS UNKNOWN
TOPS UP
OVERTURNED
HORIZONTAL
FLOW BANDING, OR PLANE OF FLATTENING
FOLIATION, CLEAVAGE
FOLIATION PARALLEL TO BEDDING
LINEATION (PLUNGE, TREND):
F - fold axis
P - pencil lineation
M - mineral lineation
S - slickenside
JOINT
FAULT, SHEAR
THRUST FAULT
VEIN
Qv QUARTZ VEIN
Cv CARBONATE VEIN
QCv QUARTZ-CARBONATE VEIN
Hv CHLORITE VEIN
Pv PYRITE VEIN
GEOLOGICAL CONTACT; DEFINED, INTERPRETED
UNCONFORMABLE CONTACT ('U's on upper unit)
FOLD AXES:
ANTIFORM (WITH PLUNGE DIRECTION)
SYNFORM (WITH PLUNGE DIRECTION)
ZONE OF TIGHT FOLDING (WITH PLUNGE)
GLACIAL STRIATION
LINEAR TOPOGRAPHIC FEATURE
LIMIT OF SURFICIAL FEATURE
RIDGE
VALLEY
CLIFF
MORAINE
NARROW DYKE OR BED
OUTCROP
OUTCROP SEEN BUT NOT VISITED
OVERBURDEN
FOSSIL LOCALITY
AIRPHOTO TARGET
HELIPAD (GOOD)
HELIPAD (POOR)
FIELD NOTE LOCATION
ROCK SAMPLE LOCATIONS:
HAND SPECIMEN
HAND SPECIMEN - THIN SECTION
For Analyses:
BEDROCK (Grab unless noted; C = Chip, H = Channel)
BEDROCK - WHOLE ROCK, THIN SECTION
FLOAT
STREAM SEDIMENT
SOIL

Property Boundary - approximate

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

NOTE: CONTOUR INTERVAL = 100 FEET

PROPERTY BOUNDARY LOCATED RELATIVE TO PEM L.C.P. FOLLOWING GOV'T CLAIM MAP.

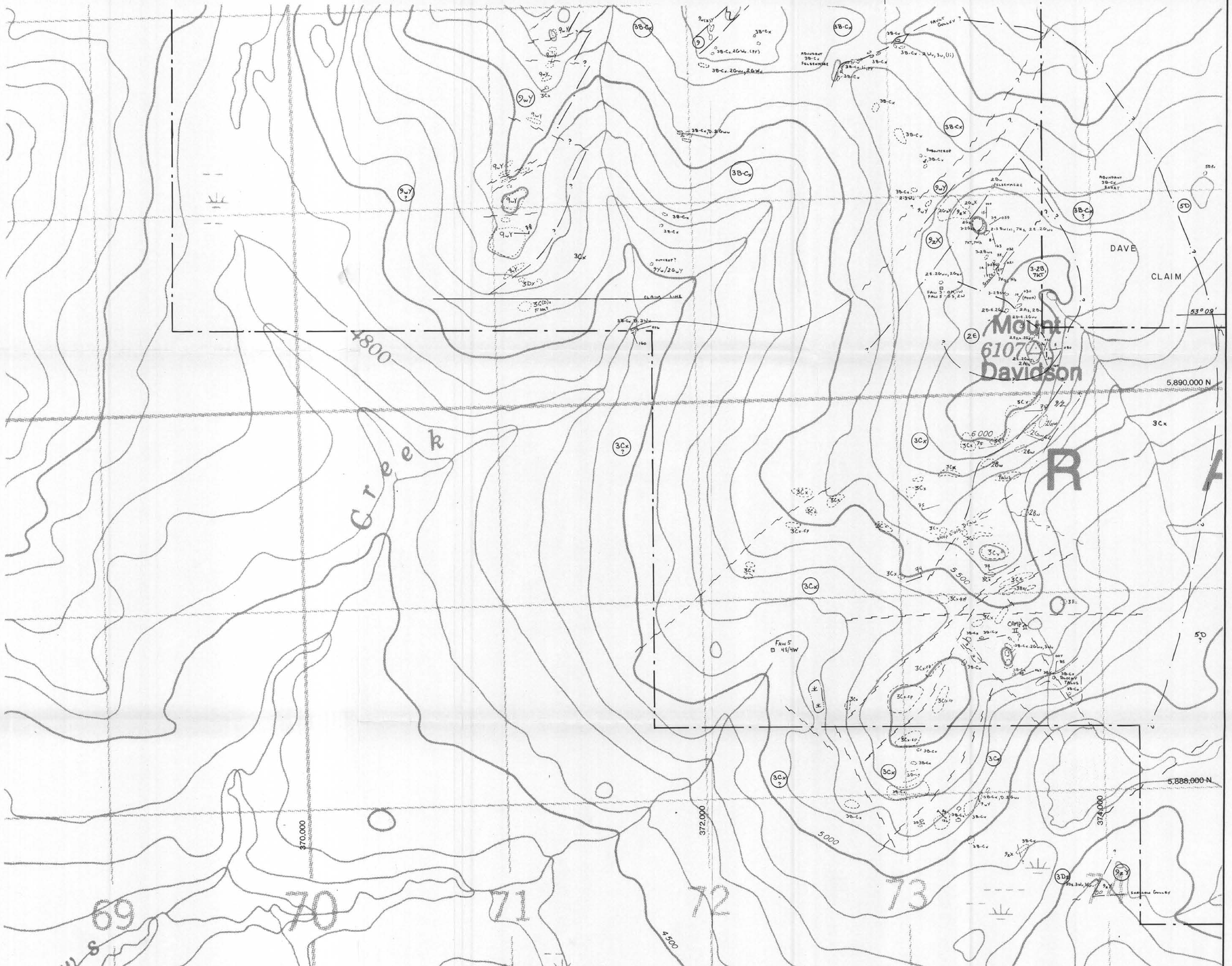
METRES
0 500 1000
KILOMETRES
0 1

NORTH - EAST QUADRANT

FIGURE: 7

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	GEOLOGY	SCALE: 1:10,000
DATE:		BLACKWATER-DAVIDSON J.V. OMENICA MINING DISTRICT, B.C.	PROJECT No.: 120
			N.T.S. No.: 93F/2

NE



Property Boundary - approximate

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

NOTE: CONTOUR INTERVAL = 100 FEET

PROPERTY BOUNDARY LOCATED RELATIVE TO PEM L.C.P. FOLLOWING GOV'T CLAIM MAP.

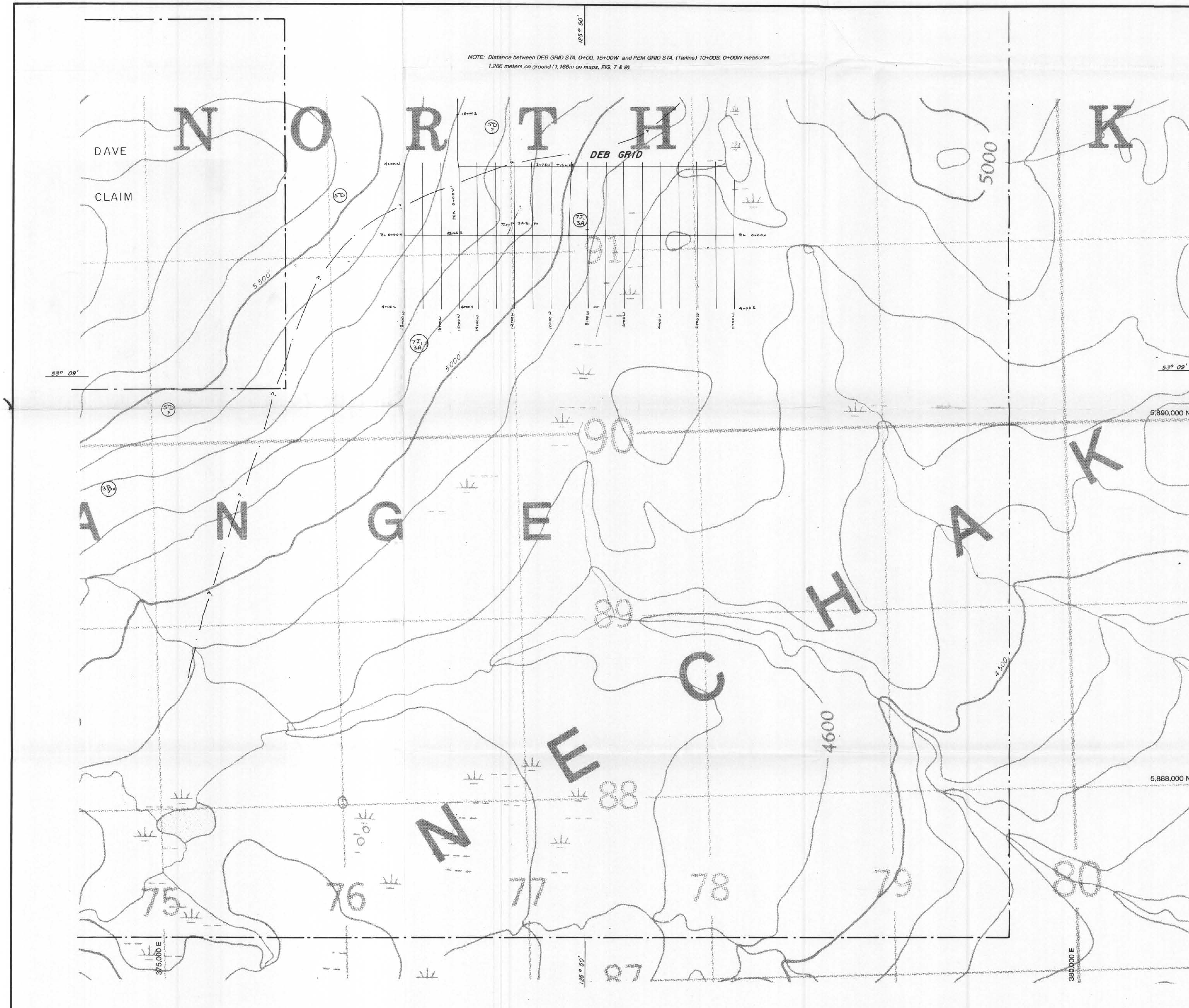
METRES 0 500 1000
KILOMETRES 0 1

SOUTH - WEST QUADRANT

FIGURE: 8

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	GEOLOGY	SCALE: 1:10,000
DATE: JULY, AUGUST 1992		BLACKWATER-DAVIDSON J.V. OMENICA MINING DISTRICT, B.C.	PROJECT No.: 120
			N.T.S. No.: 93 F/2

SW



N

LITHOLOGY LEGEND

1 MAFIC VOLCANIC
2 INTERMEDIATE VOLCANIC
3 UNDIFFERENTIATED FELSIC VOLCANIC
4 DACITE
5 RHYOLITE
6 LIMESTONE
7 CLASTIC SEDIMENT
8 MAFIC INTRUSION
9 INTERMEDIATE INTRUSION
10 FELSIC INTRUSION

ROCK UNIT LETTER QUALIFIERS

The first letter indicates the type of rock; if omitted a dash should be inserted before additional letters are used.

A FINE-GRAINED TUFF (<0.5mm)
B MEDIUM-GRAINED TUFF (0.5mm-2mm)
C COARSE-GRAINED TUFF (>2-6.4mm)
D LAPILLI TUFF (>6.4mm-6.4cm)
E TUFF BRECCIA (>6.4 cm; matrix supported)
F VOLCANIC BRECCIA (>6.4cm; clast supported)
G FLOW
H FLOW BRECCIA
J ARGILLITE
K SILTSTONE
L SANDSTONE / WACKE
M CONGLOMERATE
N CHERT (CHERTY)
O DEBRIS FLOW
R DOLOMITIC (ANKERITIC) CARB.
T TUFFACEOUS SED.
W APHANITIC
X FINE-GRAINED
Y MEDIUM-GRAINED
Z COARSE-GRAINED

The second and third letters are optional and further define the rock.

a amygdaloidal
b bedded
c calcareous
d spherulitic
e fossiliferous
f flow banded
g graphitic
h hematitic
i hornfels
j argillaceous
k chloritic
l leucocratic
m magnetite-bearing (magnetic, no pyrrhotite)
n massive
o welded tuff
p pillowed
q quartz
r sheared
s siliceous/cherty
t phyllitic
u fragment
v quartz phyric
w feldspar phyric
x quartz-feldspar phyric
y mafic phyric
z mafic-feldspar phyric

Additional Qualifiers:

r - As a prefix to the basic rock type indicates rubble or abundant float giving an indication of underlying geology.
() - A letter in parentheses indicates that this particular characteristic is poorly defined, vague, or a minor constituent.
. - A period within the code separates the basic lithology from additional information such as fragment type, mineralization, or alteration.
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cr - Crenulated foliation or bedding.
/ - A slash within the code between two rock types indicates uncertainty.
, - A comma within the code between two rock types indicates that both are present.
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MINERALS

Au NATIVE GOLD
Ag NATIVE SILVER
az AZURITE
bo BORNITE
cp CHALCOPYRITE
el ELECTRUM
ep EPIDOTE
gl GALENA
go GOETHITE
hg CINABAR
hm HEMATITE
li LIMONITE
mg MAGNETITE
mc MALACHITE
mn MANGANESE STAIN
mo MOLYBDENITE
py PYRITE
po PYRRHOTITE
qz QUARTZ
sb STIBNITE
sl SPHALERITE
th TETRAHEDRITE

ALTERATION

Cl CHLORITE
Cb CARBONATE (ANKERITIC)
Se SERICITE
Si SILICA
Ka KAOLINITE
Kf K-FELDSPAR

Alteration Intensity:
0-Trace
1-Weak
2-Moderate
3-Strong

SYMBOLS

BEDDING:
TOPS UNKNOWN
TOPS UP
OVERTURNED
HORIZONTAL
FLOW BANDING, OR PLANE OF FLATTENING
FOLIATION, CLEAVAGE
FOLIATION PARALLEL TO BEDDING
LINEATION (PLUNGE, TREND):
F - fold axis
P - pencil lineation
M - mineral lineation
S - slickenside
JOINT
FAULT, SHEAR
THRUST FAULT
VEIN
Qv QUARTZ VEIN
Cv CARBONATE VEIN
QCv QUARTZ-CARBONATE VEIN
Hv CHLORITE VEIN
Pv PYRITE VEIN
GEOLOGICAL CONTACT; DEFINED, INTERPRETED
UNCONFORMABLE CONTACT ('U's on upper unit)
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SYNFORM (WITH PLUNGE DIRECTION)
ZONE OF TIGHT FOLDING (WITH PLUNGE)
GLACIAL STRIATION
LINEAR TOPOGRAPHIC FEATURE
LIMIT OF SURFICIAL FEATURE
RIDGE
VALLEY
CLIFF
MORAINE
NARROW DYKE OR BED
OUTCROP
OUTCROP SEEN BUT NOT VISITED
OVERBURDEN
FOSSIL LOCALITY
AIRPHOTO TARGET
HELIPAD (GOOD)
HELIPAD (POOR)
FIELD NOTE LOCATION
ROCK SAMPLE LOCATIONS:
HAND SPECIMEN
HAND SPECIMEN - THIN SECTION
For Analyses:
BEDROCK (Grab unless noted; C=Chip, H=Channel)
BEDROCK - WHOLE ROCK, THIN SECTION
FLOAT
STREAM SEDIMENT
SOIL

/ Property Boundary - approximate

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

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NOTE CONTOUR INTERVAL - 100 FEET

PROPERTY BOUNDARY LOCATED RELATIVE TO PEM L.C.P. FOLLOWING GOV'T CLAIM MAP.

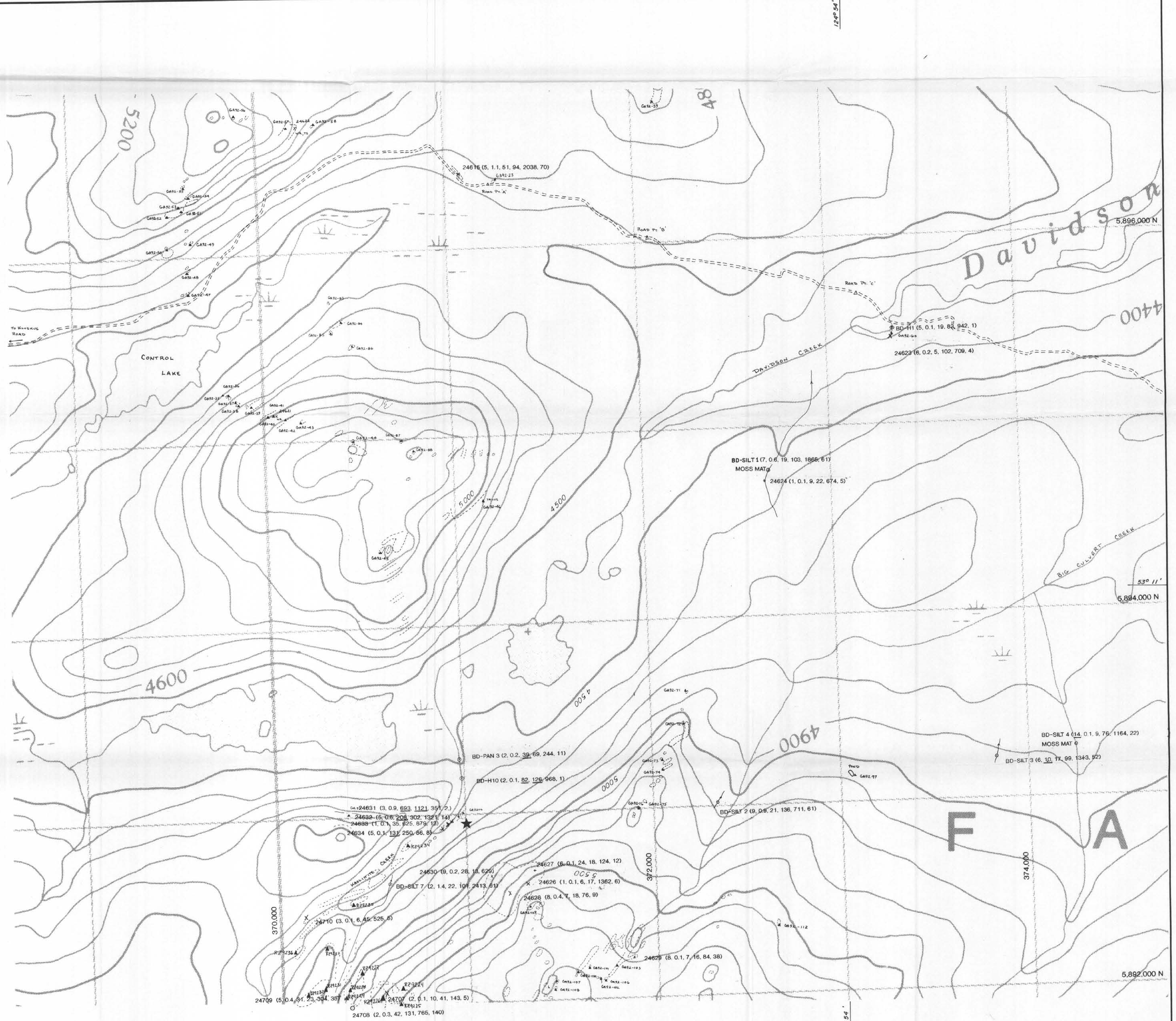
METRES
0 500 1000
0 1
KILOMETRES

SOUTH - EAST QUADRANT

FIGURE: 9

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	GEOLOGY	SCALE:	1: 10,000
DATE: JULY, AUGUST 1992		BLACKWATER-DAVIDSON J.V.	PROJECT No.:	120
		OMENICA MINING DISTRICT, B.C.	N.T.S. No.:	93 F/2

SE



N

LEGEND

- LIMIT OF SURFICIAL FEATURE
- RIDGE
- VALLEY
- CLIFF
- MORAINE
- NARROW DYKE OR BED
- OUTCROP
- OUTCROP SEEN BUT NOT VISITED
- OVERBURDEN
- FOSSIL LOCALITY
- AIRPHOTO TARGET
- HELIPAD (GOOD)
- HELIPAD (POOR)
- FIELD NOTE LOCATION
- ROCK SAMPLE LOCATIONS:
  - HAND SPECIMEN
  - HAND SPECIMEN - THIN SECTION
- For Analyses:
  - BEDROCK (Grab unless noted, C = Chip, H = Channel)
  - BEDROCK - WHOLE ROCK, THIN SECTION
- FLOAT
- STREAM SEDIMENT
- SOIL

Sample Analysis Sequence

Au ppb, Ag ppm, Pb ppm, Zn ppm, Mn ppm, As ppm

★ ANOMALOUS VALUE

GEOLOGICAL BRANCH ASSESSMENT REPORT

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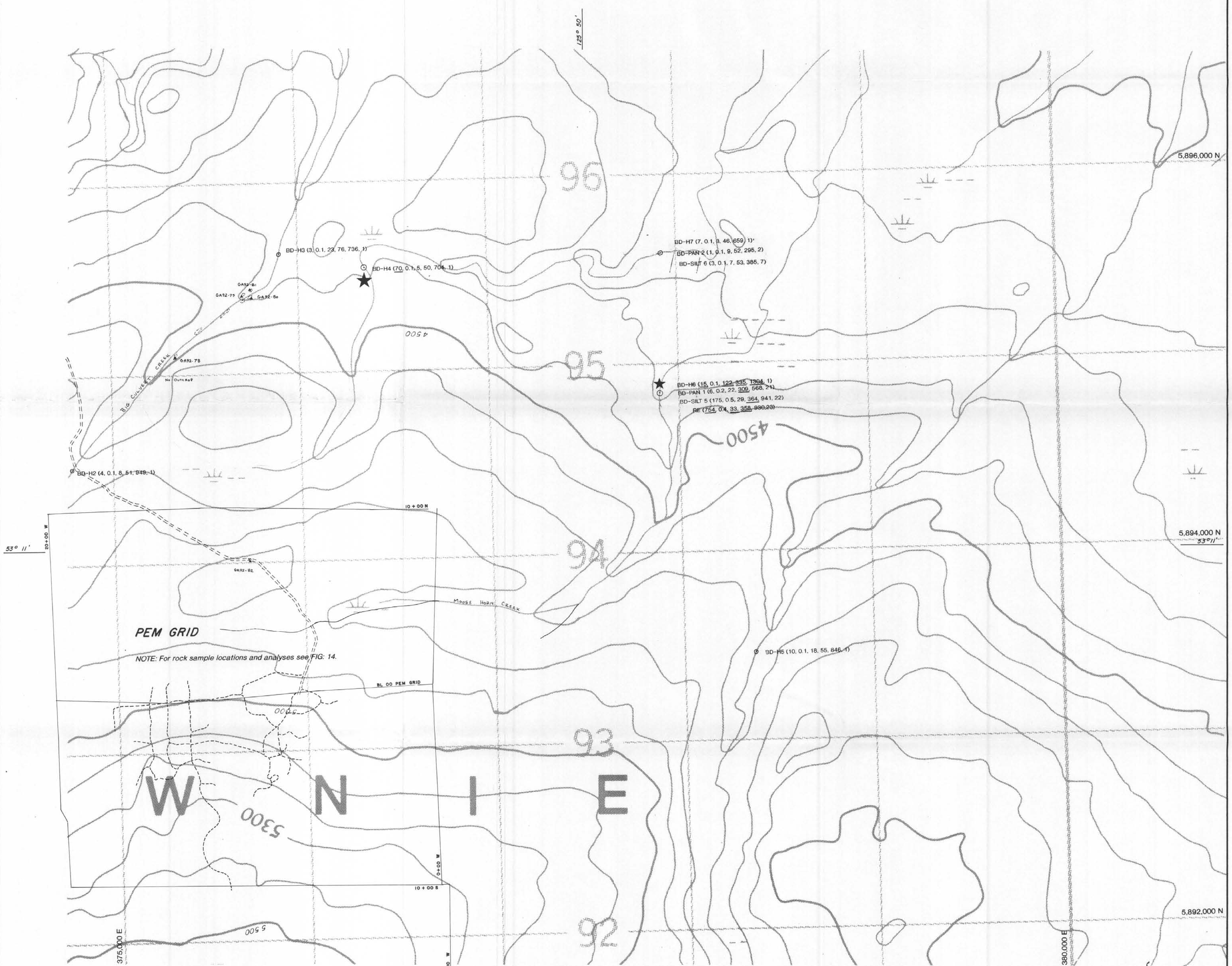
NOTE: CONTOUR INTERVAL = 100 FEET

METRES 0 500 1000
KILOMETRES 0 1

FIGURE: 10

DRAWN BY:	G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	NORTH - WEST QUADRANT SAMPLE LOCATIONS AND ANALYSES	SCALE:	1:10,000
DATE:	JULY, AUGUST 1992		BLACKWATER–DAVIDSON J.V. OMENICA MINING DISTRICT, B.C.	PROJECT No.:	120
				N.T.S. No.:	93 F/2

NW



LEGEND

Sample Analysis Sequence

Au ppb, Ag ppm, Pb ppm, Zn ppm, Mn ppm, As ppm

★ ANOMALOUS VALUE

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

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NOTE: CONTOUR INTERVAL = 100 FEET

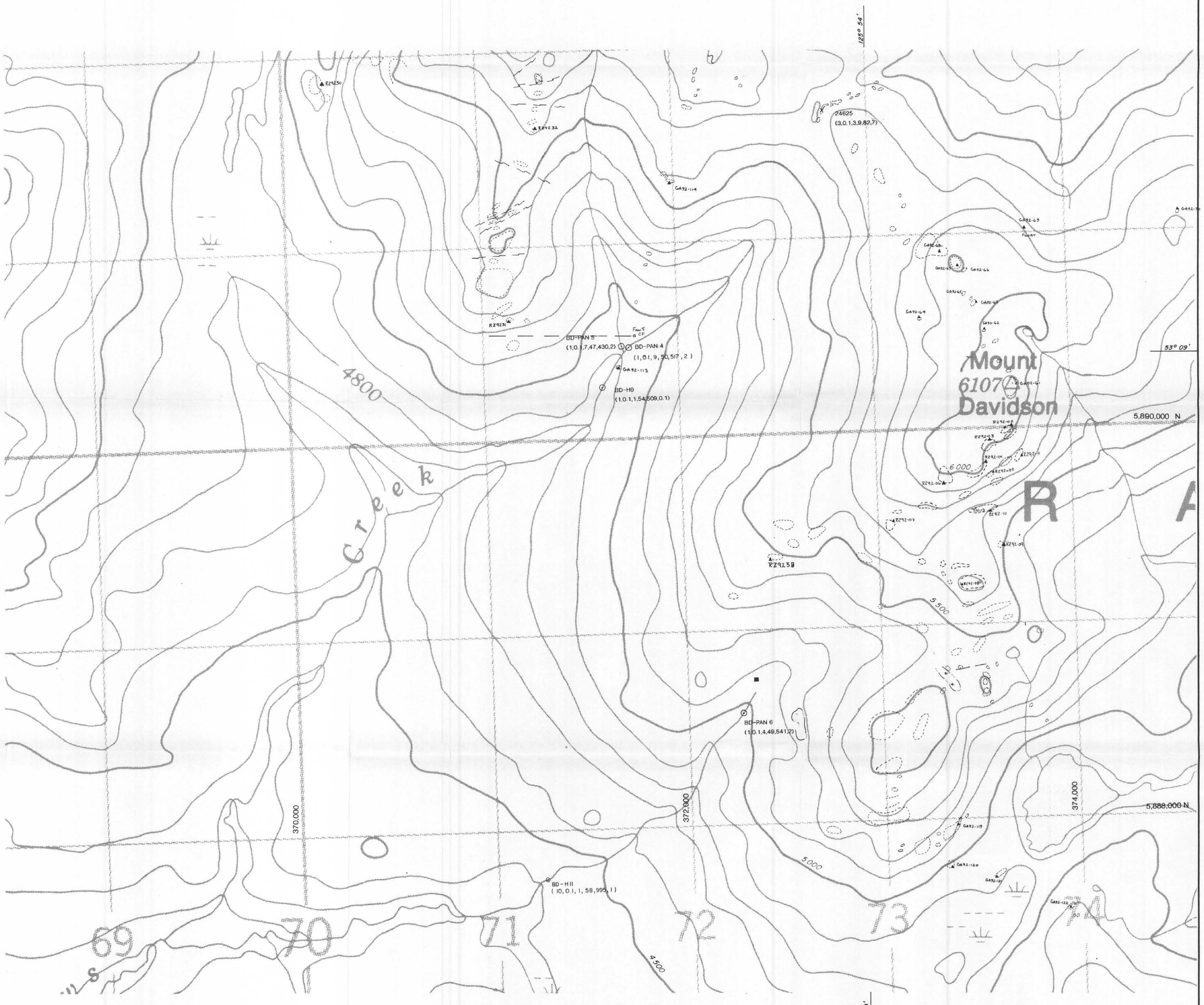
METRES 0 500 1000
0 KILOMETRES 1

FIGURE: 11

NORTH - EAST QUADRANT

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	SAMPLE LOCATIONS AND ANALYSES	SCALE:	1:10,000
DATE: JULY, AUGUST 1992		BLACKWATER-DAVIDSON J.V.	PROJECT No.:	120
		OMENICA MINING DISTRICT, B.C.	N.T.S. No.:	93 F/2

NE



LEGEND

- LINEAR TOPOGRAPHIC FEATURE
- LIMIT OF SURFICIAL FEATURE
- RIDGE
- VALLEY
- CLIFF
- MORAINE
- NARROW DYKE OR BED
- OUTCROP
- OUTCROP SEEN BUT NOT VISITED
- OV OVERBURDEN
- FOSSIL LOCALITY
- AIRPHOTO TARGET
- HELIPAD (GOOD)
- HELIPAD (POOR)
- FIELD NOTE LOCATION
- ROCK SAMPLE LOCATIONS:
  - HAND SPECIMEN
  - HAND SPECIMEN - THIN SECTION
- For Analyses:
  - BEDROCK (Grab unless noted; C=Chip, H=Channel)
  - BEDROCK - WHOLE ROCK, THIN SECTION
  - FLOAT
  - STREAM SEDIMENT
  - SOIL

Sample Analysis Sequence

Au ppb, Ag ppm, Pb ppm, Zn ppm, Mn ppm, As ppm

★ ANOMALOUS VALUE

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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NOTE: CONTOUR INTERVAL = 100 FEET

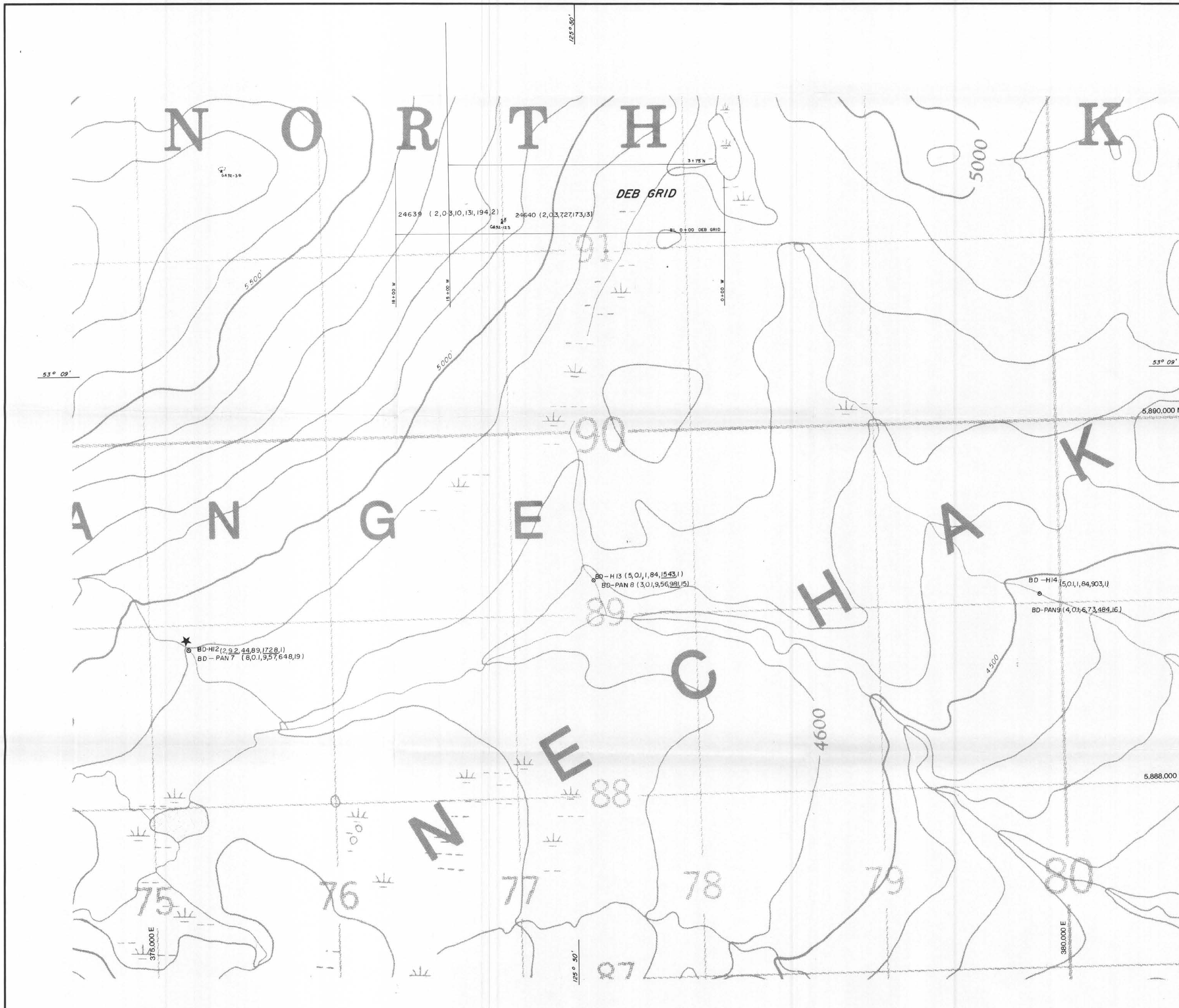
METRES
0 500 1000
0 KILOMETRES 1

FIGURE: 12

SOUTH - WEST QUADRANT

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	SAMPLE LOCATIONS AND ANALYSES	SCALE:	1 : 10,000
DATE: JULY, AUGUST 1992		BLACKWATER-DAVIDSON J.V.	PROJECT No.:	120
		OMENICA MINING DISTRICT, B.C.	N.T.S. No.:	93 F/2

SW



LEGEND

Sample Analysis Sequence

Au ppb, Ag ppm, Pb ppm, Zn ppm, Mn ppm, As ppm

★ ANOMALOUS VALUE

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

NOTE: CONTOUR INTERVAL - 100 FEET

METRES
0 500 1000
KILOMETRES
0 1

FIGURE: 13

SOUTH - EAST QUADRANT

DRAWN BY: G. ALLEN, R. ZAWADA	GRANGES INC. VANCOUVER, B.C.	SAMPLE LOCATIONS AND ANALYSES	SCALE:	1 : 10,000
DATE: JULY, AUGUST 1992		BLACKWATER-DAVIDSON J.V.	PROJECT No.:	120
		OMENICA MINING DISTRICT, B.C.	N.T.S. No.:	93 F/2

SE

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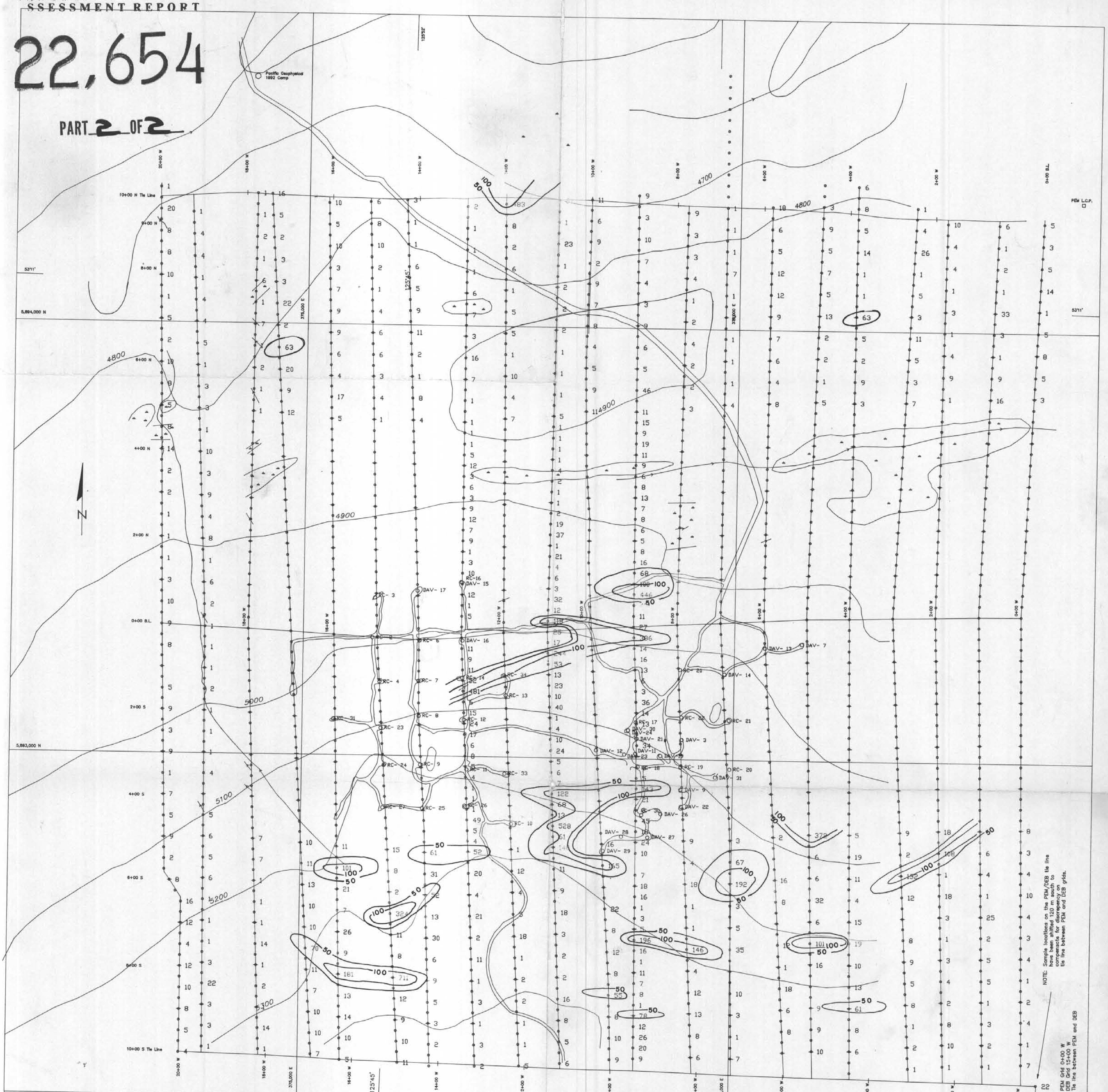
0 100 200 300 400 m. SCALE	DEB GRID Blackwater – Davidson Omenica Mining District, B.C.	Geology, Sample Locations and Analyses	GRANGES INC. Vancouver B.C.	Analyses (Au (ppb), Ag (ppm), Pb (ppm), Zn (ppm), Mn (ppm), As (ppm) × Sample From Outcrop + Float Sample ▲ Hand Specimen Collected ▲TS Hand Specimen Collected, Thin Section ★ Anomalous Sample Site	SCALE : 1:5000 — DRAWN BY: R.Z., G.A. PROJECT No. : 120 — DATE : Aug. – 1992 NTS No. : 93F/2 — DRAWING FILE: DEB.DWG FIGURE: 15

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2



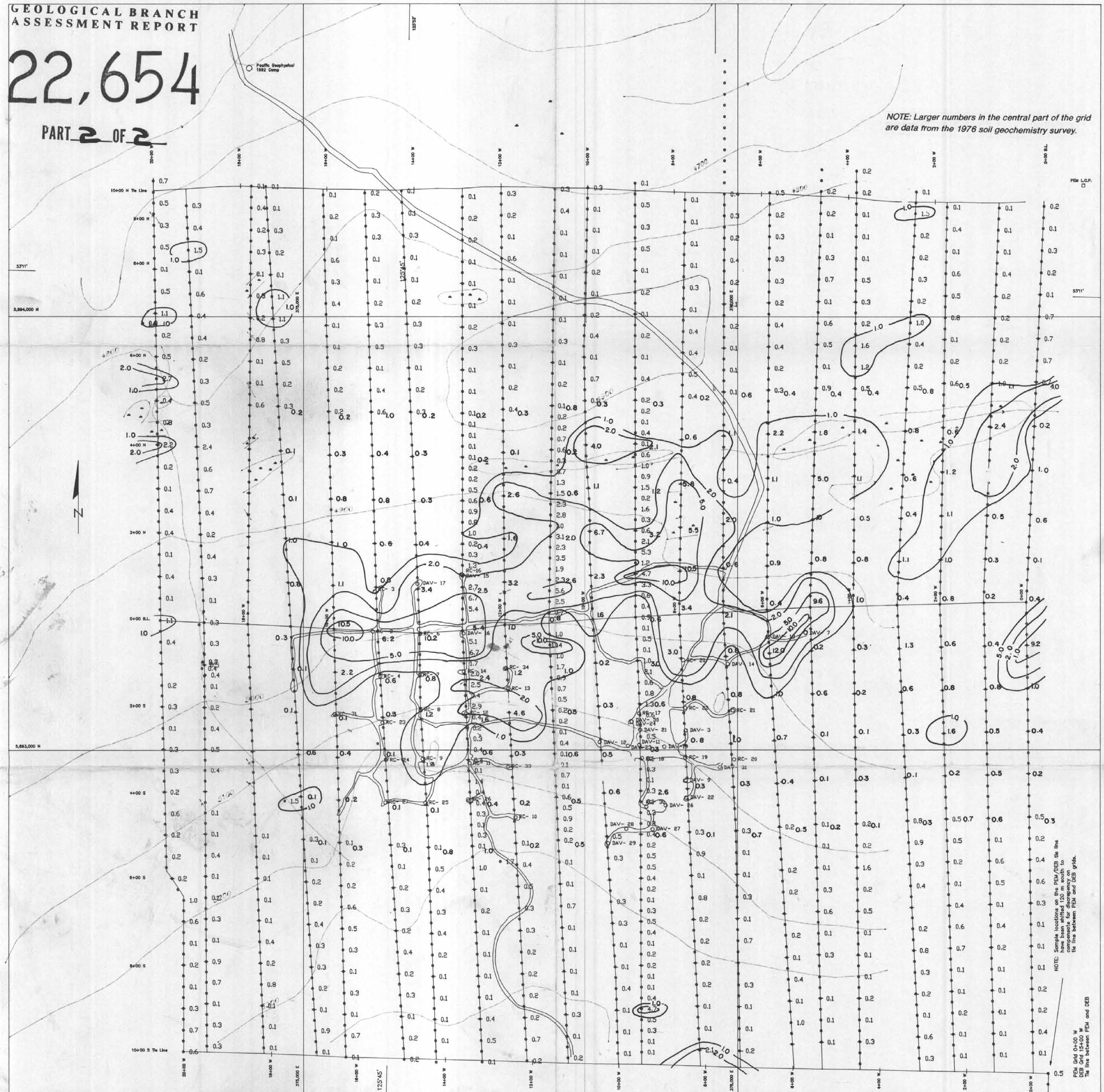
GRANGES INC. Vancouver B.C.	PEM GRID Blackwater–Davidson Project Omenica Mining District, B.C.	GOLD (ppb) SOIL GEOCHEMISTRY	0 100 200 300 400 m. SCALE	SCALE: 1:5,000; DRAWN BY: R.Z., G.A.; PROJECT No.: 120; DATE: Aug. 1992; NTS No.: 93F/2; DRAWING FILE: MAIN.DWG

FIGURE: 18 a

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

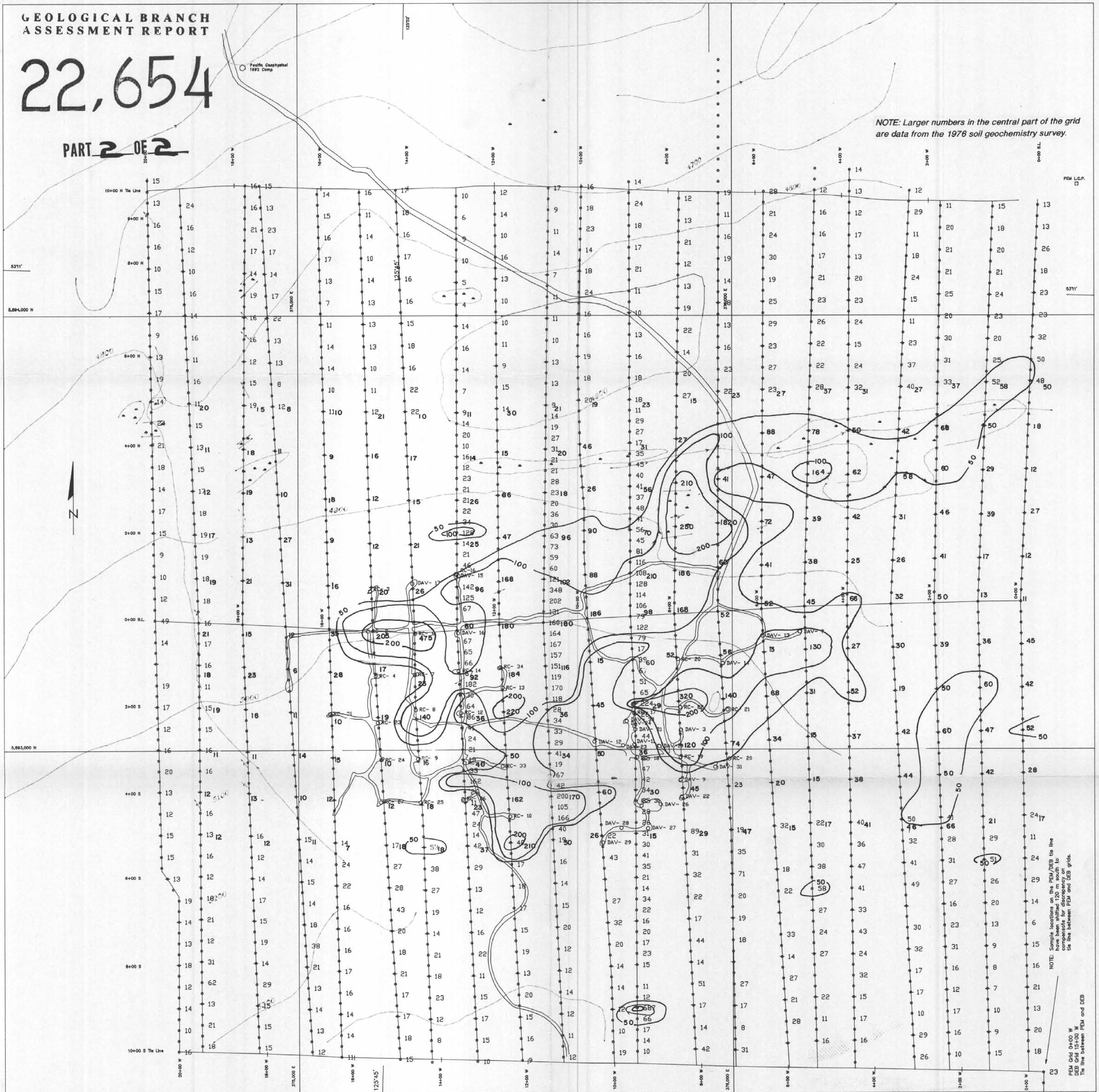


GRANGES INC. Vancouver B.C.	PEM GRID Blackwater–Davidson Project Omenica Mining District, B.C.	Ag (ppm) Contours SOIL GEOCHEMISTRY	0 100 200 300 400 m. SCALE	SCALE : 1:5,000	DRAWN BY: R.Z., G.A.
				PROJECT No. : 120	DATE : Aug. 1992
				NTS No. : 93F/2	DRAWING FILE: MAIN.DWG
					FIGURE: 18 b

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2



GRANGES INC.
Vancouver B.C.

PEM GRID
Blackwater–Davidson Project
Omenica Mining District, B.C.

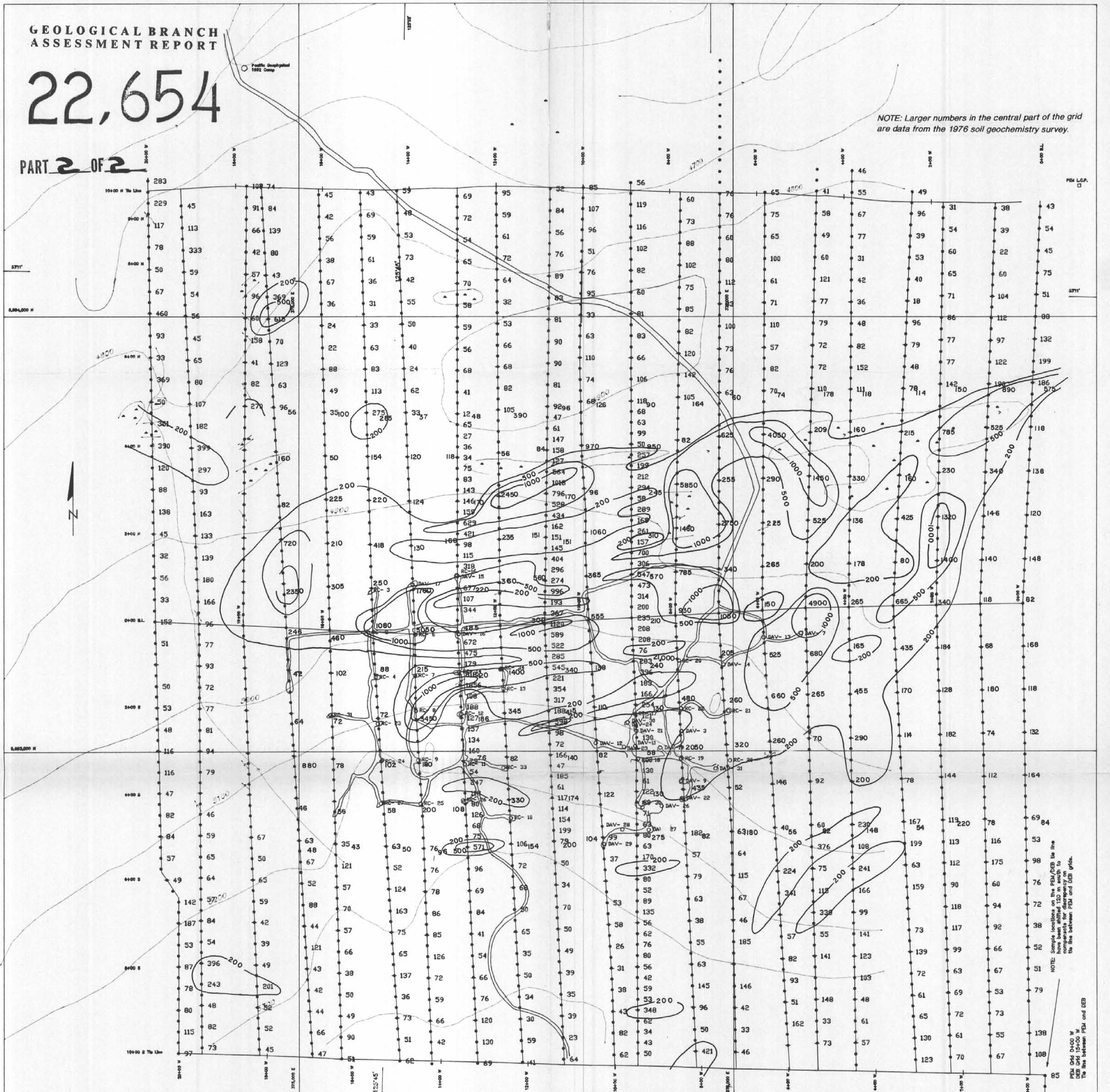
Pb (ppm) Contoured

SOIL GEOCHEMISTRY

0 100 200 300 400 m.
SCALE

SCALE : 1:5,000	DRAWN BY: R.Z., G.A.
PROJECT No. : 120	DATE : Aug. 1992
NTS No. : 93F/2	DRAWING FILE: MAIN.DWG

FIGURE: 18 c

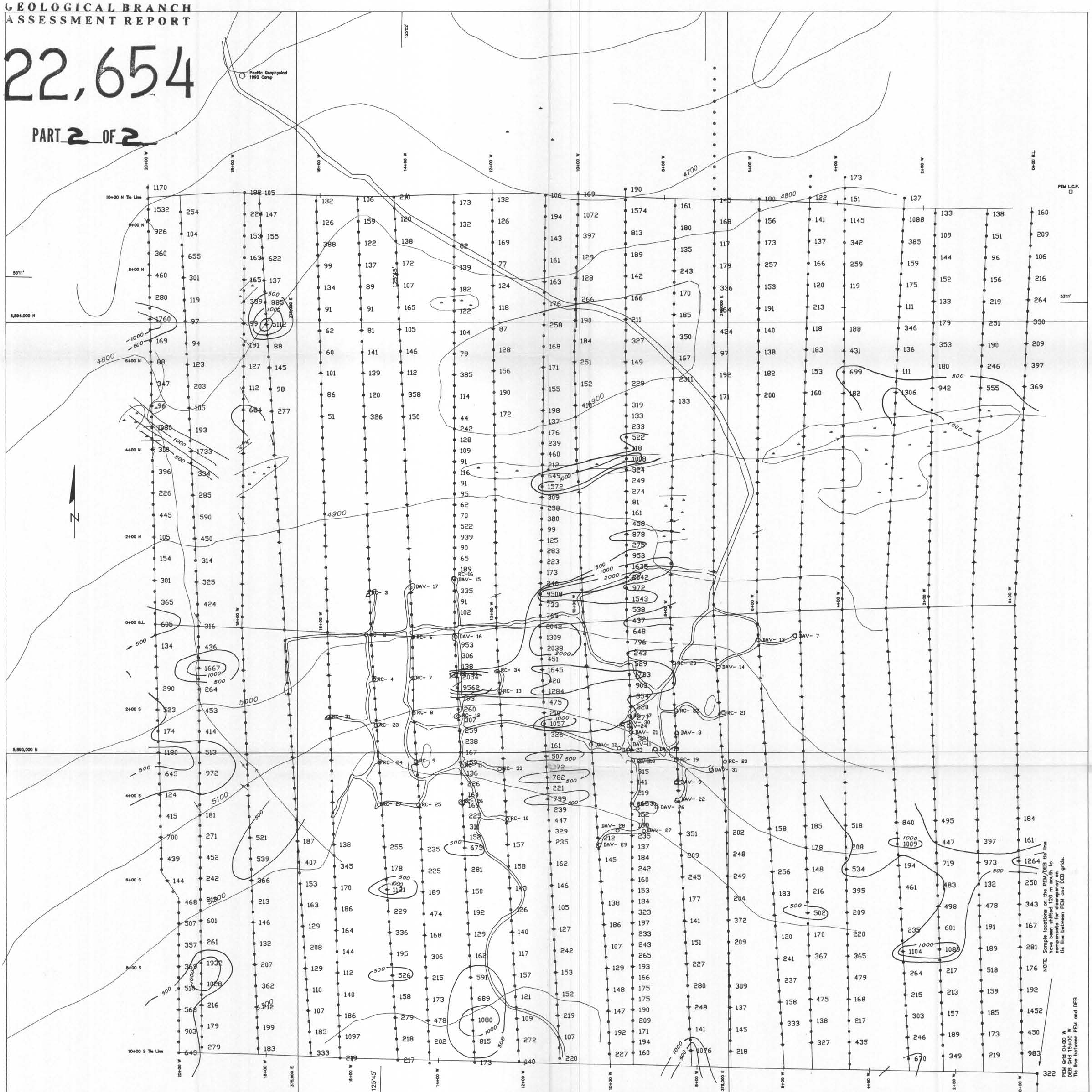


GRANGES INC. Vancouver B.C.	PEM GRID Blackwater–Davidson Project Omenica Mining District, B.C.	Zn (ppm) Contoured SOIL GEOCHEMISTRY	0 100 200 300 400 m. SCALE	SCALE: 1:10,000 · PROJECT No.: 130 · NTS No.: 93F/2	DRAWN BY: R.Z., G.A. · DATE: Aug. 1992 · DRAWING FILE:	FIGURE: 18 d

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

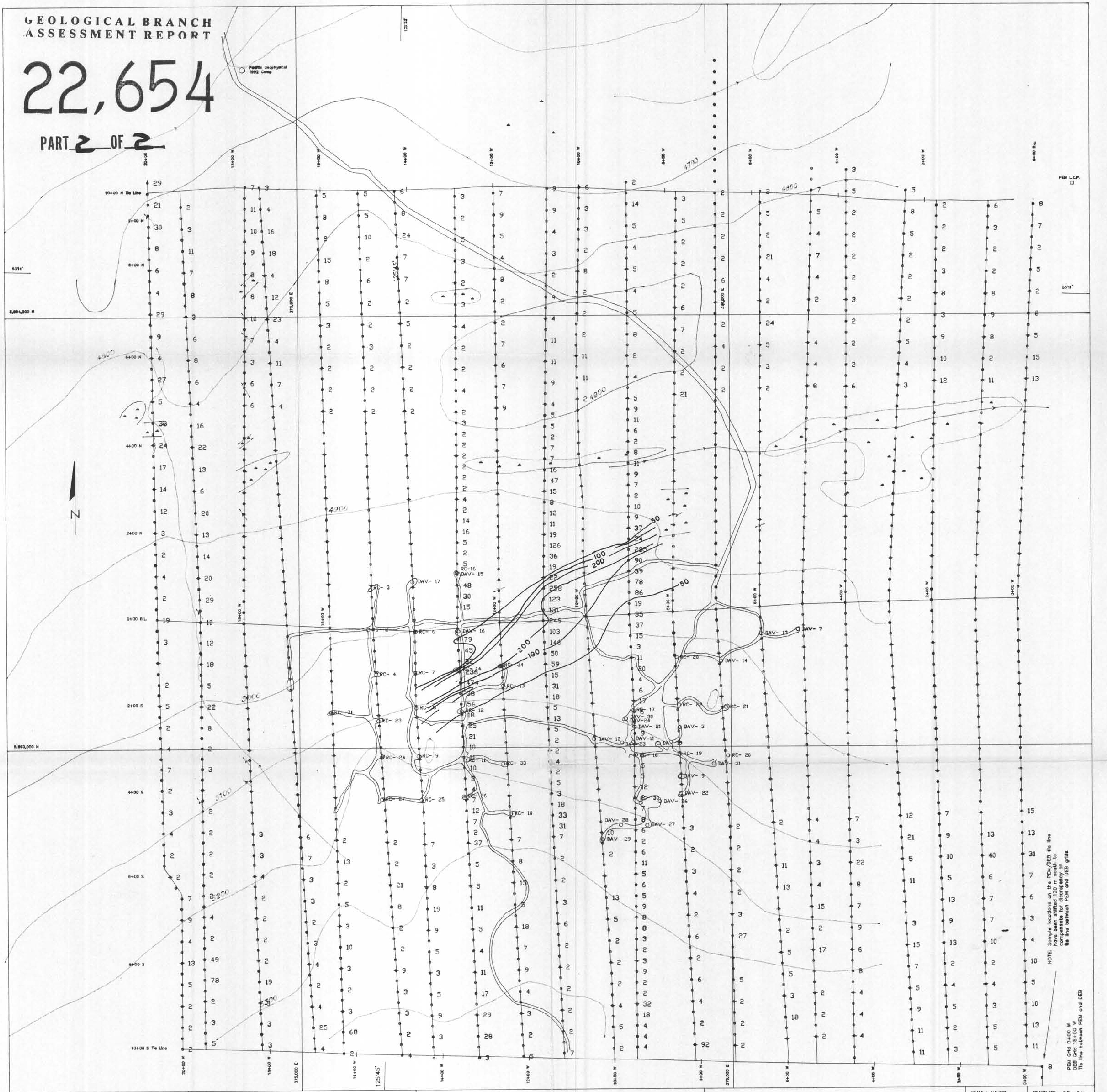


GRANGES INC. Vancouver B.C.	PEM GRID Blackwater–Davidson Project Omenica Mining District, B.C.	Mn (ppm) Contoured SOIL GEOCHEMISTRY	0 100 200 300 400 m. SCALE	SCALE : 1:5,000 PROJECT No. : 120 NTS No. : 93F/2 DRAWN BY: R.Z., G.A. DATE : Aug. 1992 DRAWING FILE: MAN.DWG FIGURE: 18 e

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2



GRANGES INC.
Vancouver B.C.

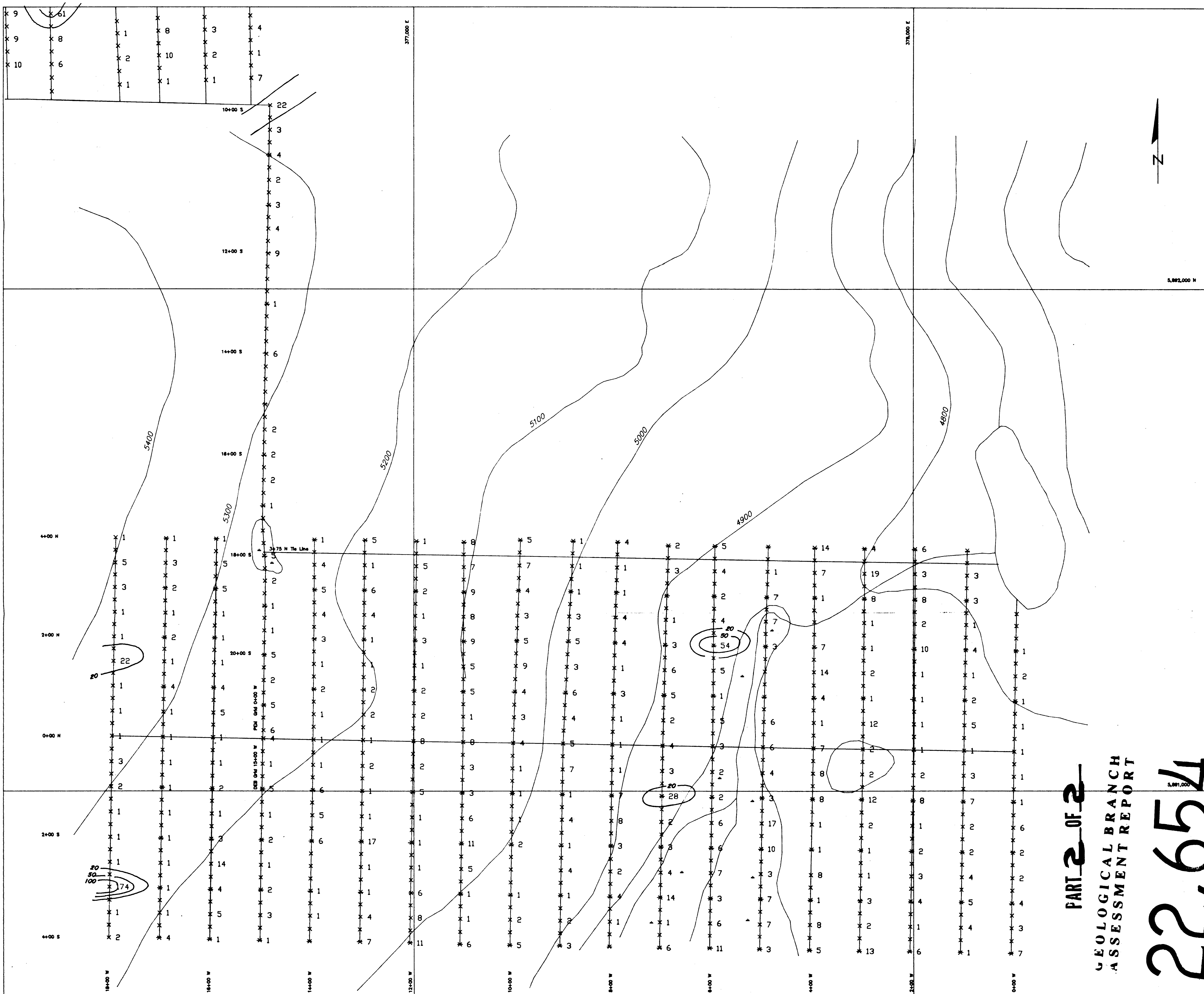
PEM GRID
Blackwater–Davidson Project
Omenica Mining District, B.C.

As (ppm)

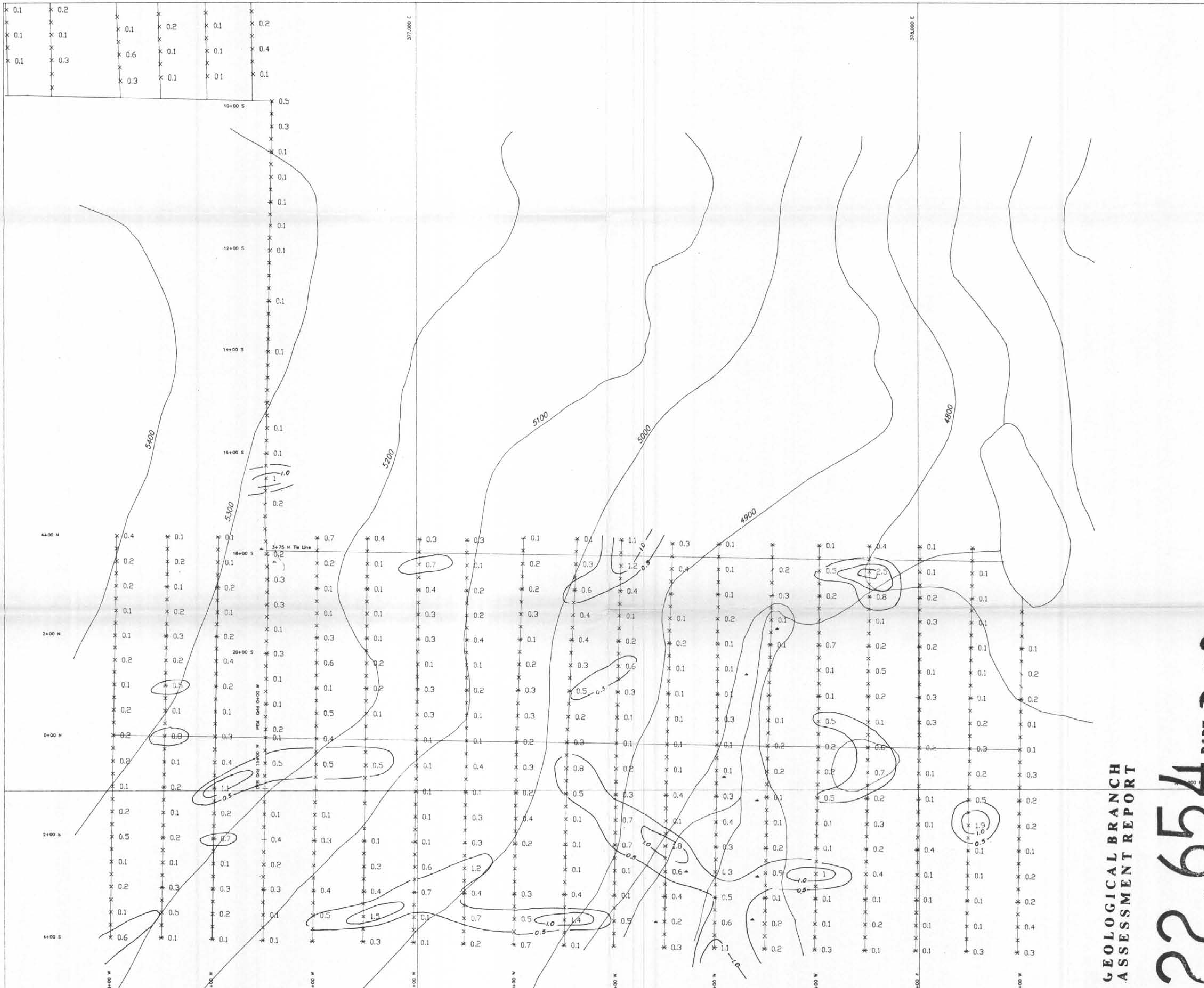
SOIL GEOCHEMISTRY

0 100 200 300 400 m.
SCALE

SCALE : 1:5,000	DRAWN BY: R.Z. , G.A.
PROJECT No. : 120	DATE : Aug. 1992
NTS No. : 93F/2	DRAWING FILE: MAIN.DWG
	FIGURE: 18 f



0 100 200 300 400 m. SCALE	DEB GRID Blackwater – Davidson Omenica Mining District, B.C.	**GOLD (PPB)** SOIL GEOCHEMISTRY	GRANGES INC. Vancouver B.C.	SCALE : PROJECT No. : 120 NTS No. : 93F/2 DRAWN BY: R.Z., G.A. DATE : Aug. – 1992 DRAWING FILE: MAIN.DWG FIGURE: **19 a**



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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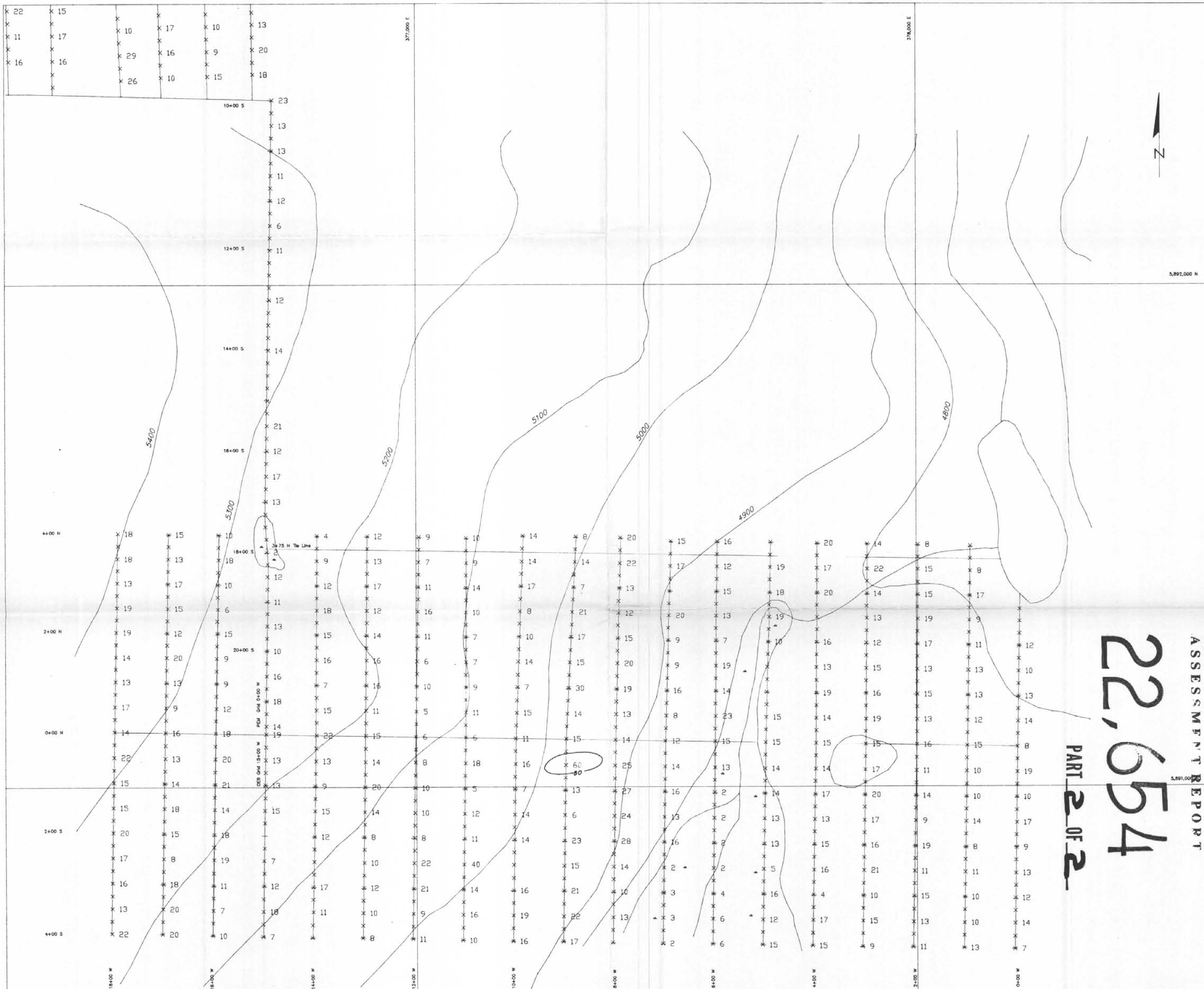
0 100 200 300 400 m. SCALE	DEB GRID Blackwater — Davidson Omenica Mining District, B.C.	**SILVER (ppm)** SOIL GEOCHEMISTRY	GRANGES INC. Vancouver B.C.	SCALE : PROJECT No. : 120 NTS No. : 93F/2
				DRAWN BY: R.Z., G.A. DATE : Aug. - 1992 DRAWING FILE: MAIN.DWG FIGURE: 19 b



0 100 200 300 400 m.

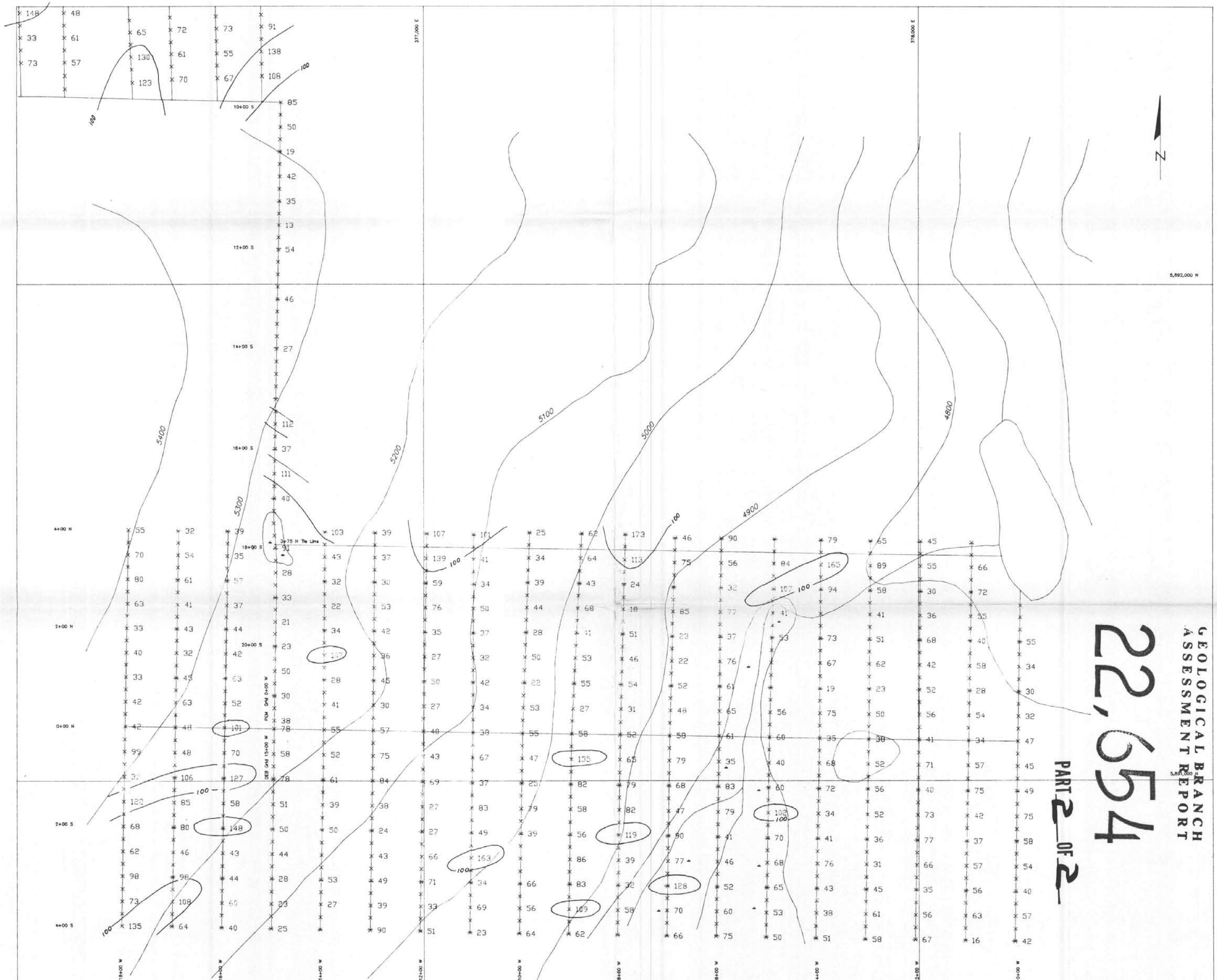
SCALE

DEB GRID
Blackwater — Davidson
Omenica Mining District, B.C.

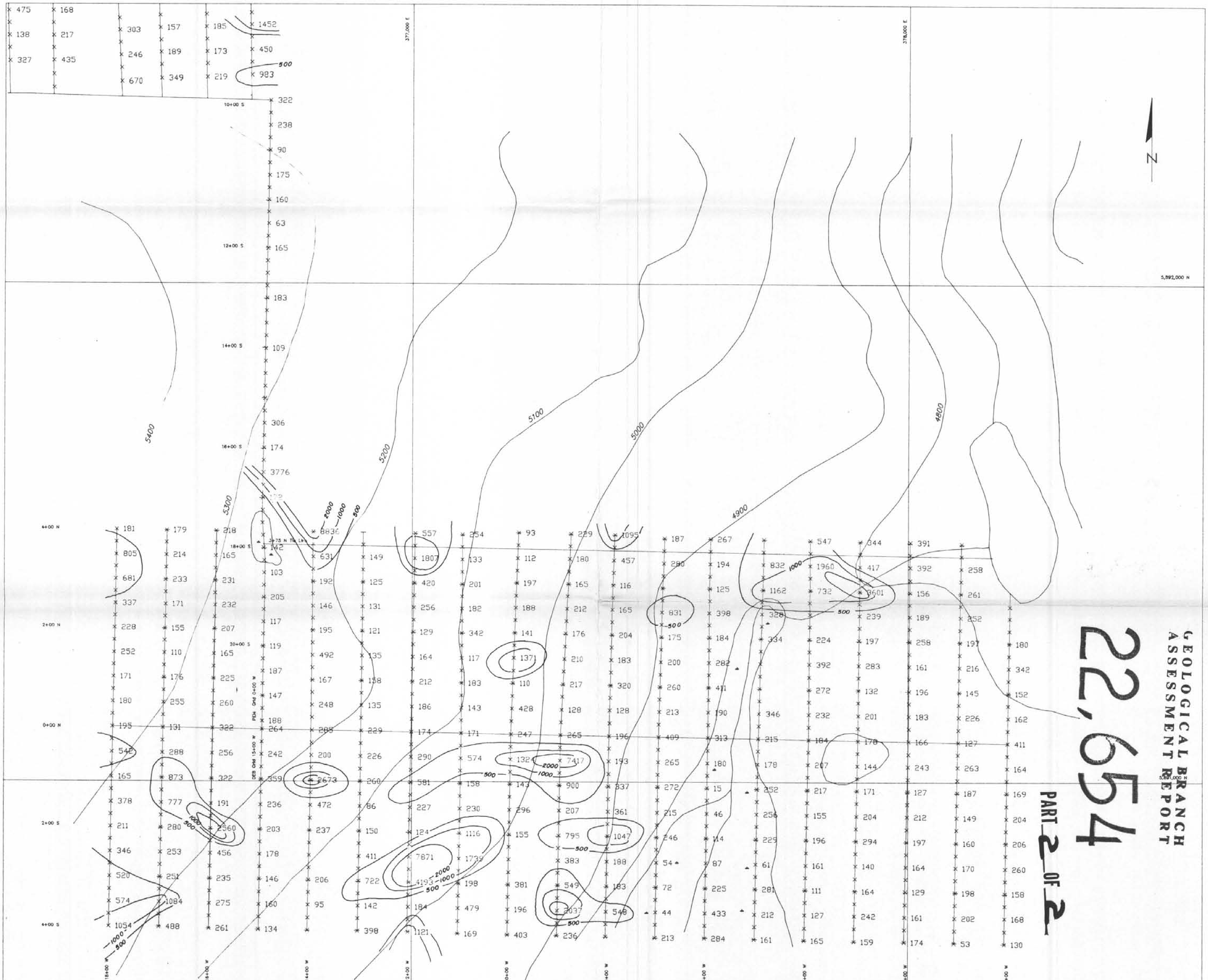
LEAD (ppm)
SOIL GEOCHEMISTRY

GRANGES INC.
Vancouver B.C.

SCALE :	DRAWN BY: R.Z., G.A.
PROJECT No. : 120	DATE : Aug. – 1992
NTS No. : 93F/2	DRAWING FILE: MAIN.DWG
	FIGURE: 19 c



0 100 200 300 400 m. SCALE	DEB GRID Blackwater — Davidson Omenica Mining District, B.C.	ZINC (ppm) SOIL GEOCHEMISTRY	GRANGES INC. Vancouver B.C.	SCALE : PROJECT No. : 120 NTS No. : 93F/2 DRAWN BY: R.Z., G.A. DATE : Aug. — 1992 DRAWING FILE: MAIN.DWG FIGURE: 19 d



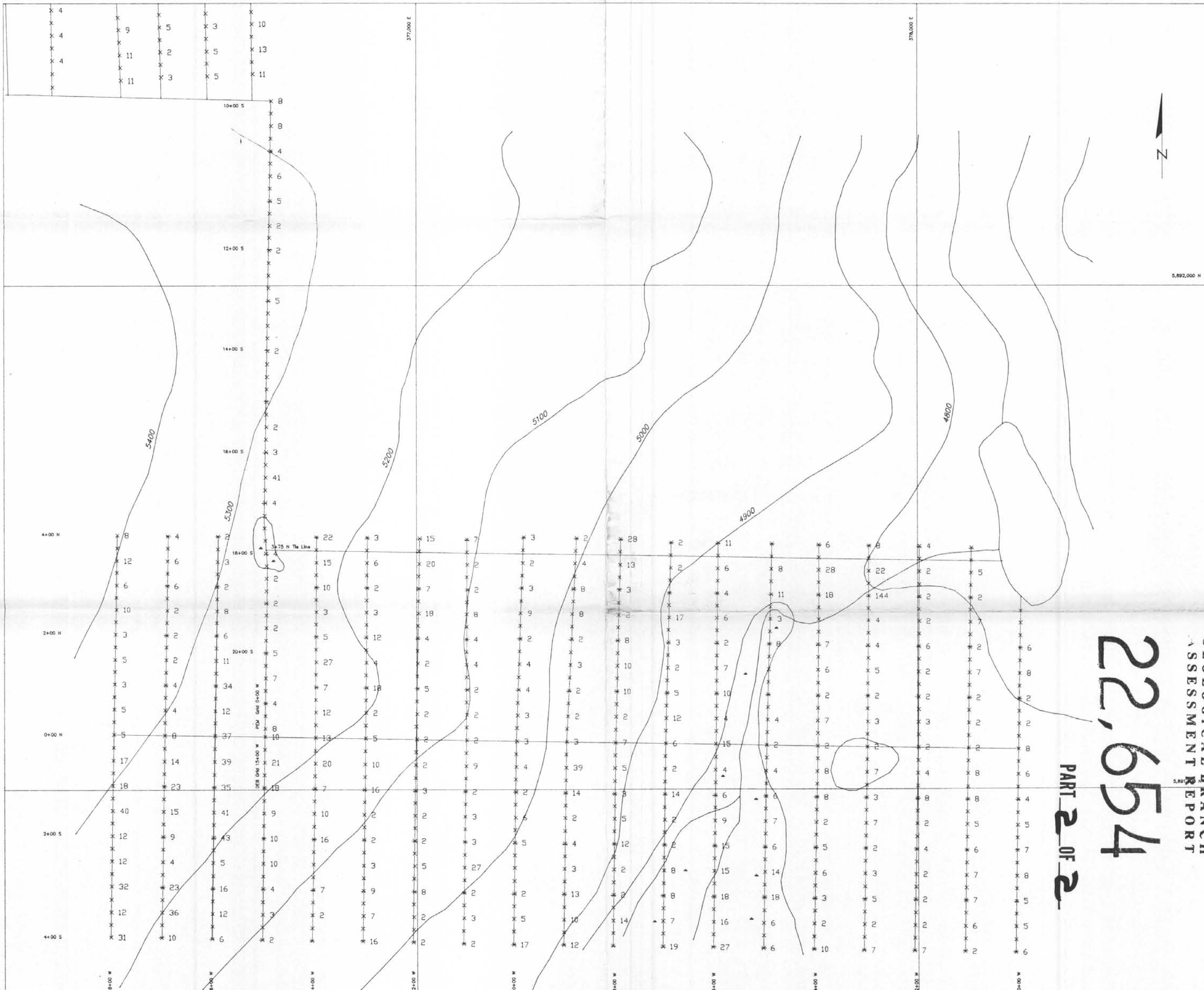
DEB GRID
Blackwater — Davidson
Omenica Mining District, B.C.

SCALE
0 100 200 300 400 m.

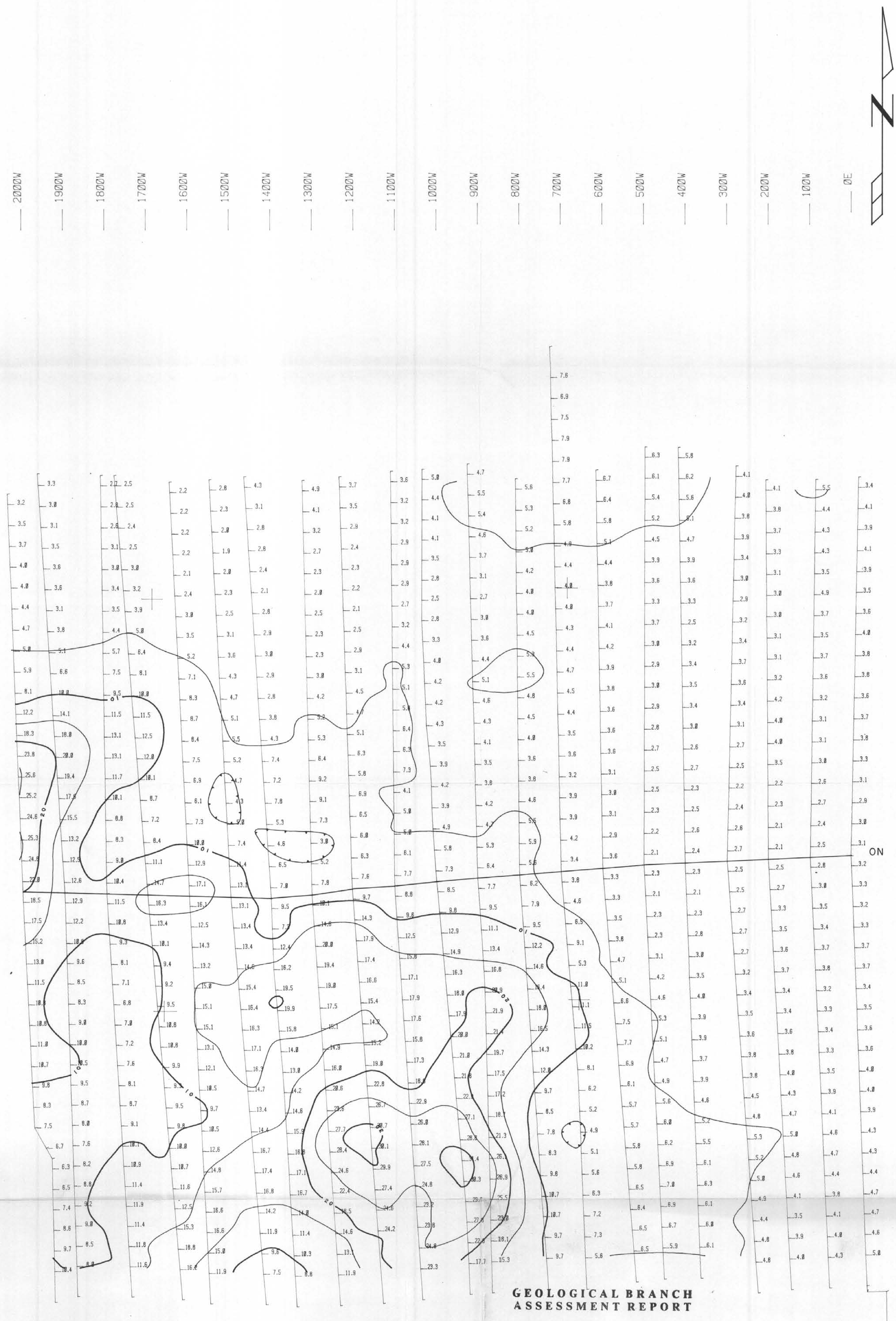
MANGANESE (ppm)
SOIL GEOCHEMISTRY

GRANGES INC.
Vancouver B.C.

SCALE :	DRAWN BY: R.Z., G.A.
PROJECT No. : 120	DATE : Aug. – 1992
NTS No. : 93F/2	DRAWING FILE: MAIN.DWG
	FIGURE: 19 e



0 100 200 300 400 m. SCALE	DEB GRID Blackwater — Davidson Omenica Mining District, B.C.	**ARSENIC (ppm)** SOIL GEOCHEMISTRY	GRANGES INC. Vancouver B.C.	SCALE : PROJECT No. : 120 NTS No. : 93F/2
				DRAWN BY: R.Z., G.A. DATE : Aug. — 1992 DRAWING FILE: MAIN.DWG **FIGURE: 19 f**



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

Instrument : IP-6
C2 Electrode To North
Contour Interval : 5.0 msec
10 Point Filter Presentation

100m 50m 0m 100m 200m

GRANGES INC.

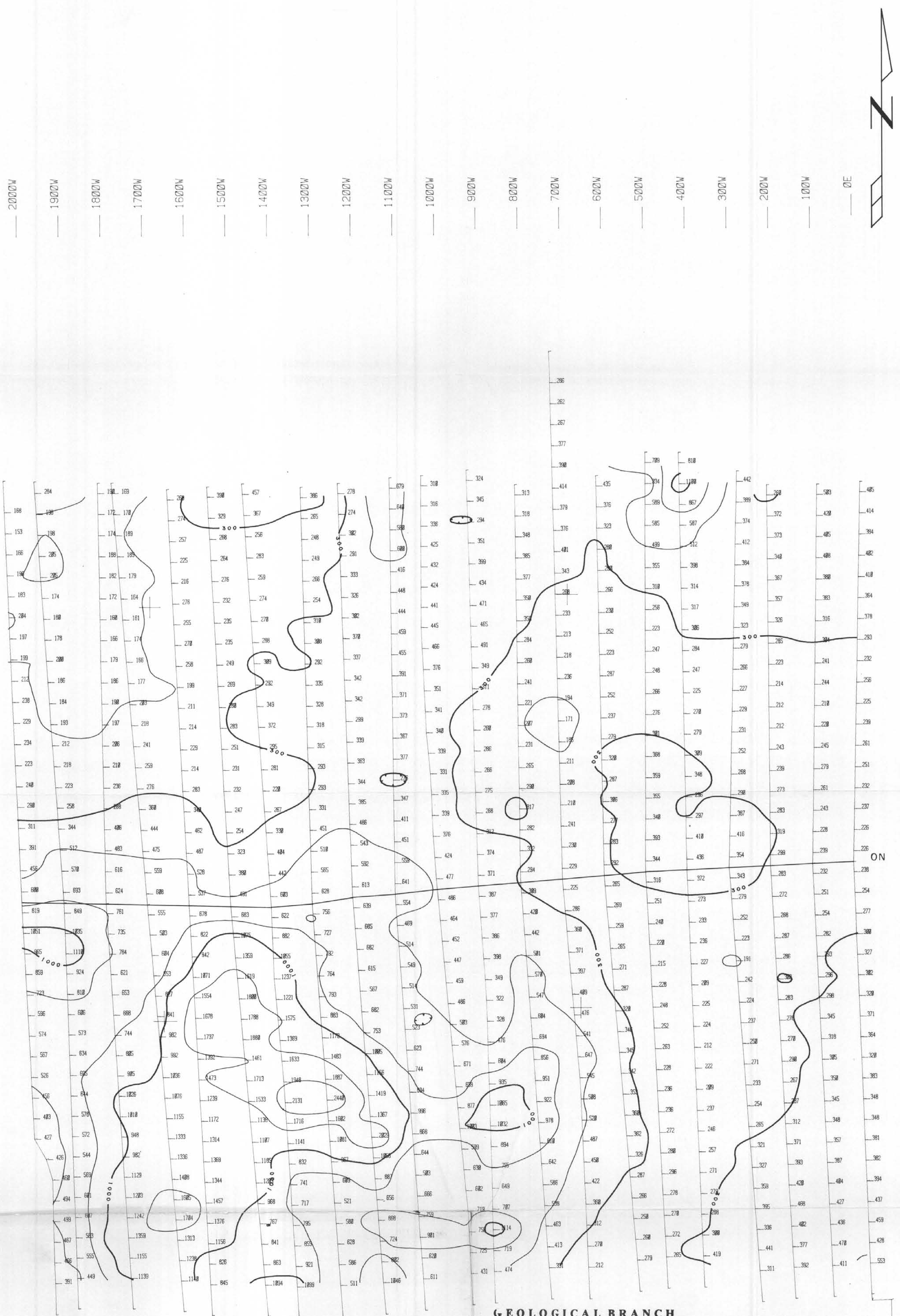
INDUCED POLARIZATION SURVEY

BLACKWATER-DAVIDSON Property

PEM Claims, Omineca M.D., B.C.

SCALE = 1 : 5000 DATE : Aug/Sept/92
SURVEY BY : PAC NTS : 93F/2
FILE: MPIP

Pacific Geophysical Ltd.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654

PART 2 OF 2

Instrument : IP-6
C2 Electrode To North
Contour Interval : log.
10 Point Filter Presentation

100m 50m 0m 100m 200m

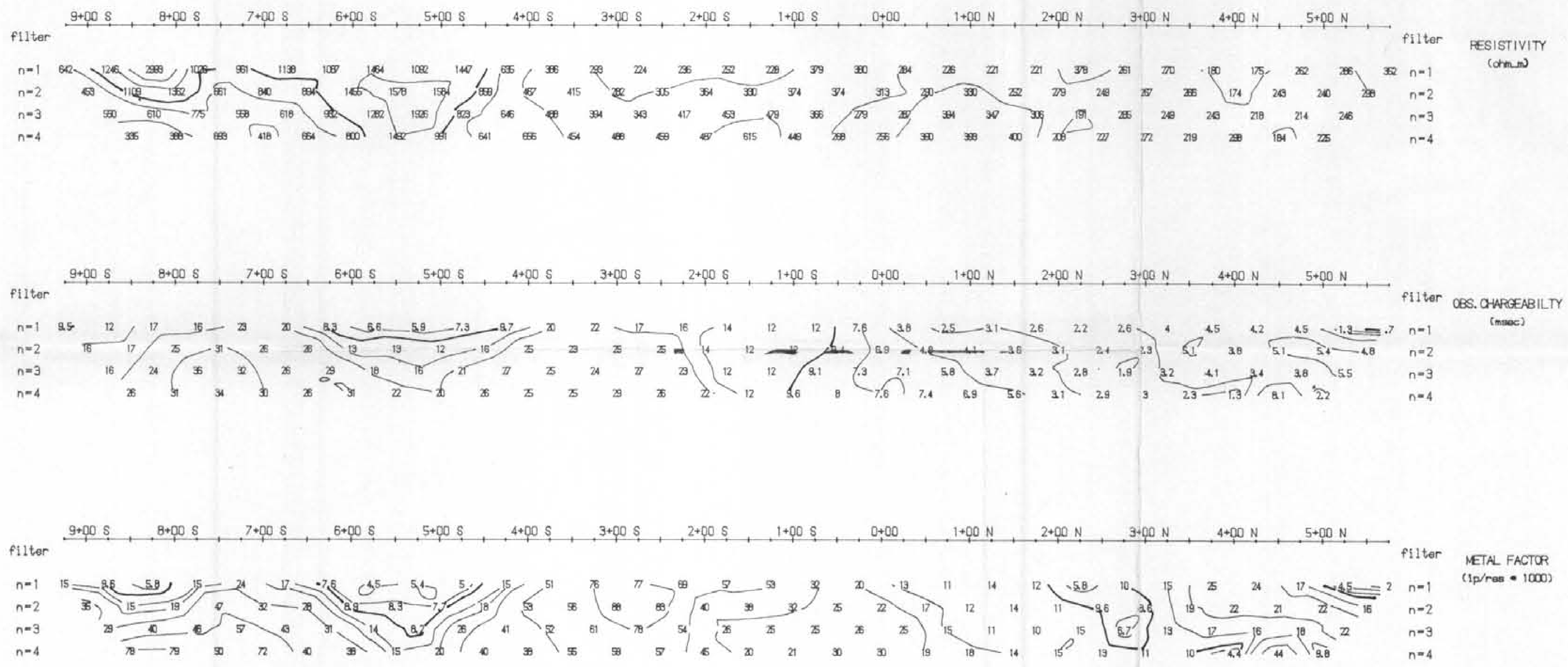
GRANGES INC.

RESISTIVITY SURVEY

BLACKWATER-DAVIDSON Property
PEM Claims, Omineca M.D., B.C.

SCALE = 1 : 5000 DATE : Aug/Sept/92
SURVEY BY : PAC NTS : 93F/2
FILE: MPR
Pacific Geophysical Ltd.

FIGURE: 24



Line 900 W

Dipole-Dipole Array

a =50m
n = 1,2,3,4

plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

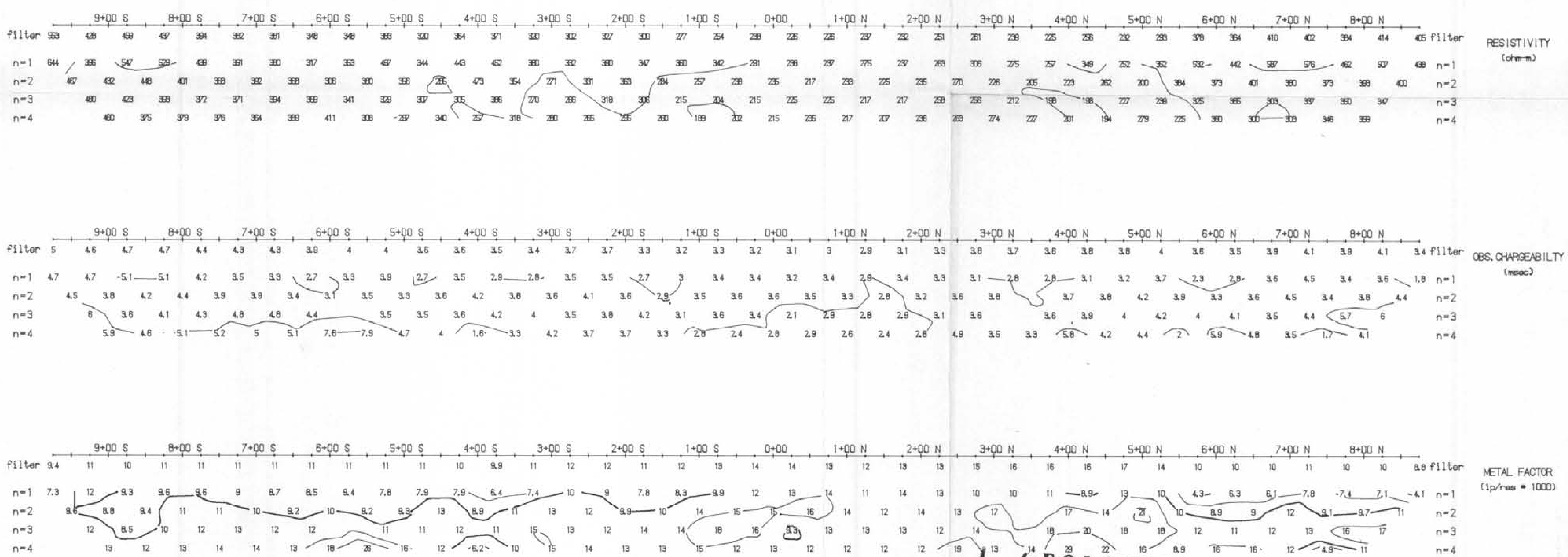
GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 900 W
PEM Claims, Omineca M.D.,B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



Line 0

Dipole-Pole Array

a =50m
n = 1,2,3,4

plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

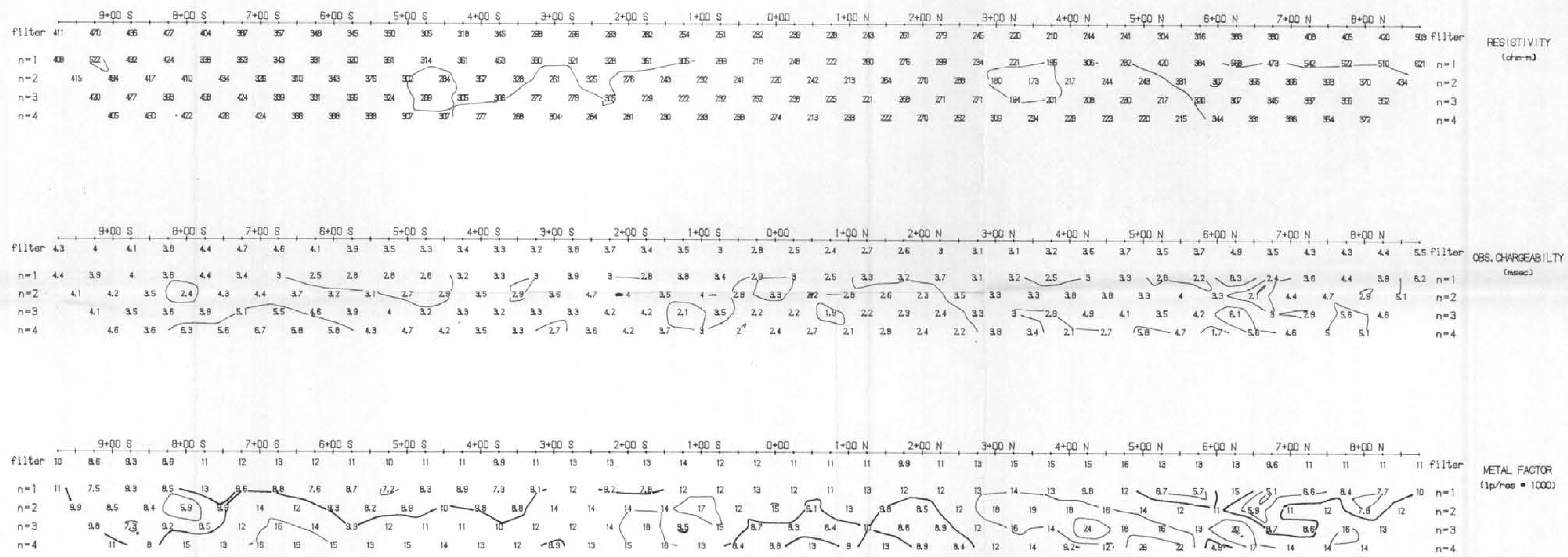
INDUCED POLARIZATION SURVEY
Line 0
PEM Claims, Omineca M.D.,B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada

FIGURE: 25 a



Line 100 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 100 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

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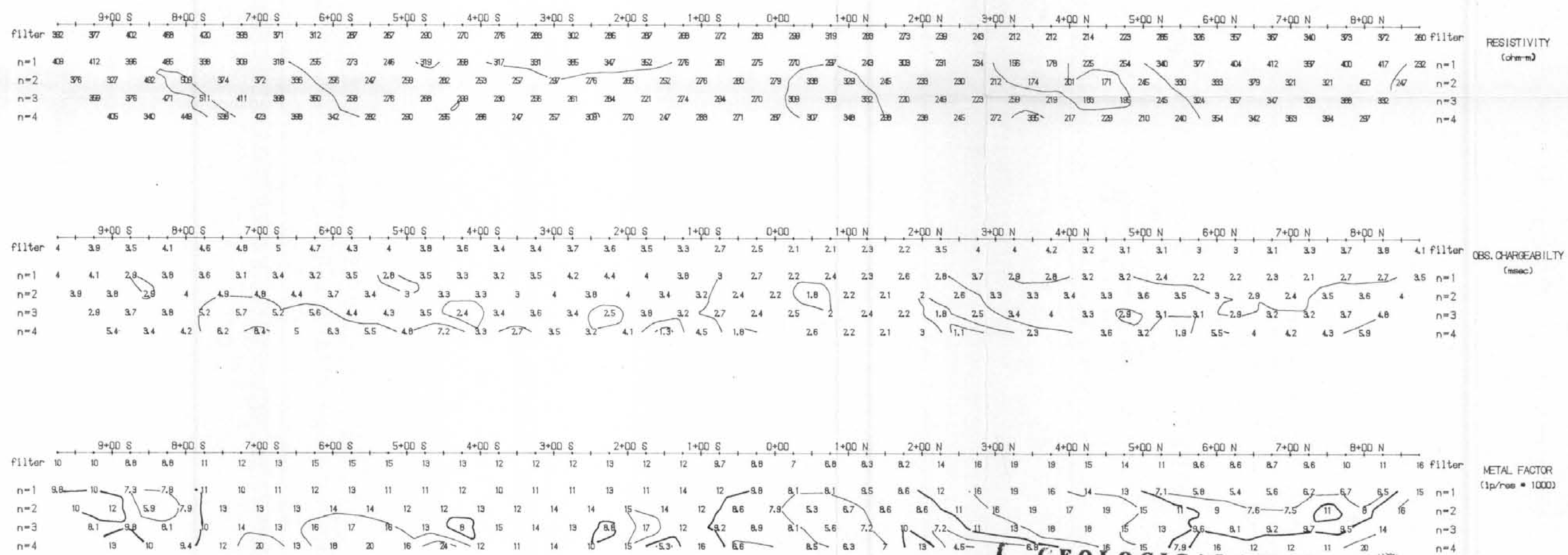

Line 200 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 200 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

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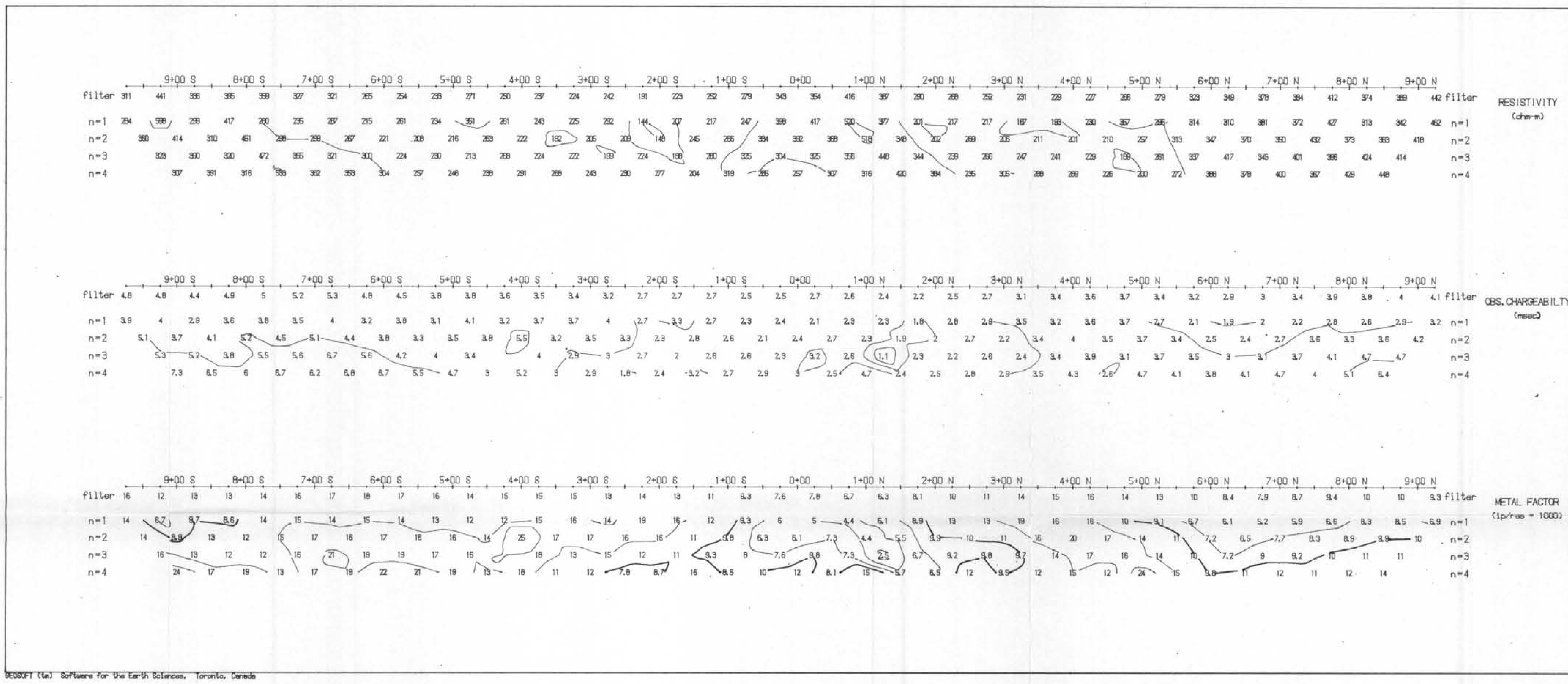
GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654 PART 2 OF 2

FIGURE: 25b



Line 300 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

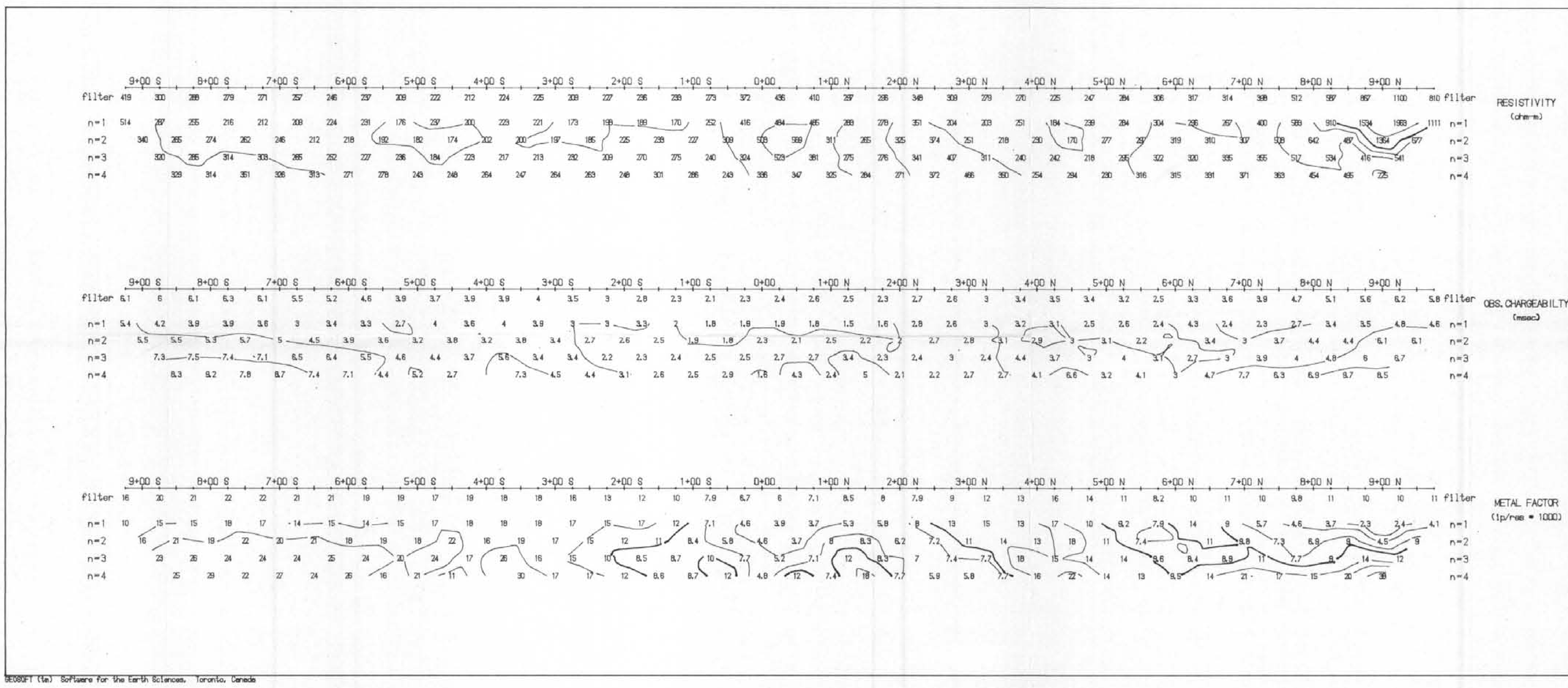
Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 300 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical



Line 400 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

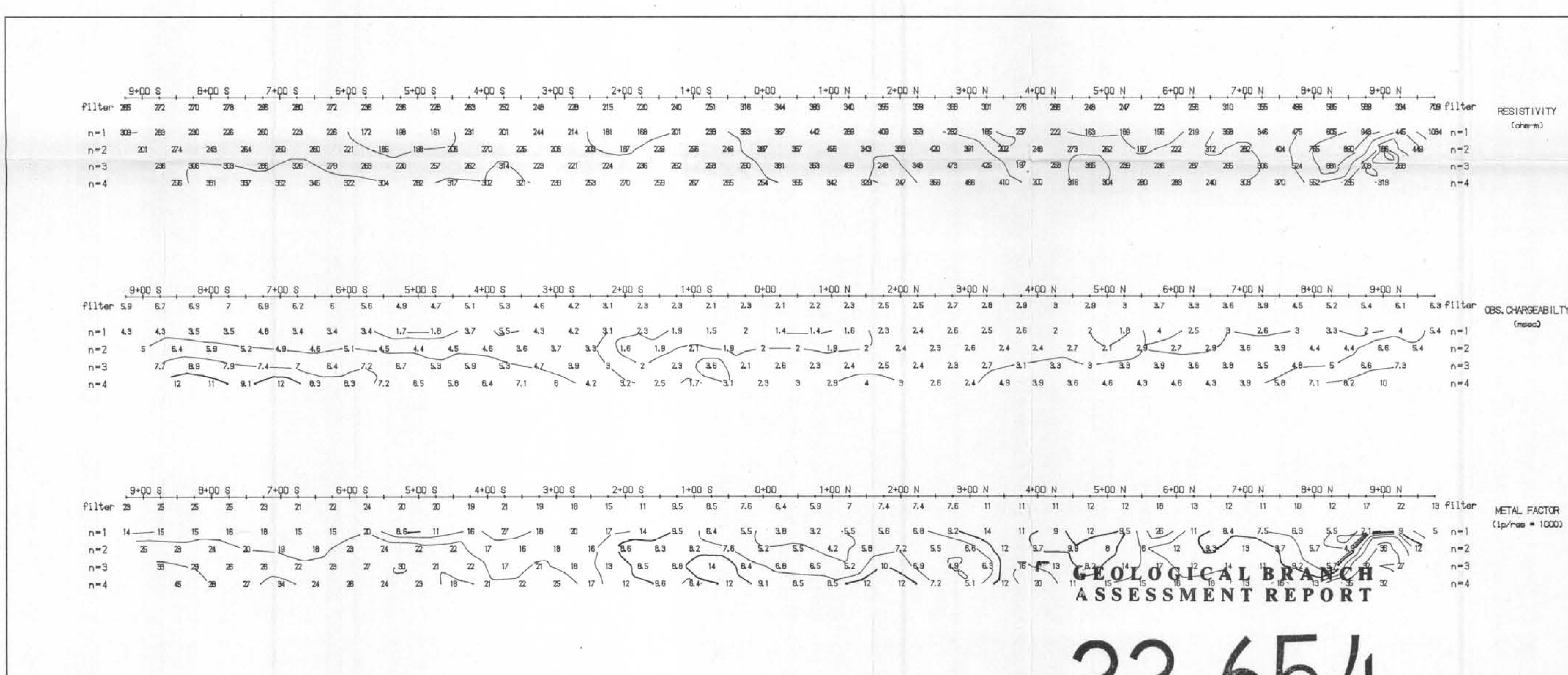
Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 400 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical



Line 500 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 500 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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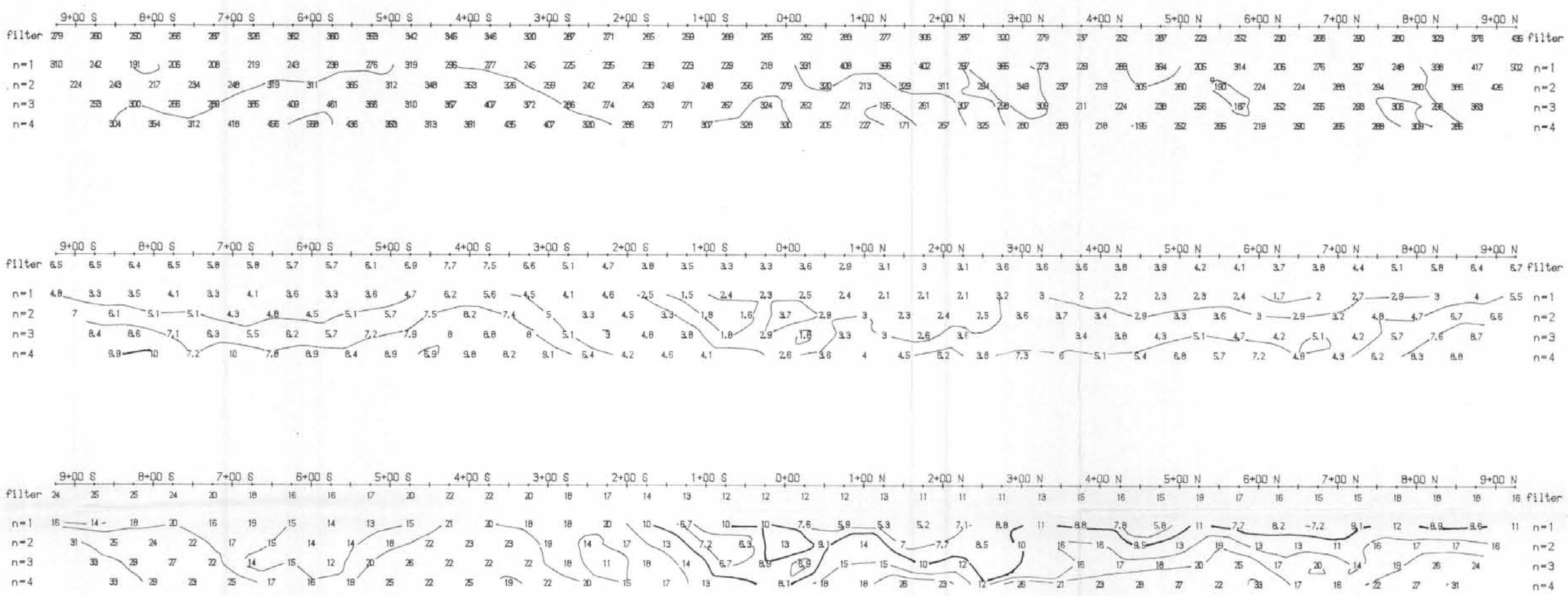
FIGURE: 25c



Line 600 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 600 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

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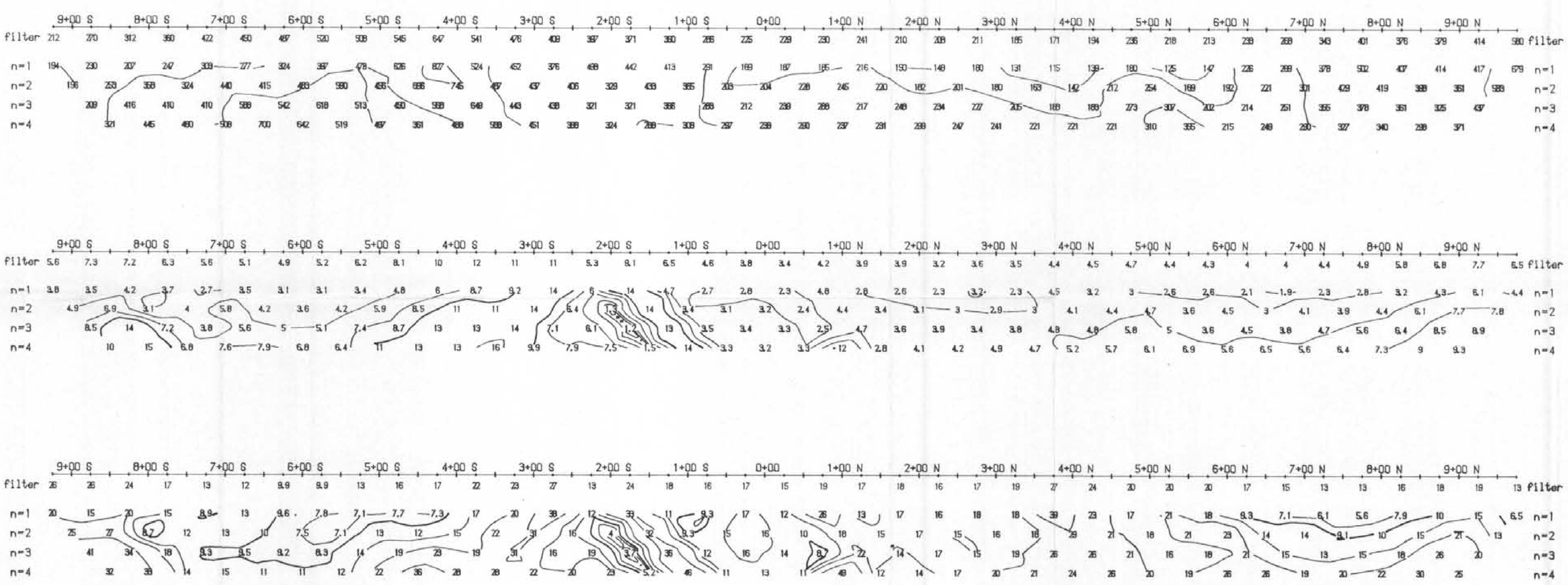


Line 700 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

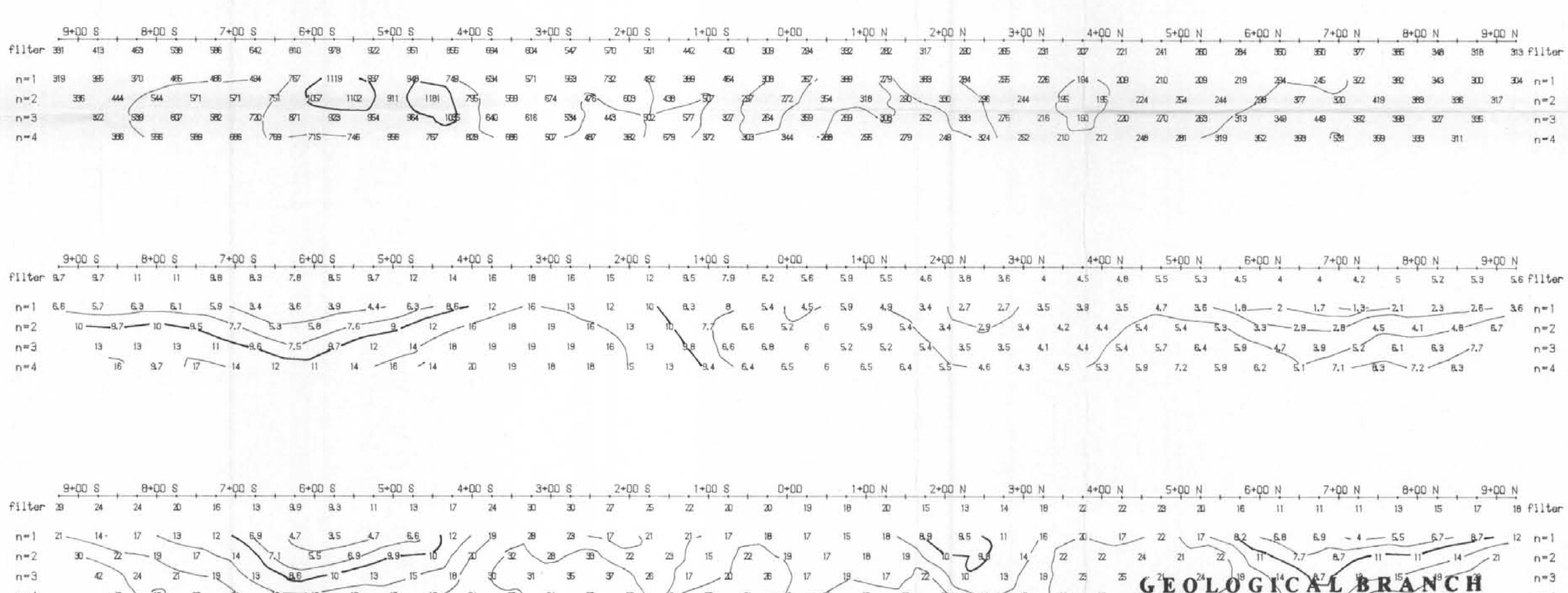
GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 700 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



Line 800 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 800 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOLOGICAL BRANCH
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FIGURE: 25 d

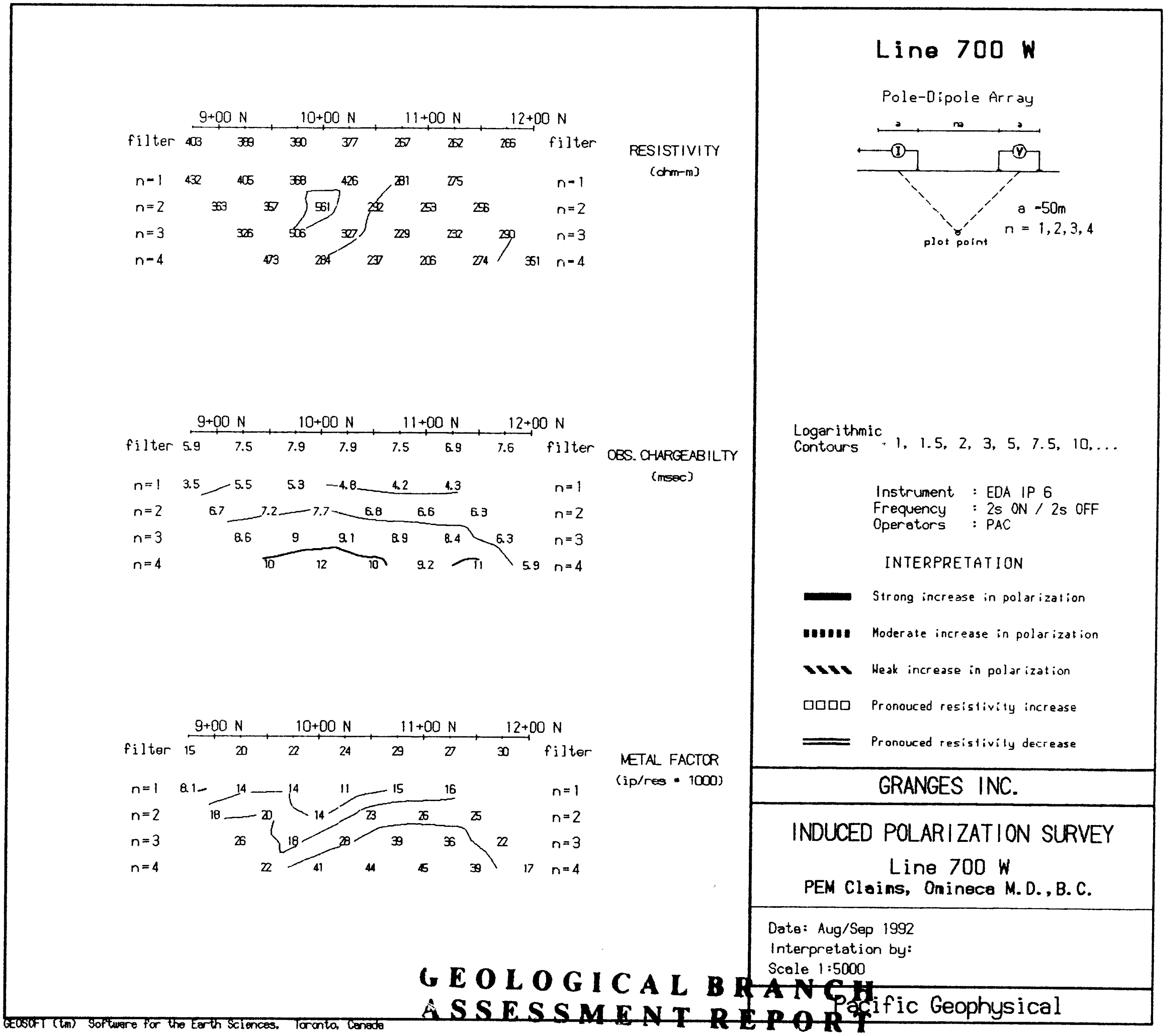
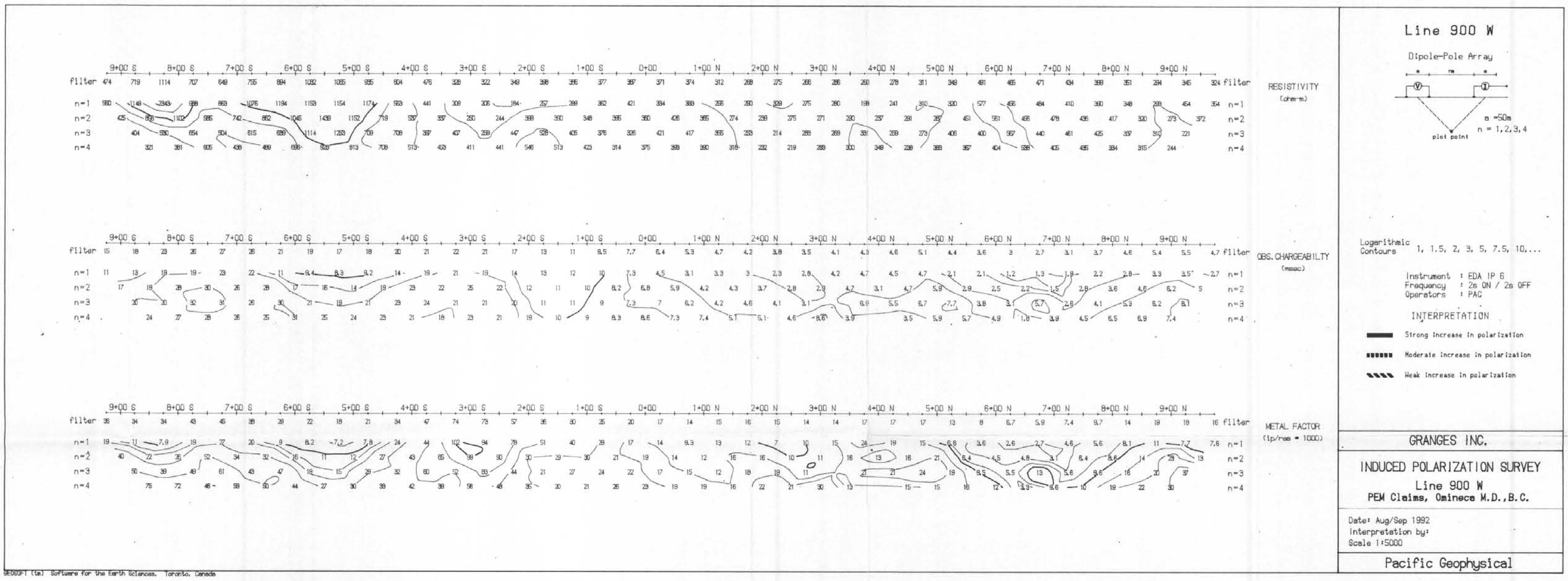
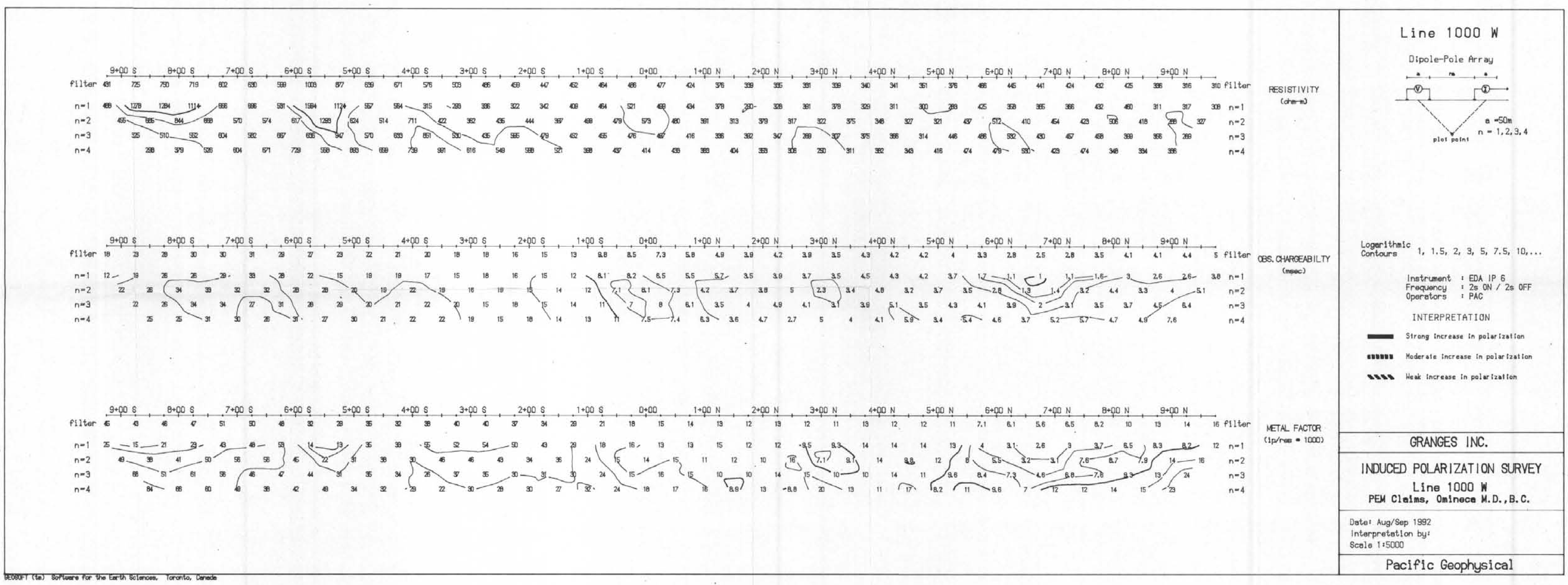
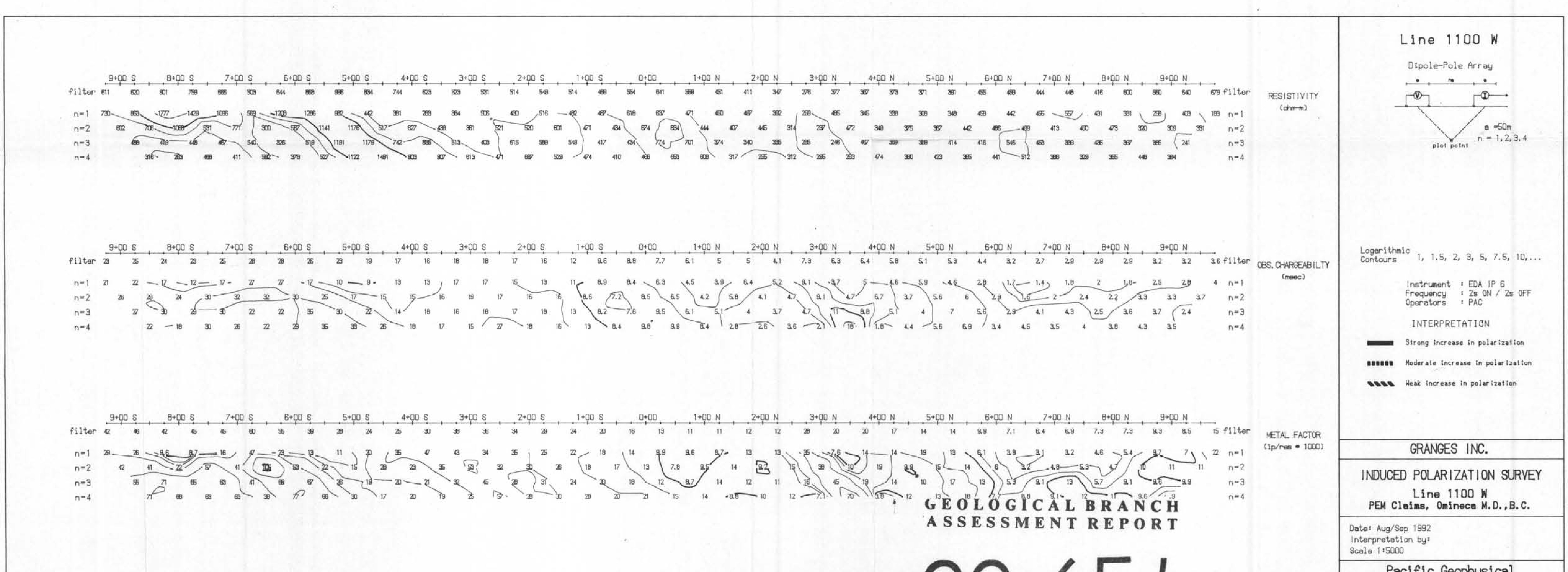

9+00 N
10+00 N
11+00 N
12+00 N
filter 403 389 390 377 267 262 266 filter
RESISTIVITY
(ohm-m)
n=1 432 405 368 426 281 275 n=1
n=2 363 357 561 292 253 256 n=2
n=3 326 506 327 229 232 290 n=3
n=4 473 284 237 206 274 351 n=4
filter 5.9 7.5 7.9 7.9 7.5 6.9 7.6 filter
OBS. CHARGEABILTY
(msec)
n=1 3.5 5.5 5.3 4.8 4.2 4.3 n=1
n=2 6.7 7.2 7.7 6.8 6.6 6.3 n=2
n=3 8.6 9 9.1 8.9 8.4 6.3 n=3
n=4 10 12 10 9.2 11 5.9 n=4
filter 15 20 22 24 29 27 30 filter
METAL FACTOR
(ip/res * 1000)
n=1 8.1 14 14 11 15 16 n=1
n=2 18 20 14 23 26 25 n=2
n=3 26 18 28 39 36 22 n=3
n=4 22 41 44 45 39 17 n=4
Line 700 W
Pole-Dipole Array
a na a
plot point
a =50m
n = 1,2,3,4
Logarithmic Contours • 1, 1.5, 2, 3, 5, 7.5, 10,...
Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC
INTERPRETATION
Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization
Pronouced resistivity increase
Pronouced resistivity decrease
GRANGES INC.
INDUCED POLARIZATION SURVEY
Line 700 W
PEM Claims, Omineca M.D., B.C.
Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000
Pacific Geophysical
GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada

FIGURE: 25 e



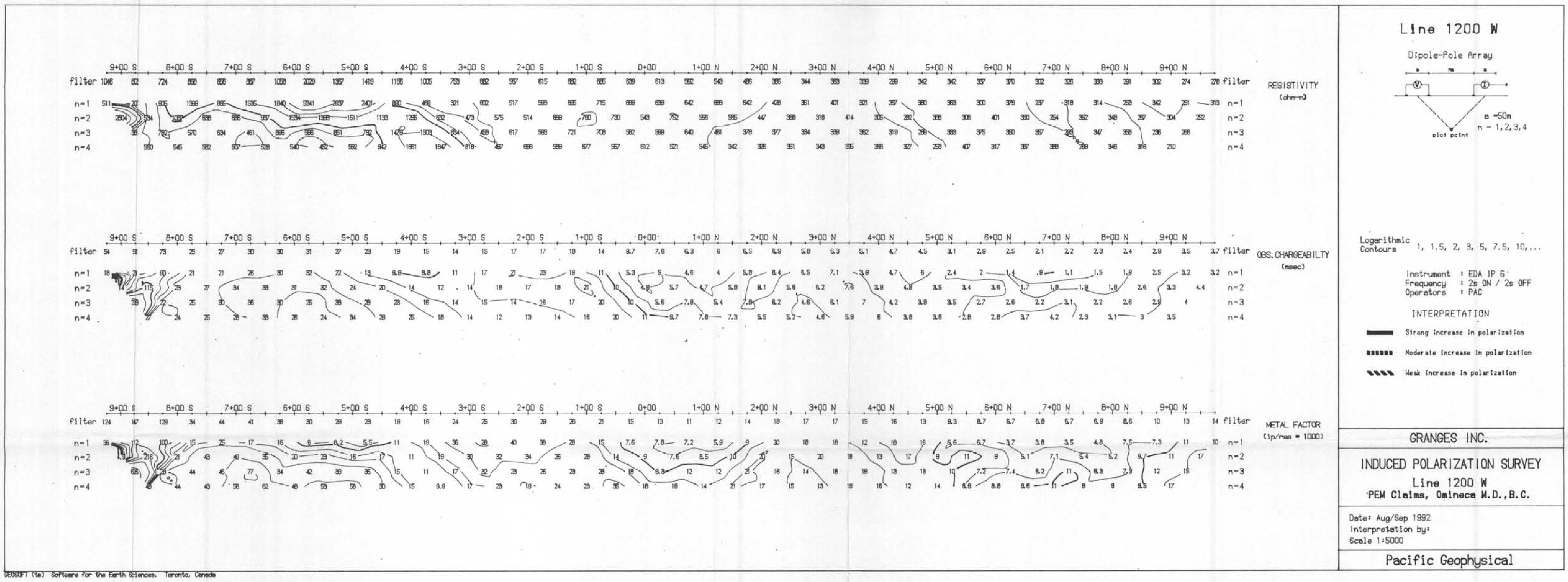


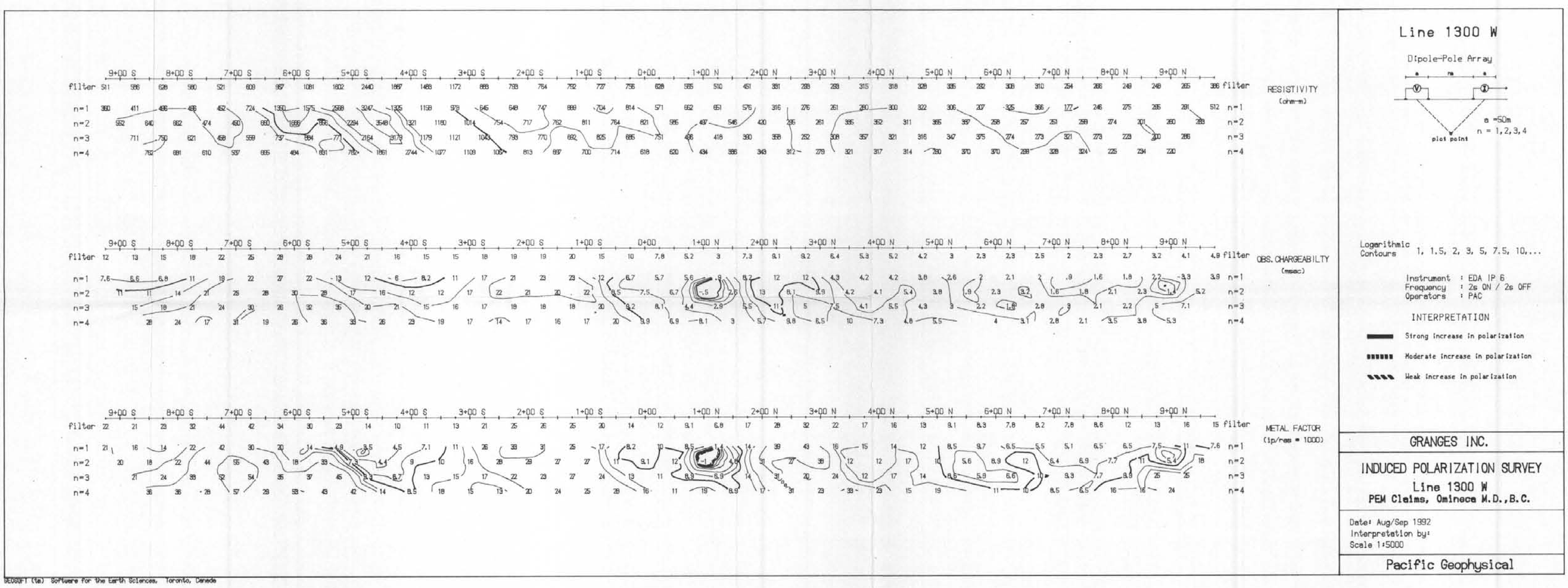


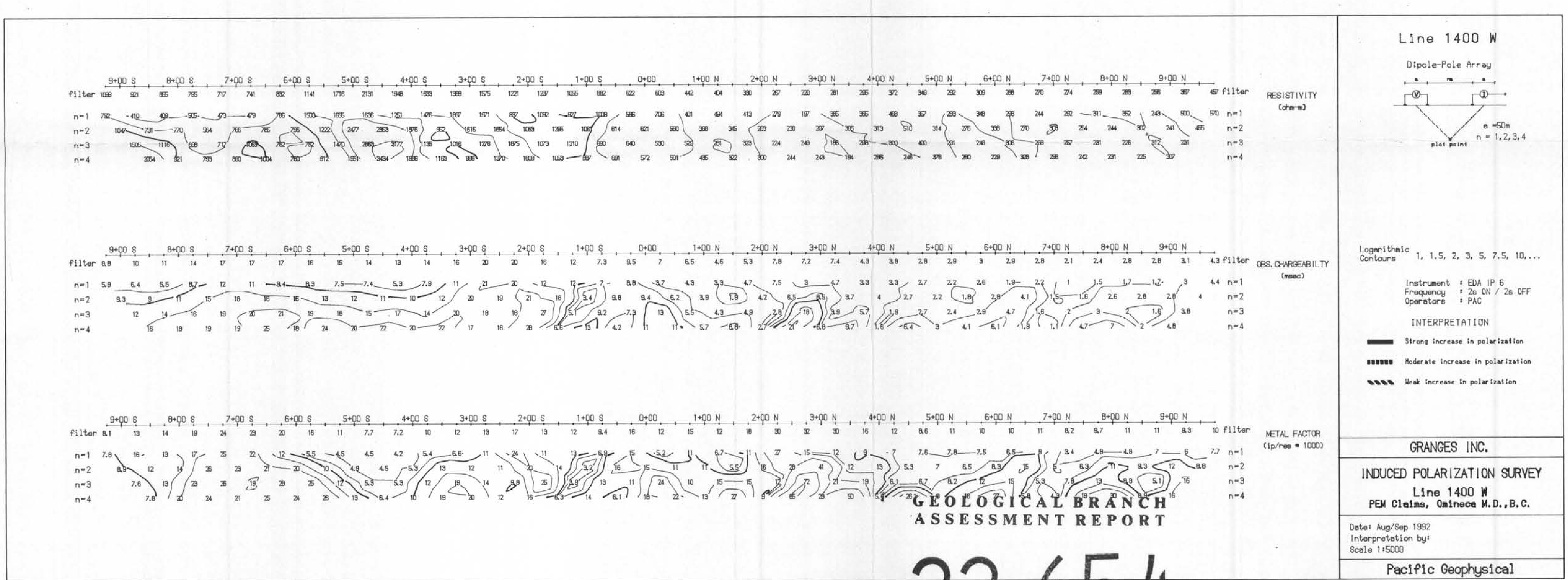
GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654 PART 2 OF 2

FIGURE: 25 f



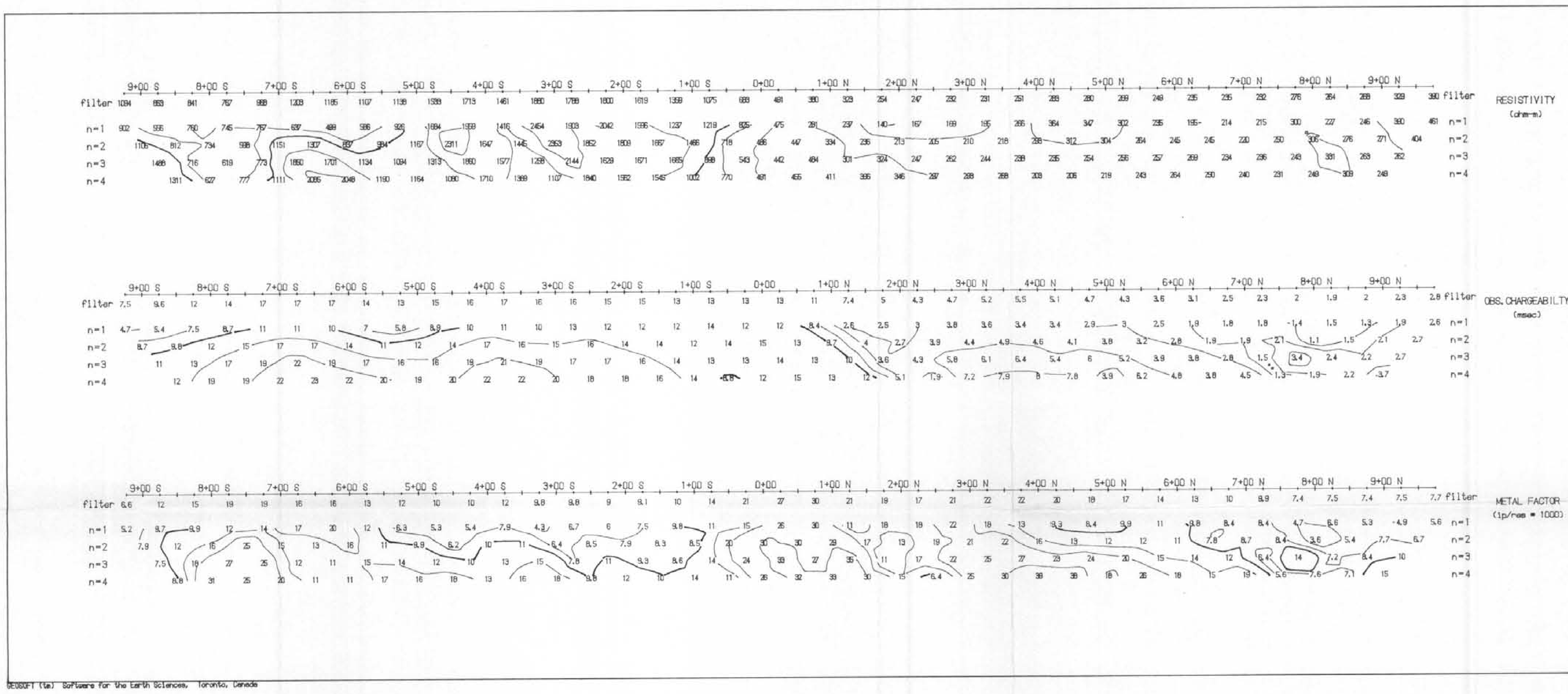




GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654 PART 2 OF 2

FIGURE: 25 9



Line 1500 W

Dipole-Pole Array

a = 50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 1500 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

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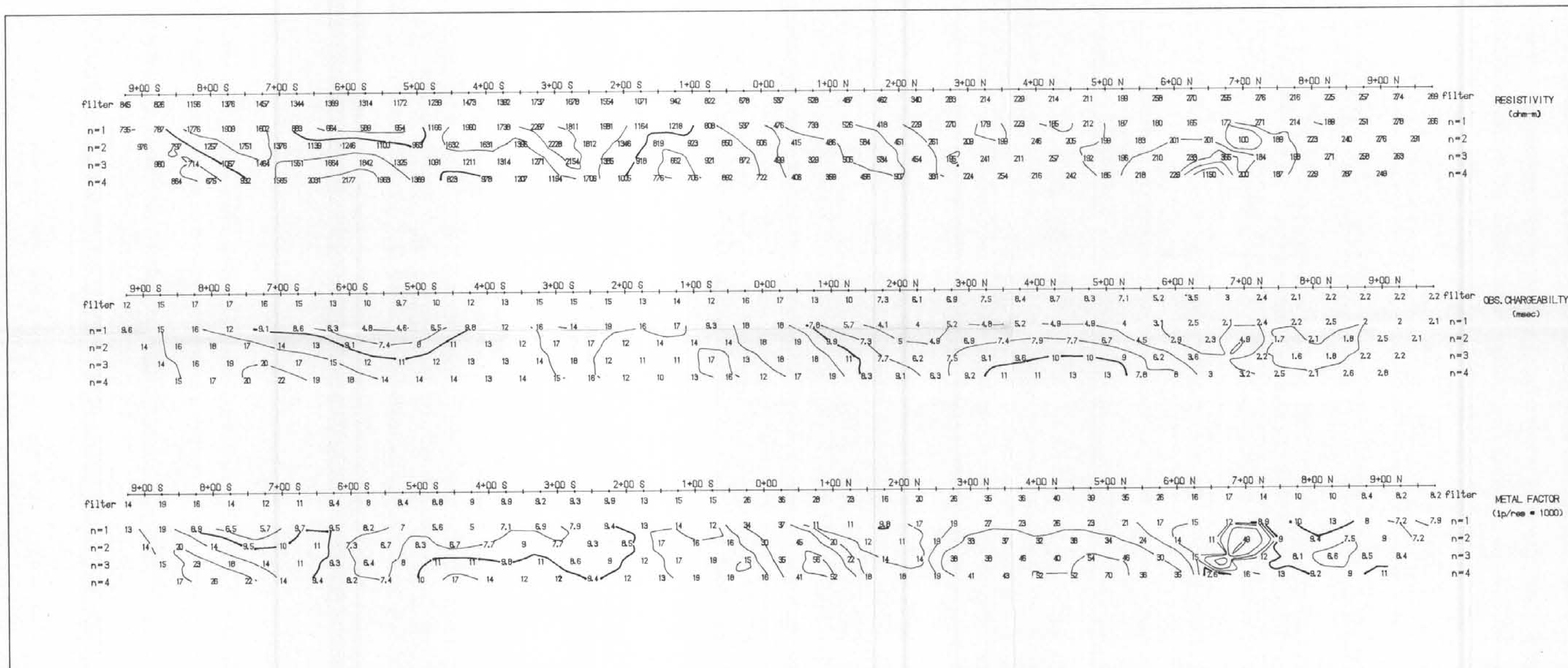

Line 1600 W

Dipole-Pole Array

a = 50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 1600 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

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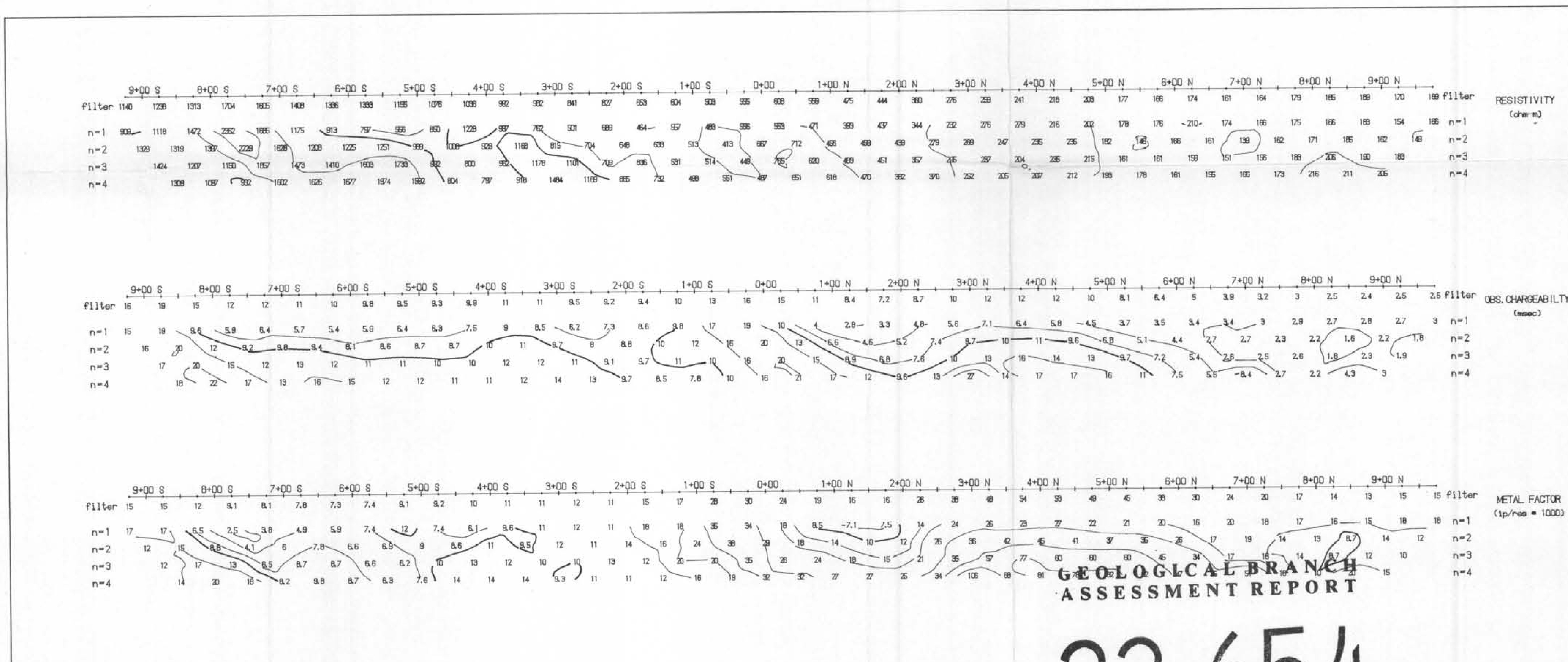

Line 1700 W

Dipole-Pole Array

a = 50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 1700 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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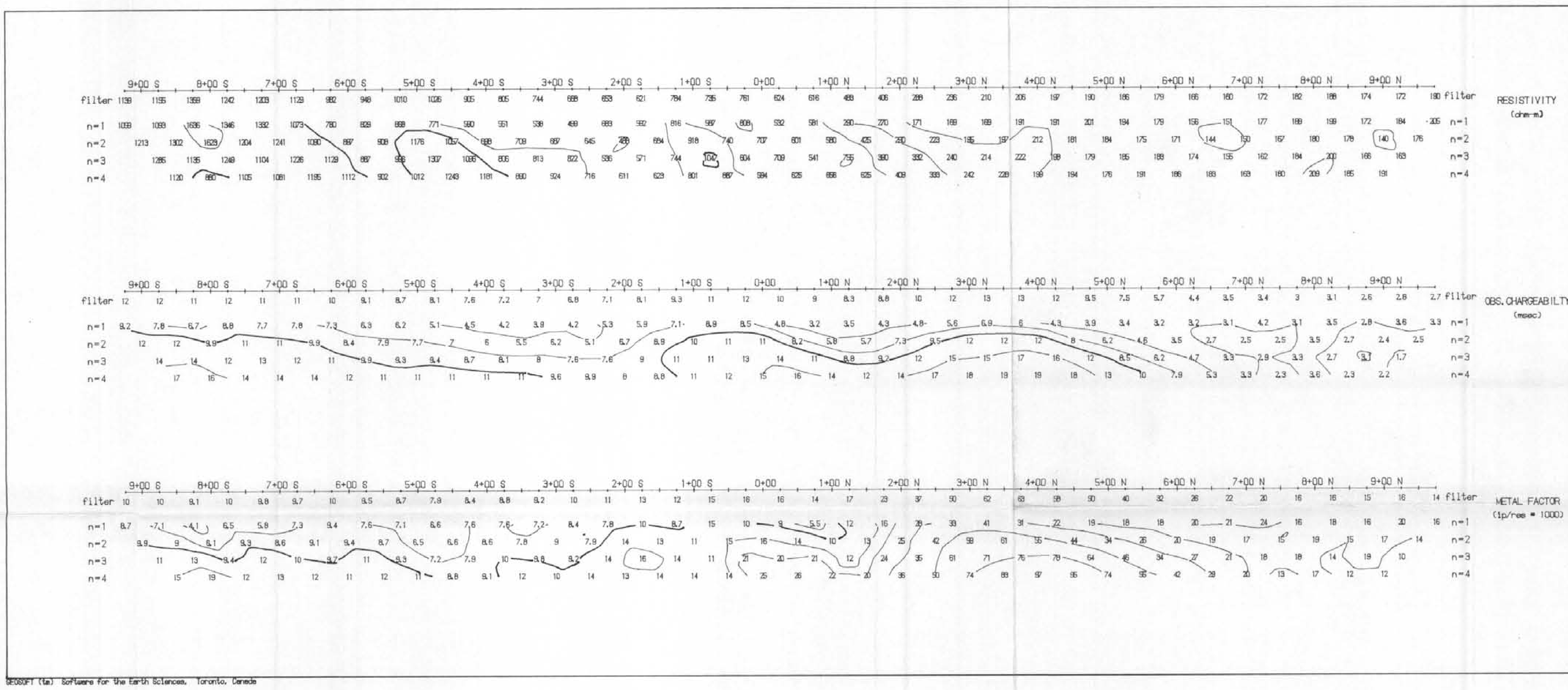
GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada

FIGURE: 25 h



Line 1800 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

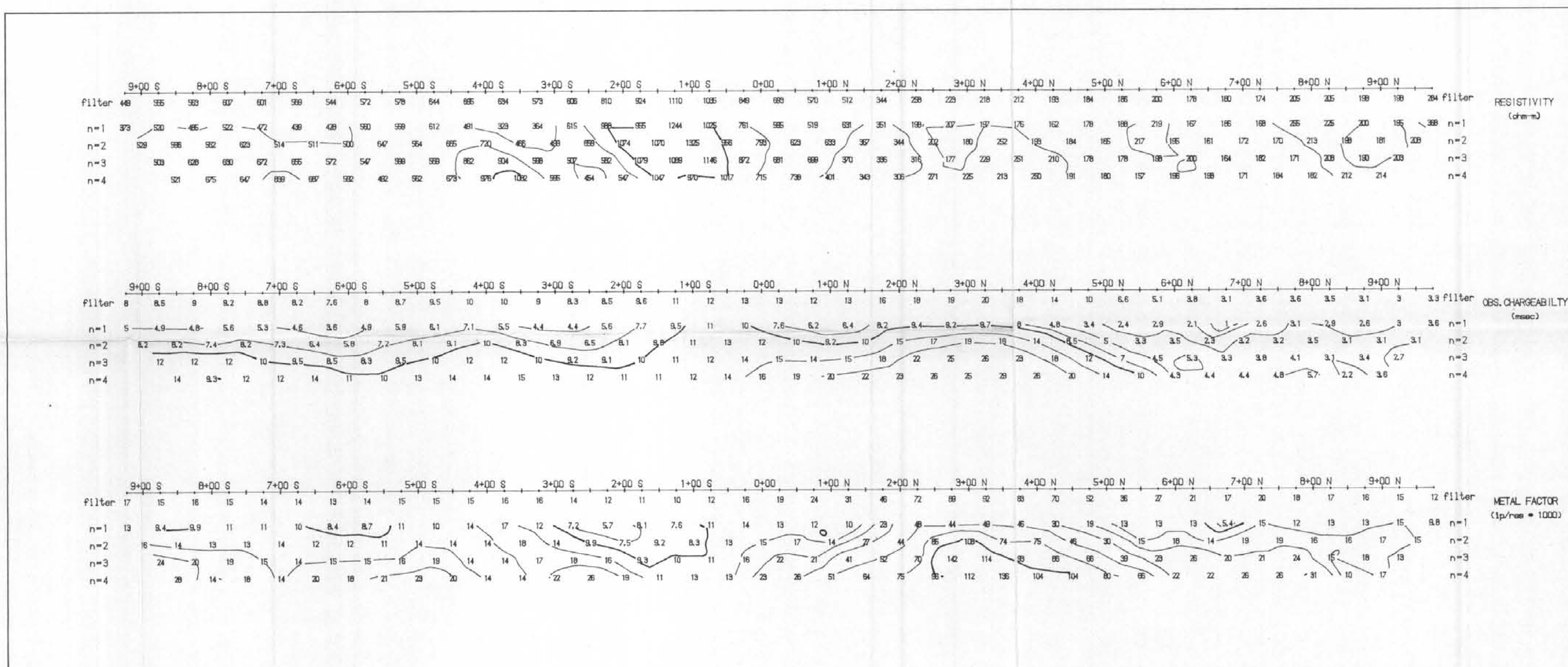
Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 1800 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical



Line 1900 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

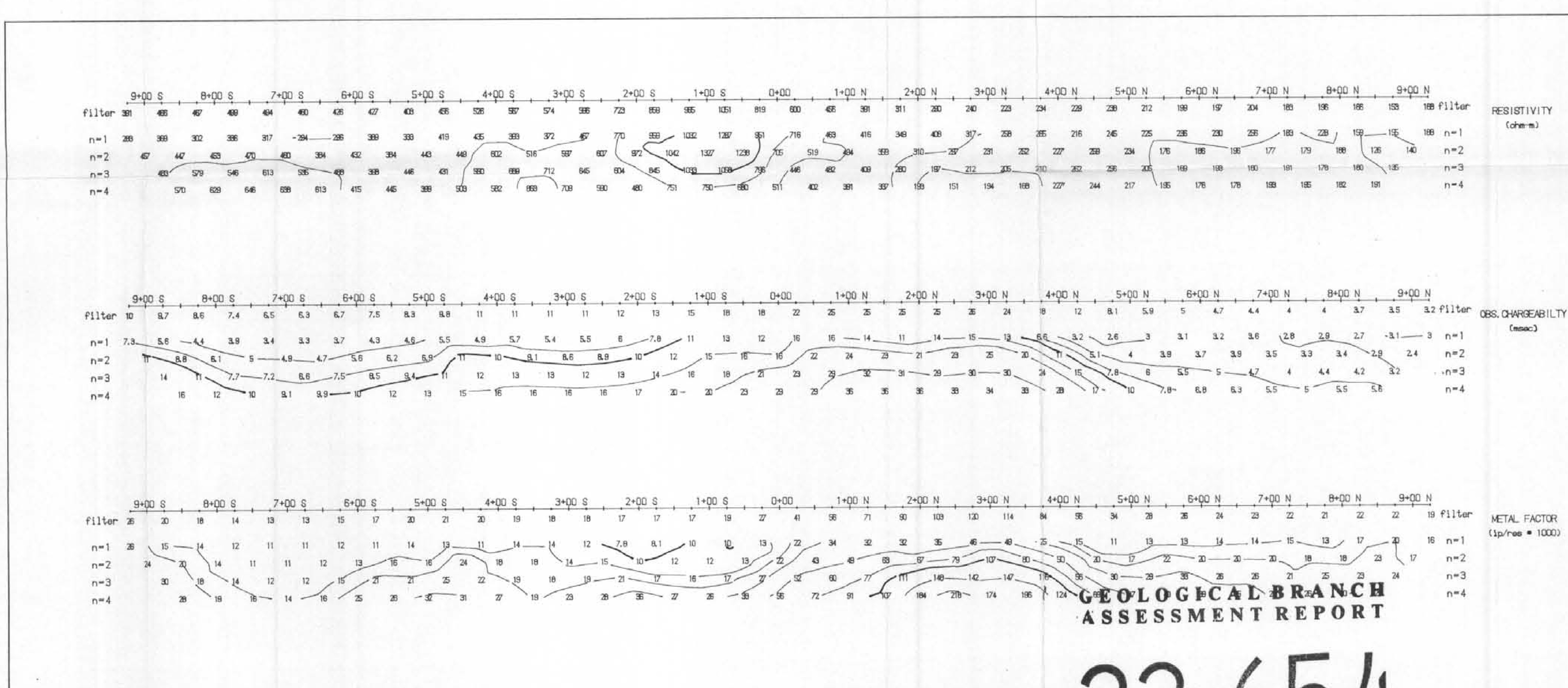
Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 1900 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical



Line 2000 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 2000 W
PEM Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
Interpretation by:
Scale 1:5000

Pacific Geophysical

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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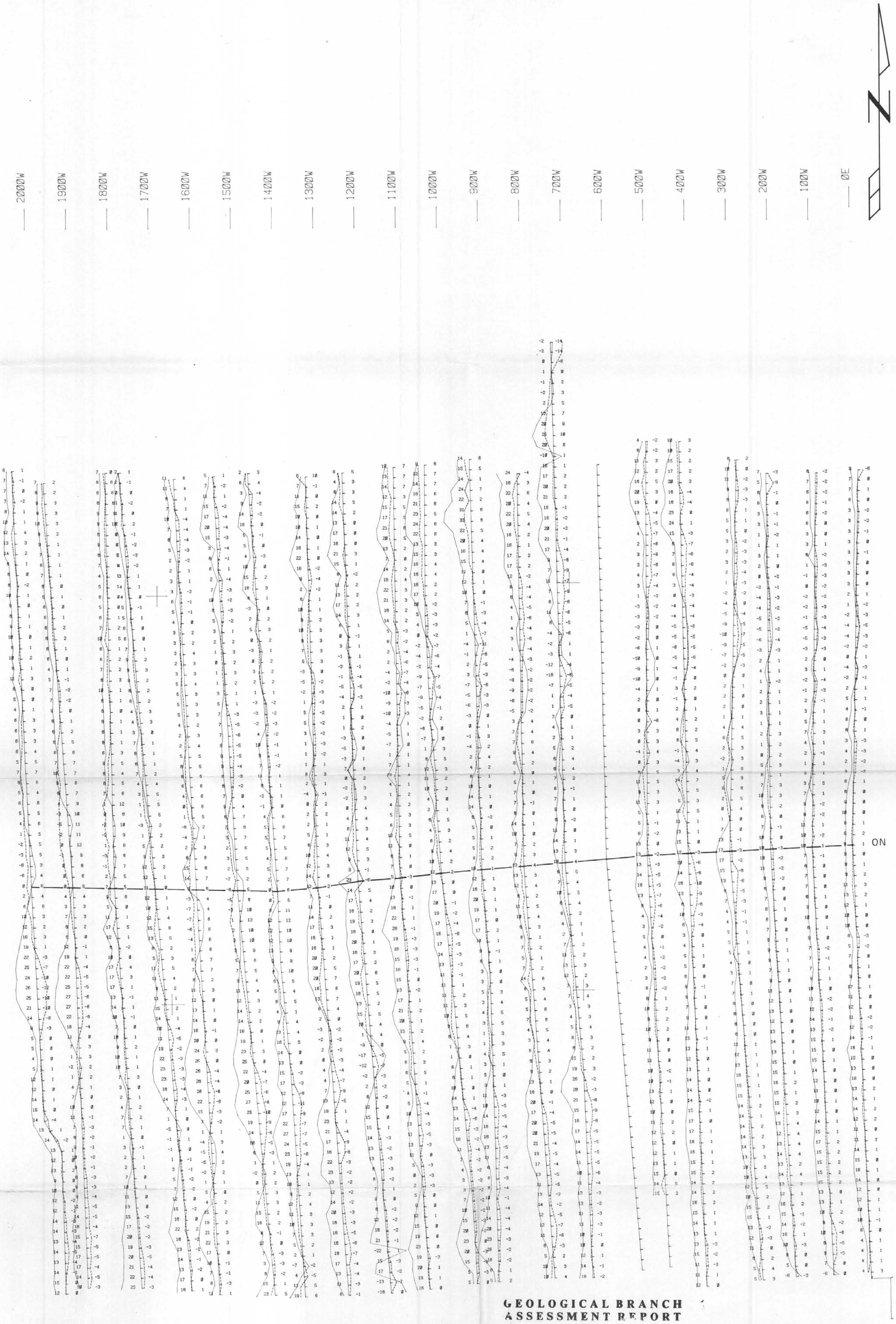
FIGURE: 25 i



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,654 PART 2 OF 2

GRANGES INC.

VLF-EM SURVEY

BLACKWATER-DAVIDSON Property

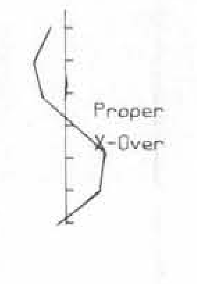
PEM Claims, Omineca M.D., B.C.

SCALE = 1 : 5000 DATE : Aug/Sept/92
SURVEY BY : PAC NTS : 93F/2
FILE: VPAP FREQ.: 21.4 khz

Pacific Geophysical Ltd.

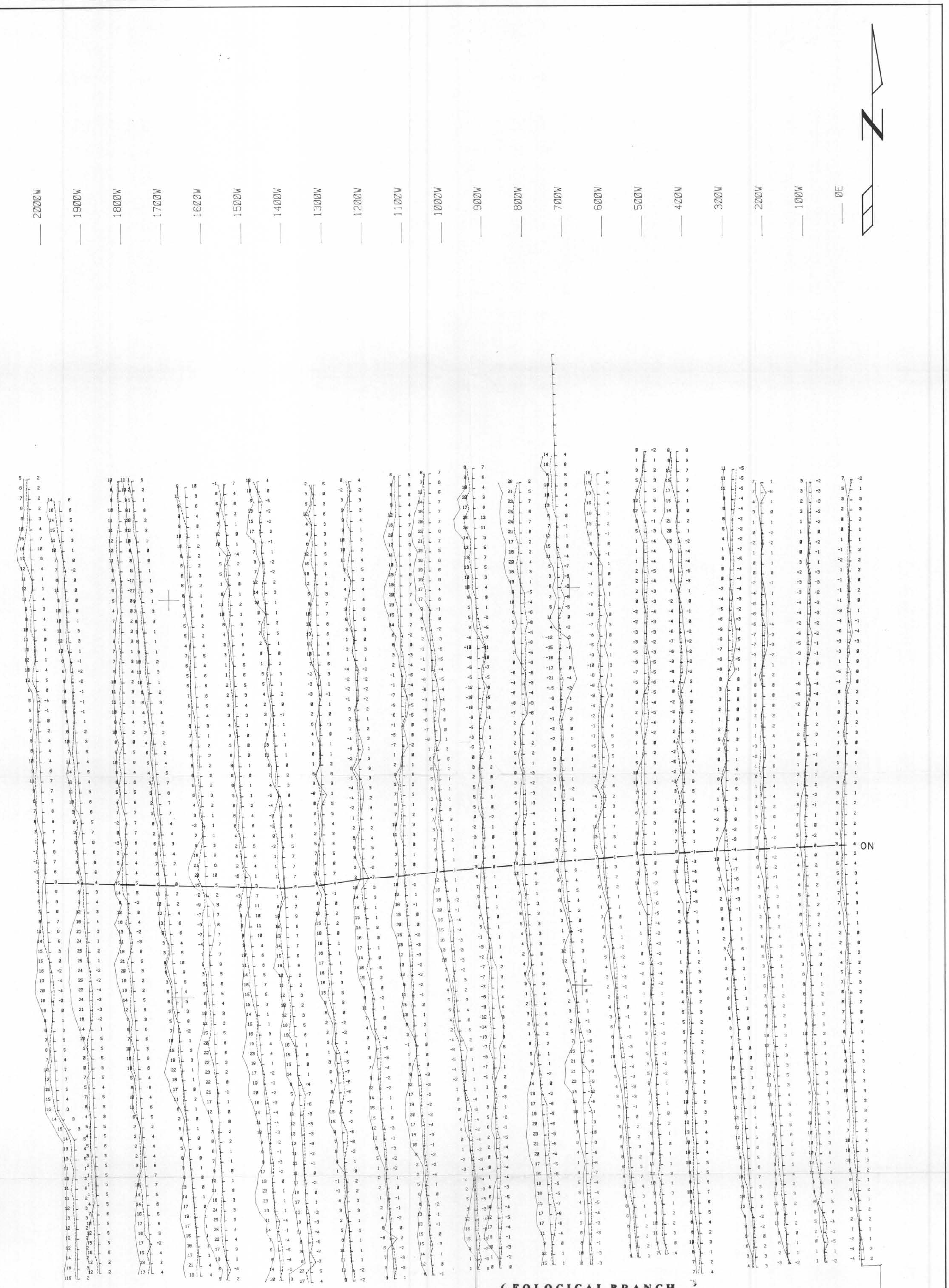
Instrument : GSM-19
Vertical Scale Inphase/Quad : 1cm = 25%
Tx Location : NSS Annapolis, Md.

In-phase : ______
Quadrature : ....



100m 50m 0m 100m 200m

FIGURE: 26



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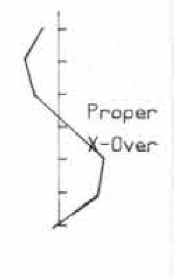


Instrument : GSM-19
Vertical Scale Inphase/Quad : 1cm = 25%
Tx Location : NLK Hawaii
In-phase : ______
Quadrature : ....

100m 50m 0m 100m 200m

GRANGES INC.

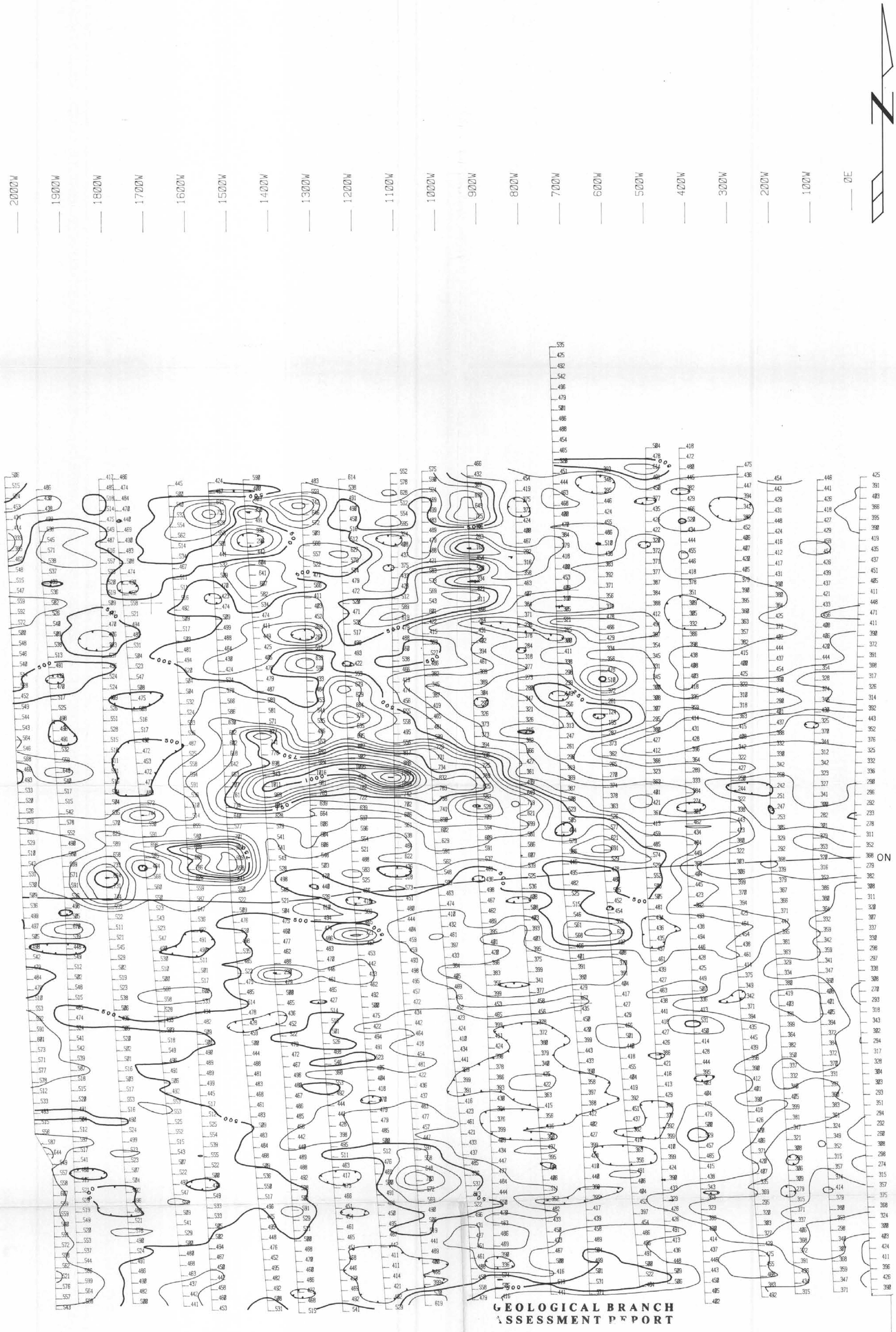
VLF-EM SURVEY

BLACKWATER-DAVIDSON Property
PEM Claims, Omineca M.D., B.C.

SCALE = 1 : 5000	DATE : Aug/Sept/92
SURVEY BY : PAC	NTS : 93F/2
FILE: VPHP	FREQ.: 23.4 khz

Pacific Geophysical Ltd.

FIGURE: 27



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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PART 2 OF 2

Instrument	: GSM-19
Field	: TOTAL
Datum	: 56500 nT
Contour Interval	: 50nT

100m 50m 0m 100m 200m

GRANGES INC

MAGNETOMETER SURVEY

BLACKWATER-DAVIDSON Property

PEM Claims, Omineca M.D., B.C.

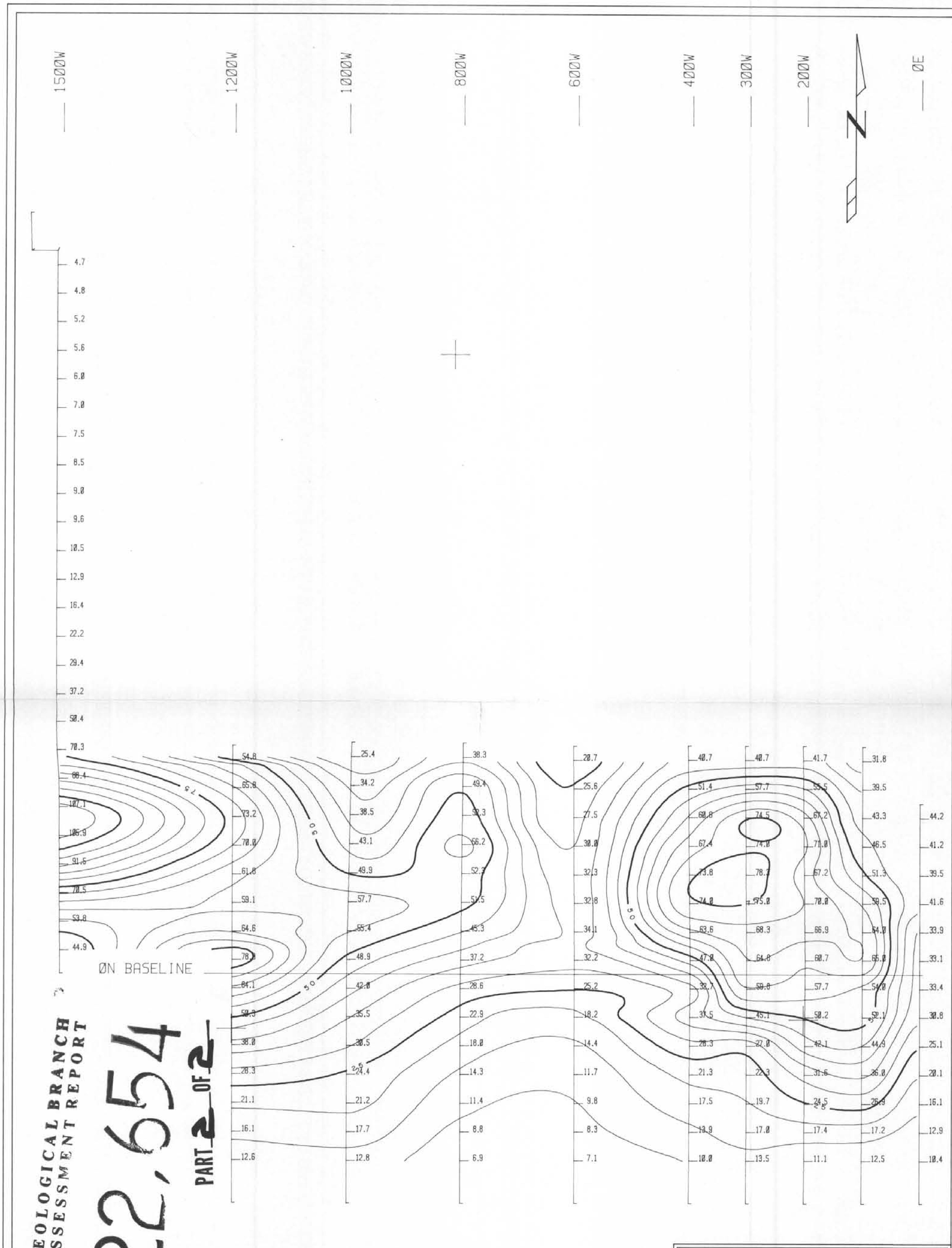
SCALE = 1 : 5000 DATE : Aug/Sept/92

SURVEY BY : SJM&ACS NTS : 93F/2

FILE: MPMAG

Pacific Geophysical Ltd.

FIGURE: 28



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ASSESSMENT REPORT

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C2 Electrode To North

Instrument : IP-6

Contour Interval : 5 msec

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INDUCED POLARIZATION SURVEY

10 Point Filter

BLACKWATER-DAVIDSON Property

DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 5000 DATE : 9/16/92

SURVEY BY : PAC NTS : 93F/2

FILE: MDBIP

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FIGURE: 29

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C2 Electrode To North

Instrument : IP-6

Contour Interval : log.

GRANGES INC.

RESISTIVITY SURVEY

10 Point Filter

BLACKWATER-DAVIDSON Property

DEB CLAIMS, Omineca M.D.,B.C.

SCALE = 1 : 5000	DATE : 9/16/92
SURVEY BY : PAC	NTS : 93F/2

FILE: MDBR

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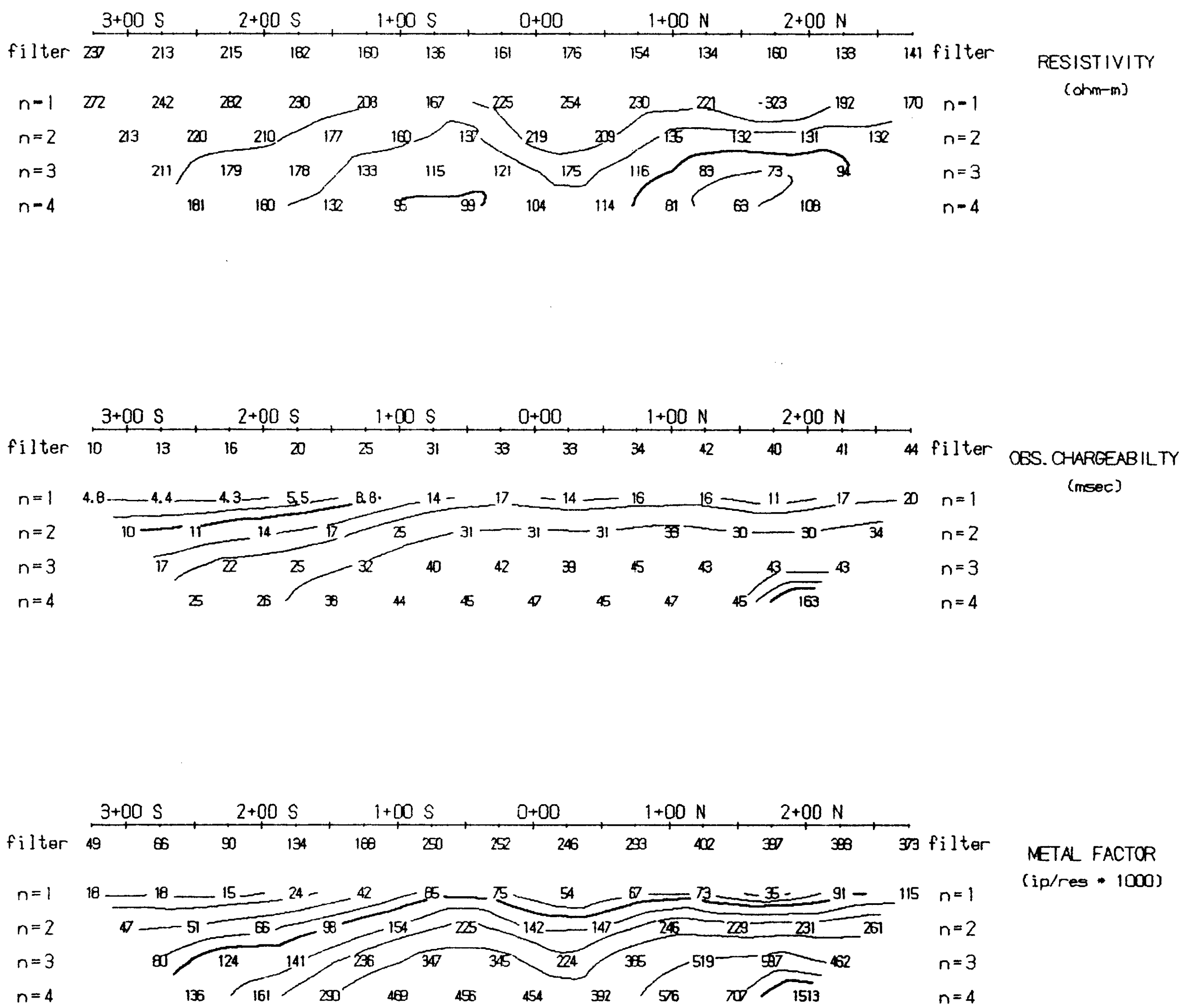
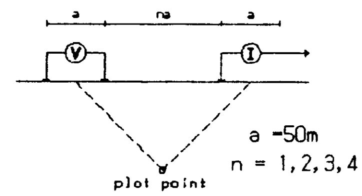
FIGURE: 30



Line 0

Dipole-Pole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

GRANGES INC.

INDUCED POLARIZATION SURVEY
Line 0
DEB Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
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FIGURE: 31a

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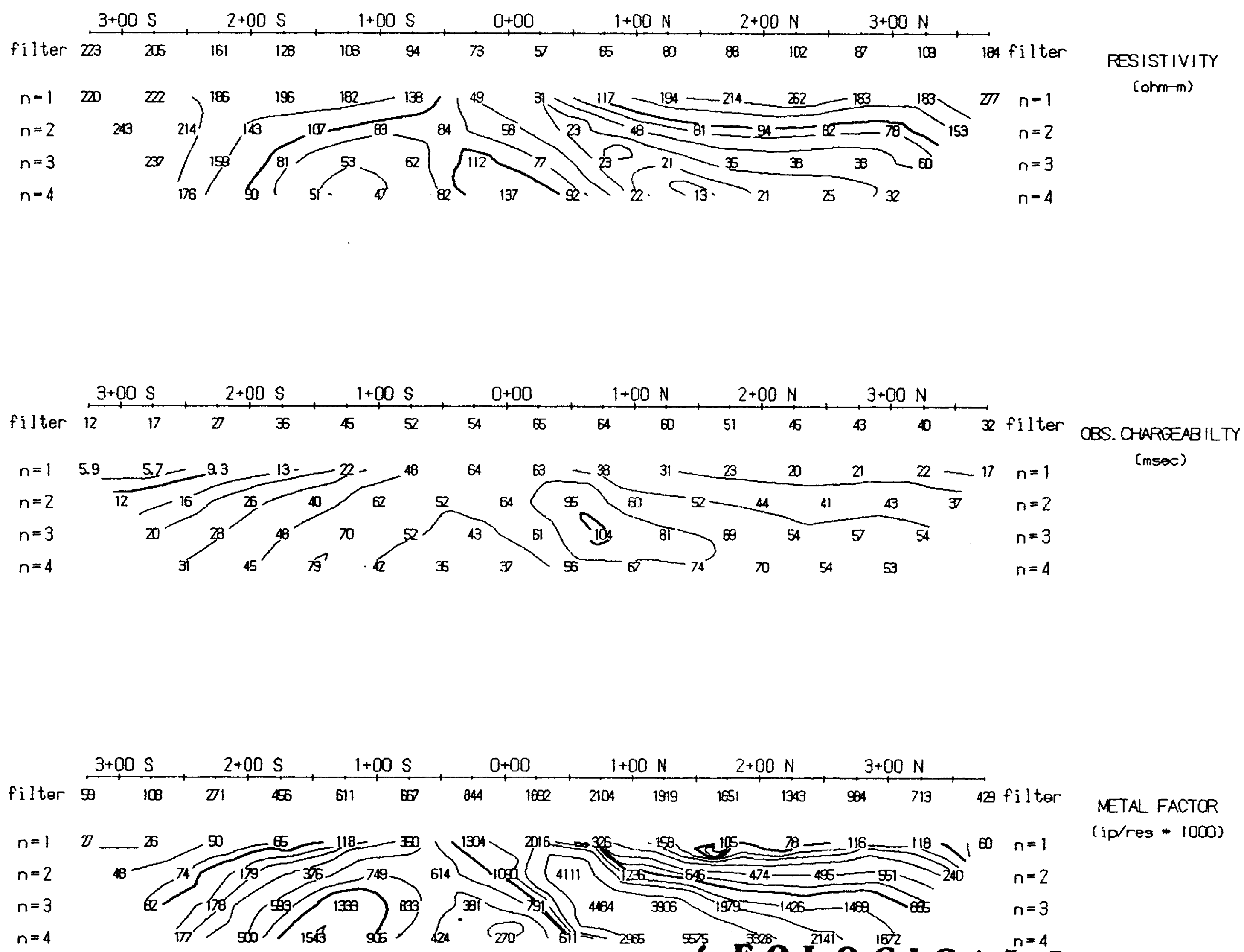
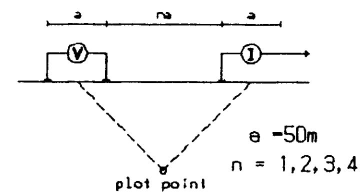


Line 100 W

Dipole-Pole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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Line 100 W

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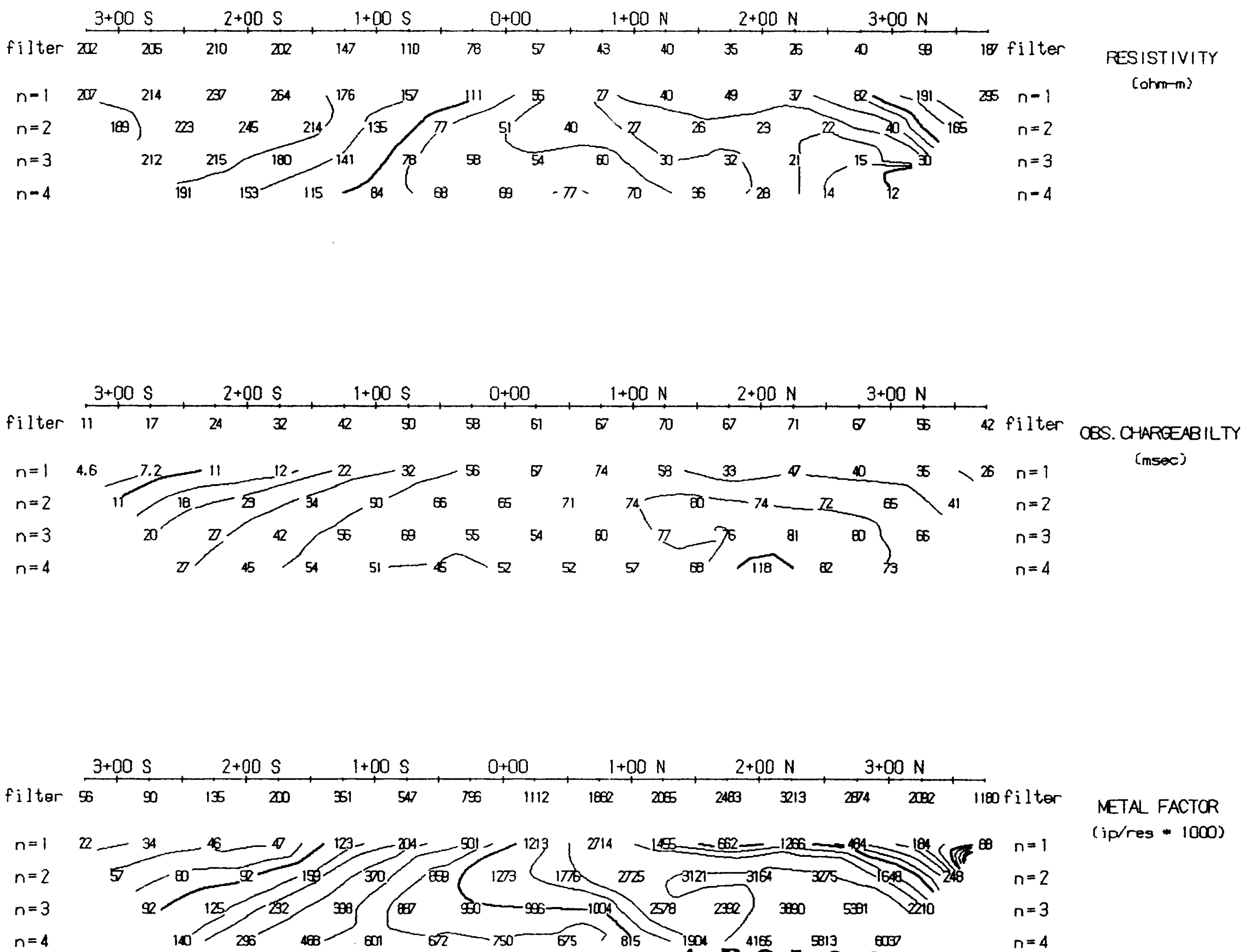
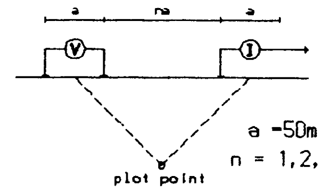
FIGURE: 31b



Line 200 W

Dipole-Pole Array



a =50m
n = 1,2,3,4

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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Line 200 W
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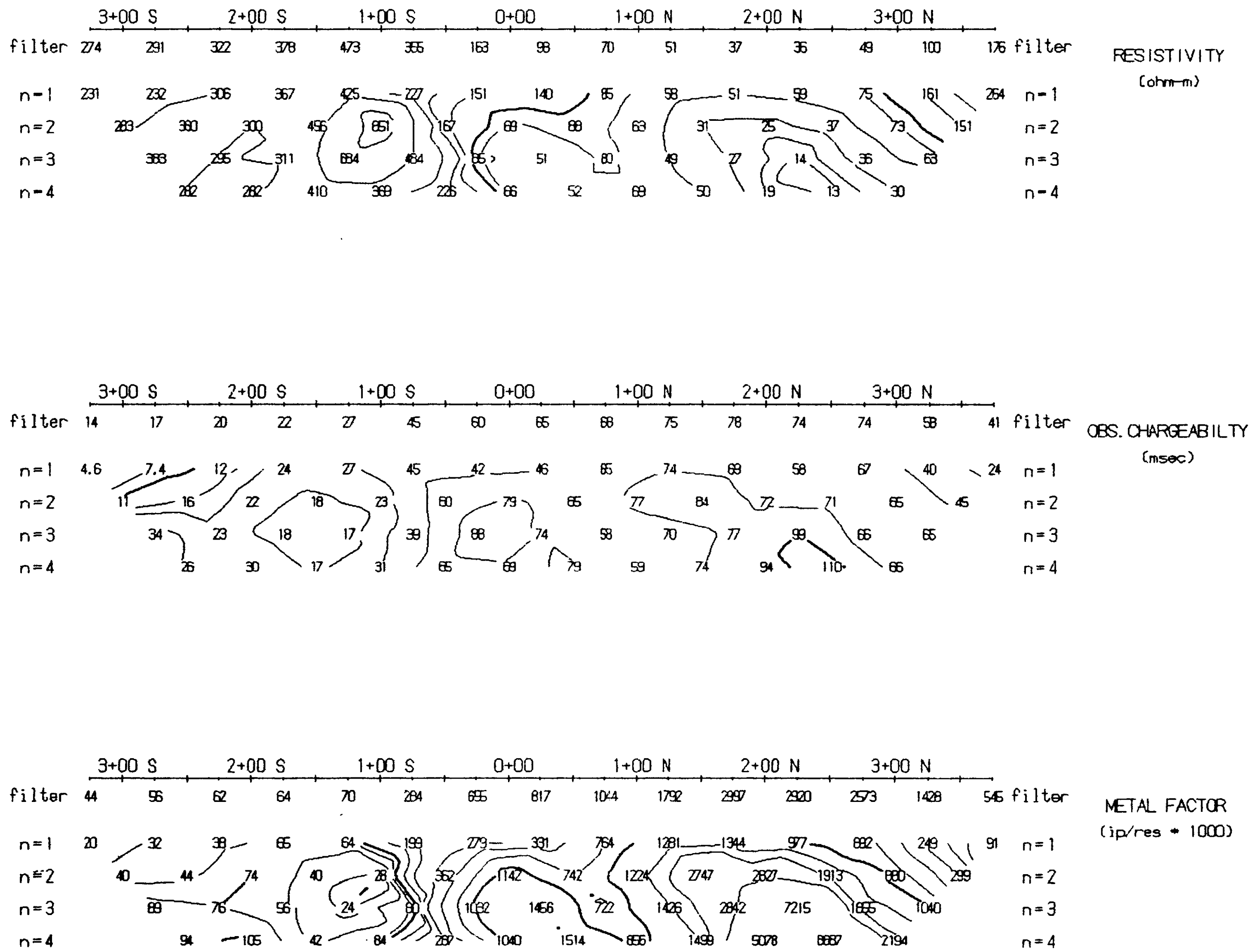
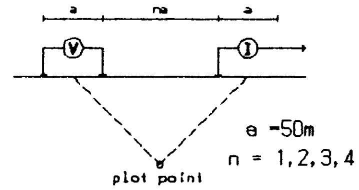
FIGURE: 31c



Line 300 W

Dipole-Pole Array



a =50m
n = 1,2,3,4

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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Line 300 W
DEB Claims, Omineca M.D., B.C.

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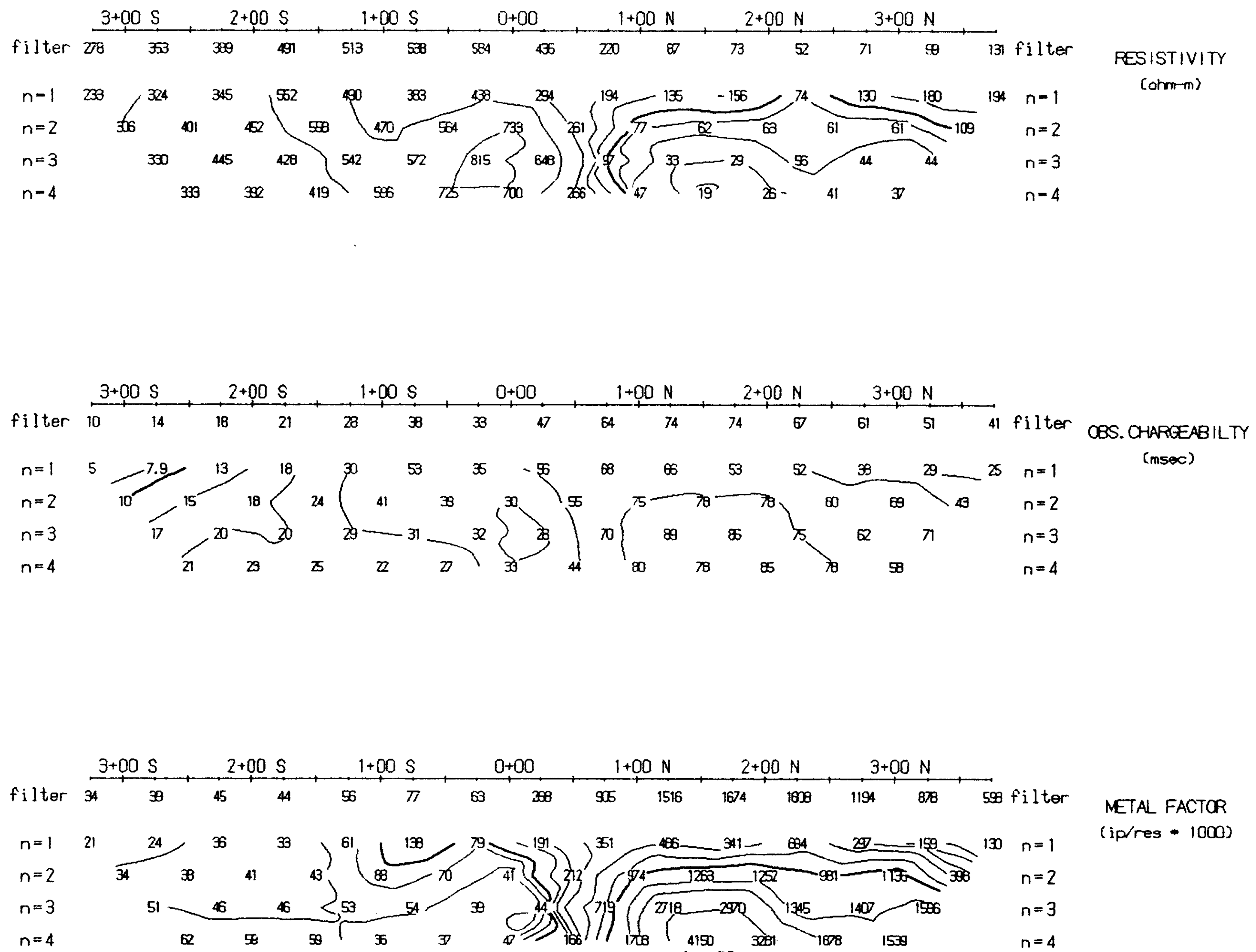
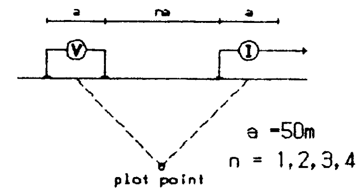
FIGURE: 31d



Line 400 W

Dipole-Pole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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INDUCED POLARIZATION SURVEY

Line 400 W

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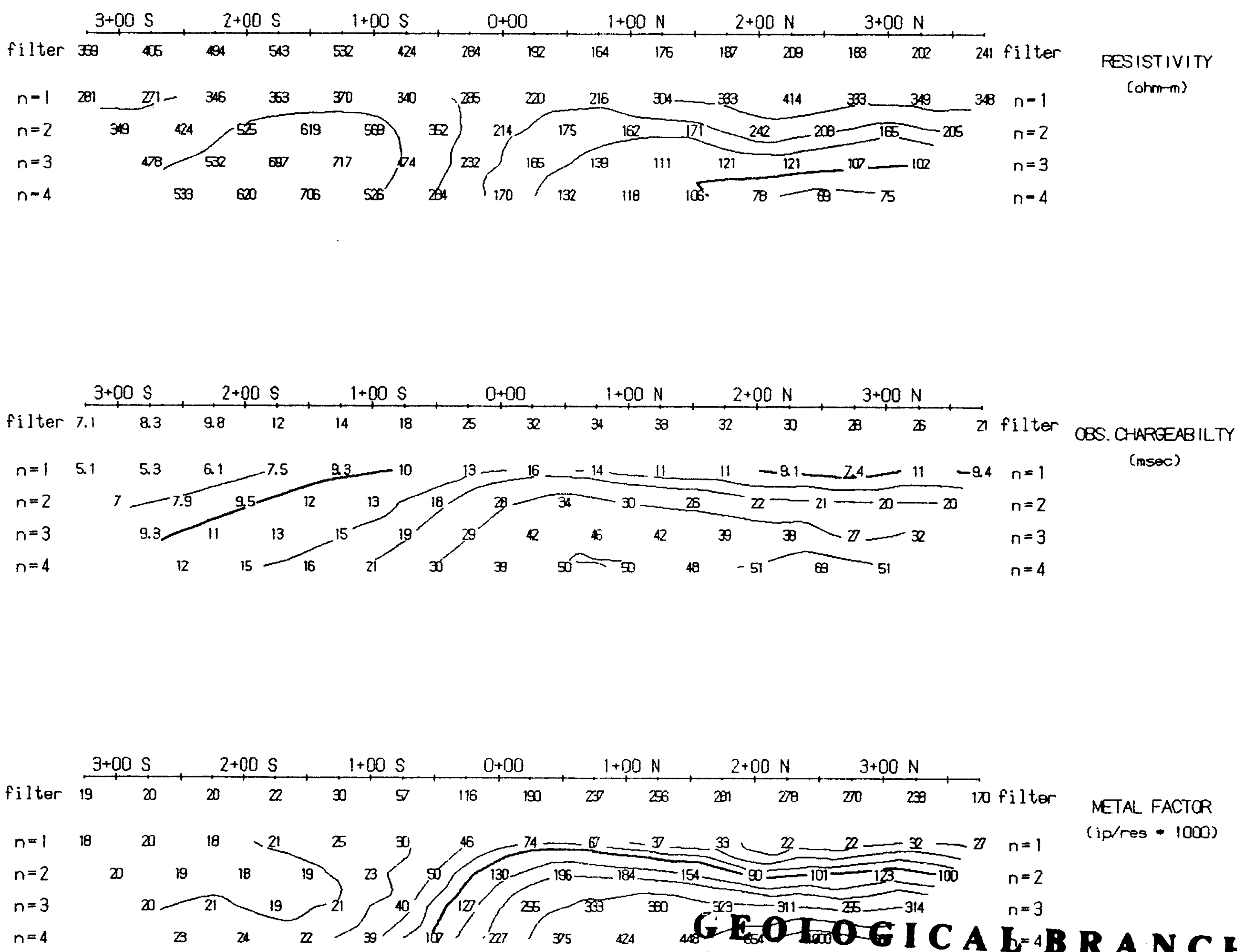
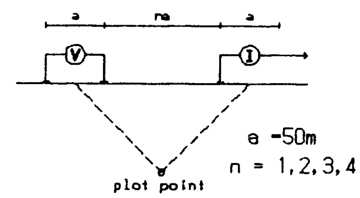
FIGURE: 31 e



Line 600 W

Dipole-Pole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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INDUCED POLARIZATION SURVEY

Line 600 W

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FIGURE: 31 f

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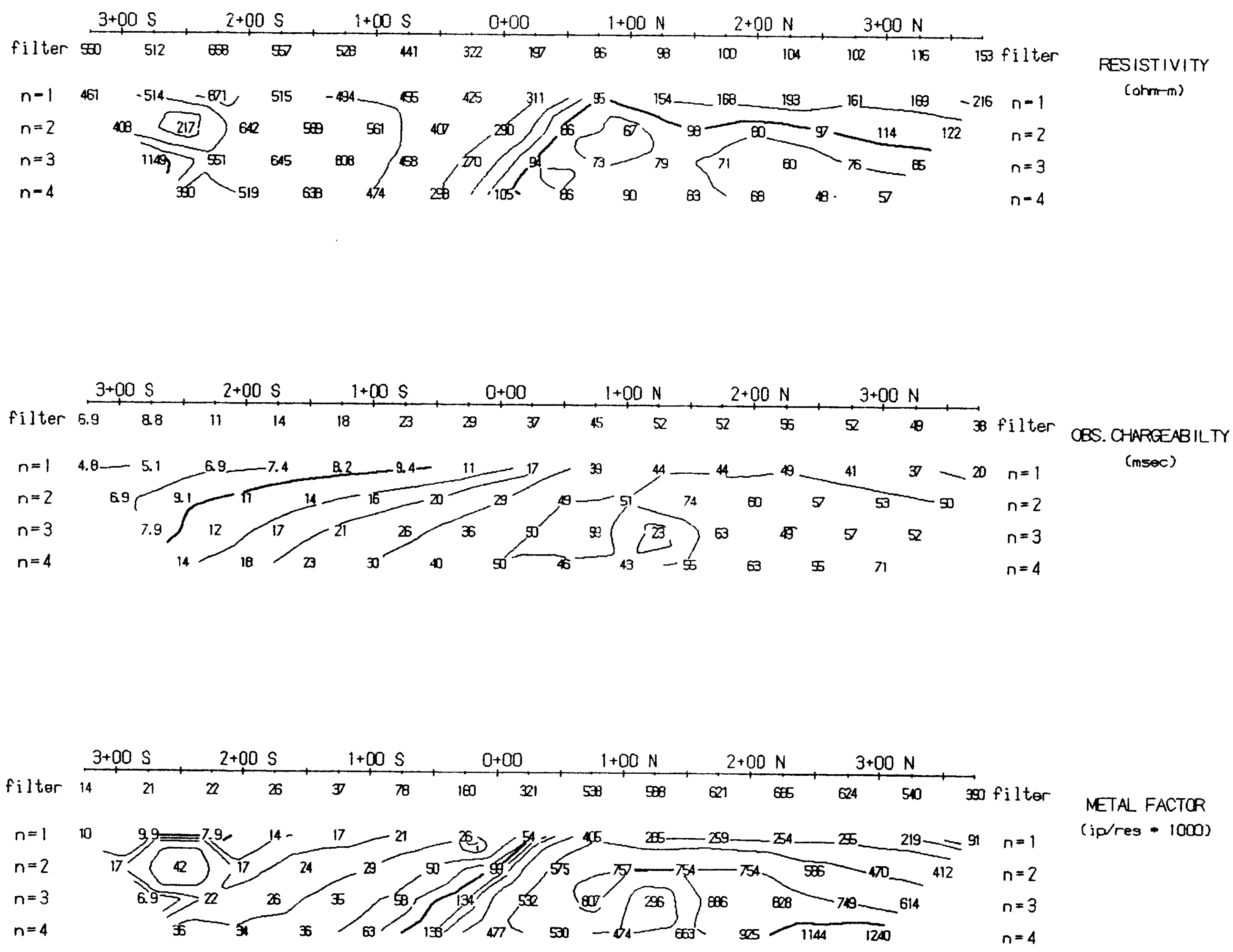
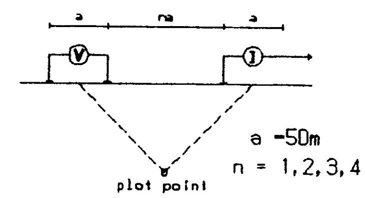


Line 800 W

Dipole-Pole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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INDUCED POLARIZATION SURVEY

Line 800 W

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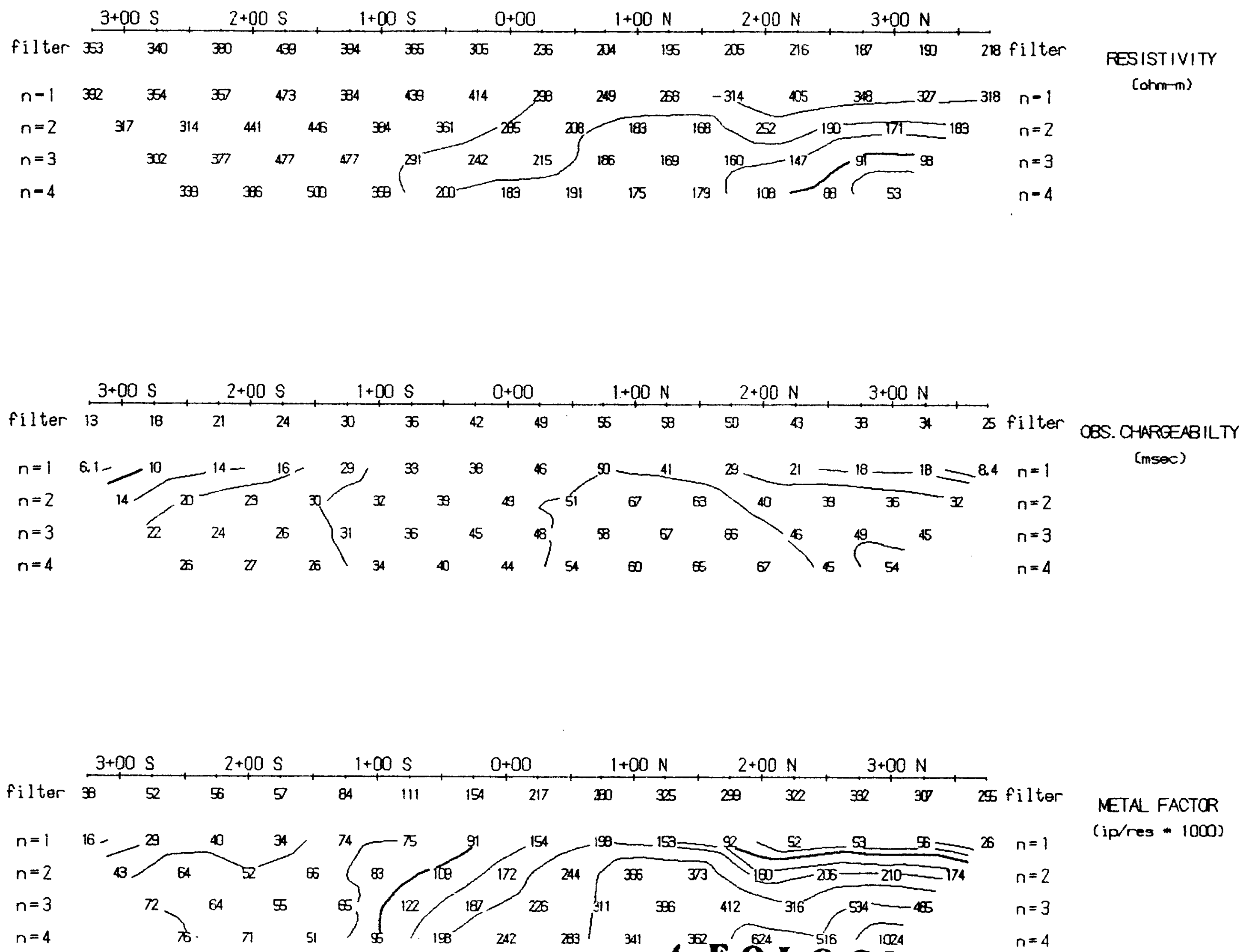
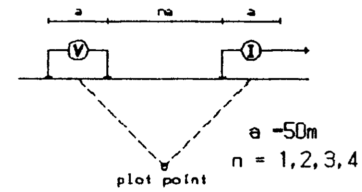
FIGURE: 31 g

PART 2 OF 2



Line 1000 W

Dipole-Pole Array



Logarithmic Contours   1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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INDUCED POLARIZATION SURVEY

Line 1000 W

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FIGURE: 31 h

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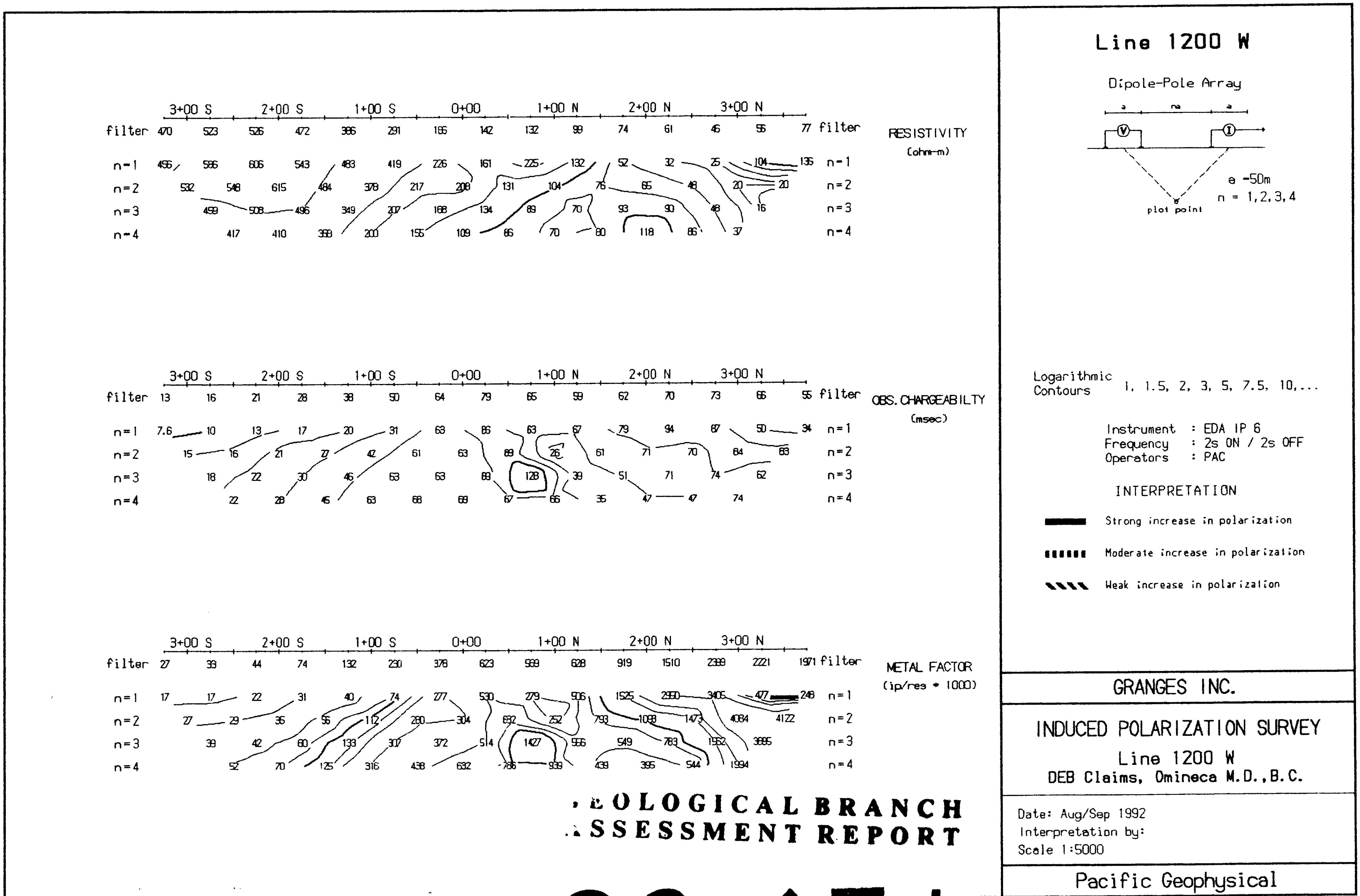

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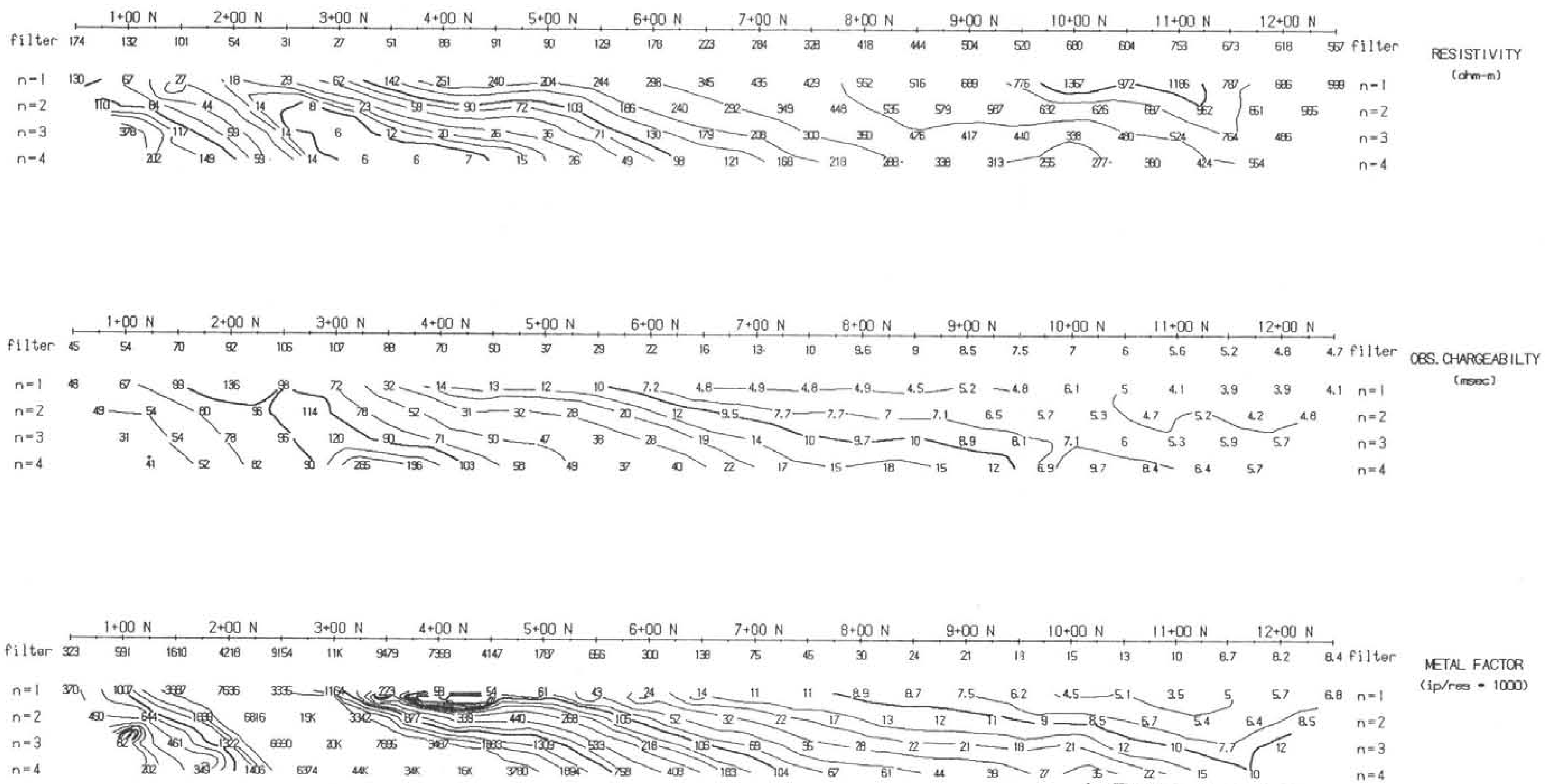
FIGURE: 31i



Line 1500 W

Dipole-Pole Array

a =50m
n = 1,2,3,4
plot point

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

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INDUCED POLARIZATION SURVEY
Line 1500 W
DEB Claims, Omineca M.D., B.C.

Date: Aug/Sep 1992
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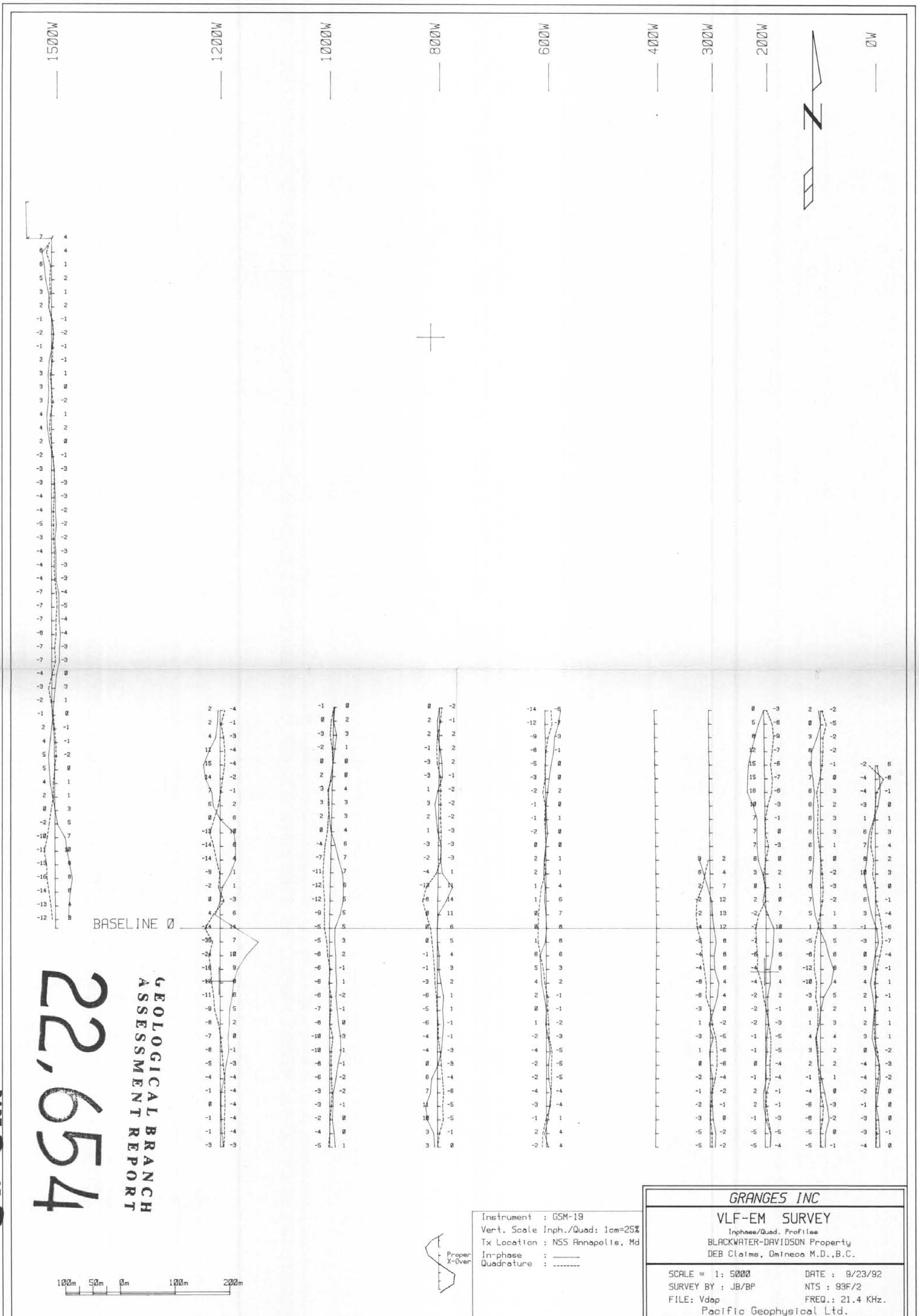
FIGURE: 31j

PART 2 OF 2



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ASSESSMENT REPORT

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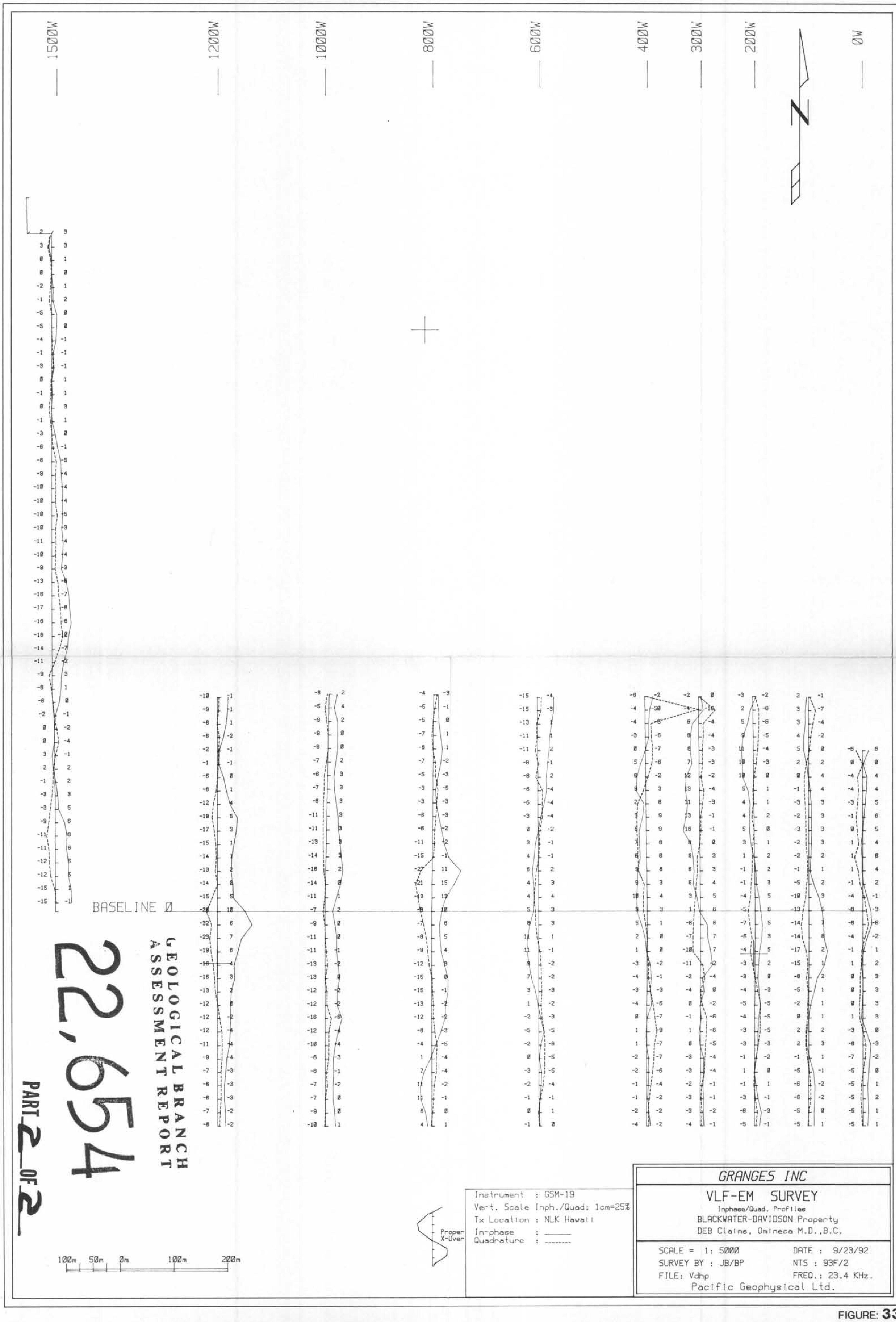
FIGURE: 32


1500W
1200W
1000W
800W
600W
400W
300W
200W
0W
BASELINE 0
GEOLOGICAL BRANCH
ASSESSMENT REPORT
22,654
PART 2 OF 2
Instrument : GSM-19
Vert. Scale Inph./Quad: 1cm=25%
Tx Location : NLK Hawaii
In-phase : ______
Quadrature : --------
Proper X-Over
GRANGES INC
VLF-EM SURVEY
Inphase/Quad. Profiles
BLACKWATER-DAVIDSON Property
DEB Claims, Omineca M.D., B.C.
SCALE = 1: 5000
DATE : 9/23/92
SURVEY BY : JB/BP
NTS : 93F/2
FILE: Vdhp
FREQ.: 23.4 KHz.
Pacific Geophysical Ltd.
100m 50m 0m 100m 200m
FIGURE: 33

Instrument : GSM-19
Field : TOTAL
Datum : 56500 nT
Contour Interval : 50 nT

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MAGNETOMETER SURVEY

BLACKWATER-DAVIDSON Property
DEB Claims, Omineca M.D., B.C.

SCALE = 1 : 5000 DATE : 9/ 1/92
SURVEY BY : JB&BP NTS : 93F/2
FILE: MDBMAG
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FIGURE: 34