REPORT OF 1997 GEOLOGICAL, GEOCHEMICAL, AND PHYSICAL WORK PROGRAM, STEWART PROPERTY, B.C.

Nelson Mining Division
British Columbia

NTS 82F/3
Latitude 49°14"N
Longitude 117°20"W

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Ian Thomson
Orvana Minerals Corp.
January 30, 1998

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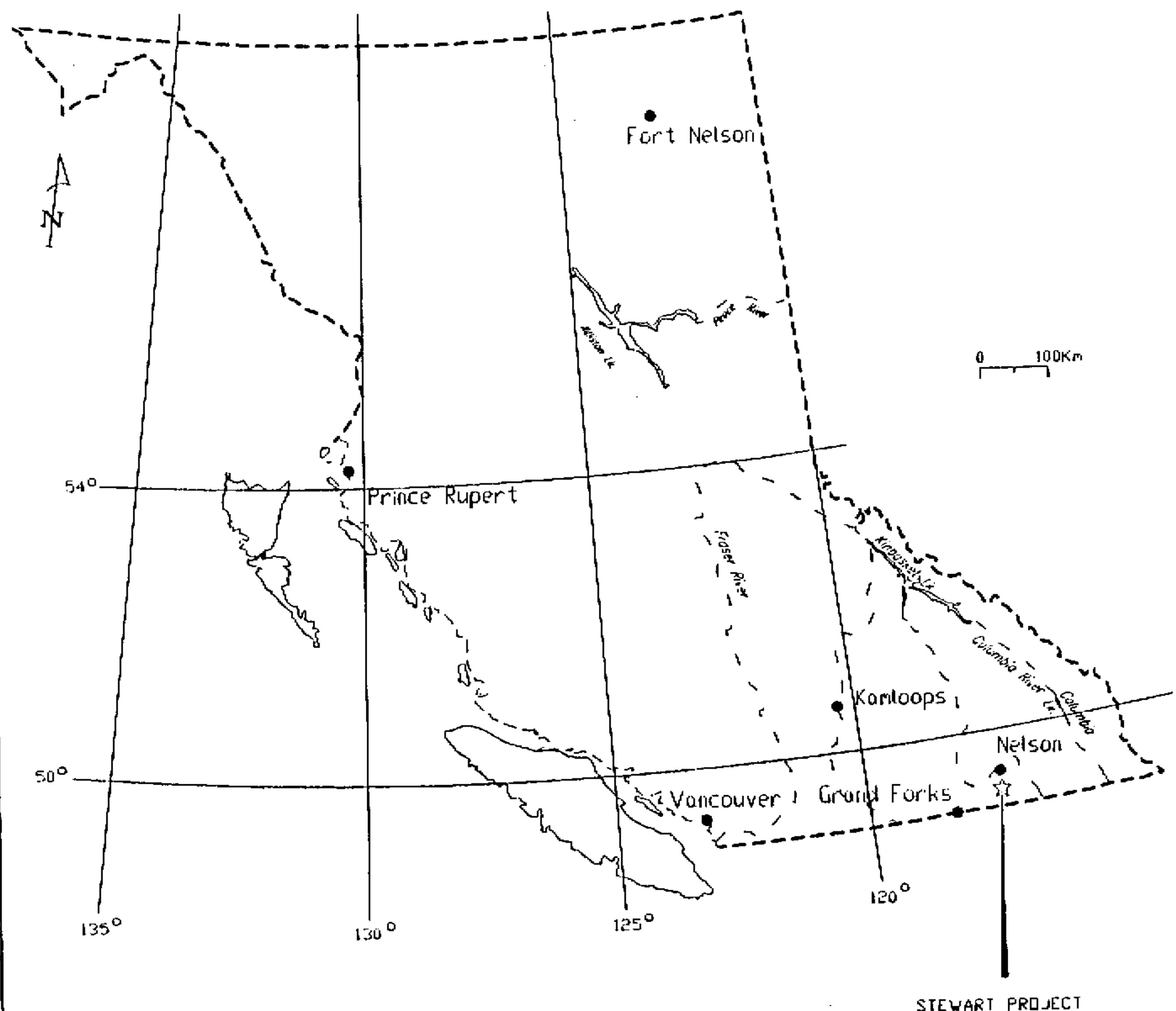
INTRODUCTION

The Stewart property, located near Salmo, B.C. (Fig. 1) was acquired by Orvana Minerals in 1995. The Stewart property has been explored in the past for molybdenum, copper, tungsten, silver, gold, lead and zinc. Most exploration has been conducted during the past two decades. These exploration programs identified several different areas and types of mineralization (porphyry, vein, volcanogenic massive sulphide), some of which have potential to host economic gold, copper/gold, molybdenum, tungsten, or silver/lead/zinc mineralization. Orvana partly explored the property, principally for gold and copper, during the 1995, 1996, and 1997 field seasons. This report presents results of work conducted during the 1997 assessment year, which includes geologic mapping, rock, soil and stream sediment (moss mat) geochemistry, grid installation, and road construction. The purpose of this program was to characterize potentially economic mineralization known to occur on the property, further define geochemical anomalies identified during the 1996 program, and to develop and access target areas for drill testing.

PROPERTY

The Stewart property covers an area of 59.25 Km^2, and includes both two and four post mineral claims and reverted crown grants (Fig. 2). In all, the claims comprise 239 units in 65 different claims. The claims are owned by Eric and Jack Denny of Nelson and Salmo, B.C., M.A. Kaufman of Spokane, WA, and Orvana Minerals Inc. of Vancouver, B.C. The Denny and Kaufman claims are under option to Orvana. Pertinent claim information is summarized below:

Name	Units	Tenure #	Expiry Date
Free Silver, Ruby	1	232633	April 18, 2003
Royal	1	232634	April 18, 2002
Stewart 1	20	232635	April 28, 2000
Stewart 2	20	232636	April 28, 2001
Stewart 3	20	232637	May 8, 2000
Stewart 5	9	232697	Nov. 28, 1999
Stewart 6	16	232698	Nov. 28, 1999
Stewart 7	12	232699	Nov. 28, 2000
Stewart 8	20	232700	Nov. 28, 1999
Stewart 9	20	232701	Nov. 28, 1999
Stewart 10	20	232702	Nov. 28, 1999
Stewart 12	8	232704	Nov. 28, 1999
Houlton	1	232705	Nov. 28, 2000
Fairview	1	234612	Mar. 15, 2002
Dog 1	1	314273	Oct. 25, 2000
Dog 2	1	314274	Oct. 25, 2001
Dog 3-6	4	314275-314278	Oct. 25, 2000
Dog 7	1	321746	Oct. 11, 2001
Dog 8	1	321747	Oct. 11, 2000
Dog 9-12	4	321748-321751	Oct. 23, 2000
Dog 13-14	2	338999-339000	Aug. 19, 2000
Mel 1-8	8	341017-341024	Oct. 19, 1999
E Claire 1-6	6	356440-356445	June 6, 2000
E Claire 7-10	4	356446-356449	June 7, 2000
E Claire 11-15	5	356450-356454	June 9, 2000
E Claire 16	20	356459	June 10, 2000
E Claire 17-20	4	358689-358692	Aug. 28, 2000
E Claire 21-22	2	358693-358694	Aug. 28, 1998
E Claire 23-24	2	358695-358696	Aug. 29, 1998
E Claire 25-26	2	358697-358698	Aug. 29, 2000
Rest 1-3	3	359863-359865	Oct. 23, 1998



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STEWART PROJECT

Property Location Map

Nelson Mining Division, B.C.
NTS82F/3

Figure 1

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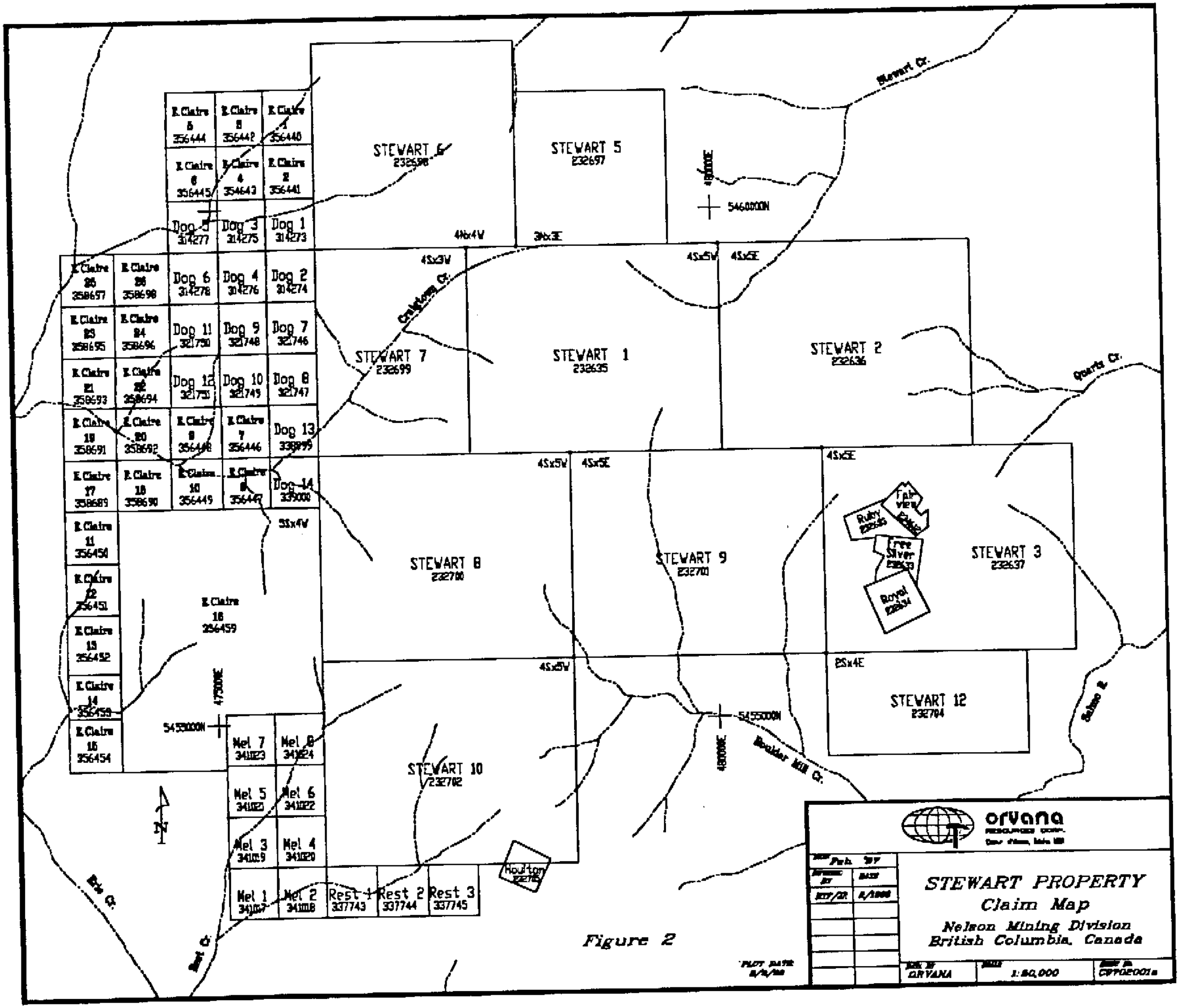
STEWART PROPERTY
Claim Map
Nelson Mining Division
British Columbia, Canada
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ORVANA
Feb. '97
STEWART 6
232698
STEWART 5
232697
STEWART 7
232699
STEWART 1
232635
STEWART 2
232636
STEWART 8
232700
STEWART 9
232701
STEWART 3
232637
STEWART 10
232702
STEWART 12
232704
E. Claire 16
356459
Dog 1
314273
Dog 2
314274
Dog 3
314275
Dog 4
314276
Dog 5
314277
Dog 6
314278
Dog 7
321746
Dog 8
321747
Dog 9
321748
Dog 10
321749
Dog 11
321750
Dog 12
321751
Dog 13
336999
Dog 14
337000
Mel 1
341017
Mel 2
341018
Mel 3
341019
Mel 4
341020
Mel 5
341021
Mel 6
341022
Mel 7
341023
Mel 8
341024
Rest 1
337743
Rest 2
337744
Rest 3
337745
Ruby
Fair View
Free Silver
Royal
Houlton
Stewart Cr.
Crichton Cr.
Quartz Cr.
Boulder Mill Cr.
Salmo R.
Erie Cr.
5460000N
5455000N
5453000N
480000E
475000E
N

Figure 2

Surface rights are held by several different owners, including timber companies and the Crown.

LOCATION AND ACCESS

The Stewart property is located 50 Km south of Nelson, and 7 Km north of Salmo, British Columbia, at latitude 49°16N', longitude 117°18'W. Map coverage is on sheets 82F/3 and 82F/6. Access to the property is good via the Erie Creek road, 4 Km west of Salmo on Highway 3, and the Stewart Creek road, 4 Km north of Ymir on Highway 6. There are several logging roads and old mining roads that provide additional access on the property. These roads are in various conditions, some being maintained and others growing up with brush and alder. As some of the roads are on private land, they have been gated by the owners to restrict access by the public.

PHYSIOGRAPHY AND CLIMATE

The Stewart property is characterized by mountainous terrain, with elevations ranging 750-1950 meters. Most of the property is forested with dominantly conifer stands, but also with some deciduous stands and minor brush fields. The highest regions are sparsely forested. Logging has been and continues to be widely practiced on the property. Exposure is not real good in general, although on ridge crests outcrop is fairly common. The lower slopes and valley bottoms have extensive deposits of till.

The climate is moderate. Precipitation can occur throughout the year, but is lightest during the summer months. Most of the property is snow-covered during December - April, with the highest regions not melting off until June or July. Temperatures typically range -15° to 20°C annually.

PREVIOUS WORK

The Stewart property is located in an area of much early mining activity, with the Ymir, Erie, Sheep Creek, and Nelson districts being the sites of extensive exploration and production for over 100 years. Recorded work on the Stewart property begins with surface exploration and development of the Arrow Tungsten showing by Premier Gold Mining Co. in 1942. Tungsten mineralization was identified over a 1000 ft strike length, with samples up to a few feet of over 1% WO_3. In the late 1960's and early 1970's, the property was explored for copper by Quintana and Copper Horn. Prospectors Eric and Jack Denny staked the property in 1978, and Shell Canada, followed by Selco, explored the property for molybdenum. Most of this work (including extensive drilling) was focused on the Stewart Moly and Breccia Summit areas. Large areas of the property were also soil sampled on a wide grid, and covered by airborne magnetic and impulse EM surveys. From the mid 1980's to the mid 1990's, several groups explored the property for gold. US Borax and Lacana conducted geochemical surveys, concentrating in the Rest Creek area. Minnova, followed by Cameco, explored in the Craigtown Creek area with geochemistry and geophysics (I.P. and magnetics). Cameco drilled four core holes into one of the targets identified by this work. They found extensive anomalous gold in altered andesite, diorite, and feldspar porphyry (values in the 10's and low 100's of ppb; maximum of 24854ppb over 1 meter in a quartz-sulphide vein). In 1996 Orvana Minerals conducted geologic mapping, rock, soil, and moss mat sampling, and a ground magnetic, VLF-EM survey.

1997 PROGRAM

The 1997 program involved grid installation, soil and rock geochemistry, geologic mapping, and road construction. This work was conducted during the period June 14 - November 17, 1997. In the Craigtown Creek area, the grid established in 1996 was extended west and south to close off soil geochemical anomalies identified in the previous year. Fill-in lines with a spacing of 100m were installed to better define anomalies present in areas previously covered with 200m line spacing. A total of 9800m of grid was established. The grid was installed with line spacings of 100 and 200 meters, and station intervals of 30 meters. The lines were brushed out with an ax, flagged, and stations marked with flagging and tyvic/aluminum tags. The grid was used for a soil geochemical survey and control for geologic mapping and rock sampling. Mapping was conducted at a scale of 1:5000.

Twenty four hundred meters of road were built on the ridge between the south and main forks of Craigtown Creek. The road provides access to the top of the ridge, and to drill targets defined by work conducted in 1996. This road was built under a cost share agreement between Orvana and Erie Creek Forest Reserve, Ltd., the owner of the surface lands. The road will be used by Orvana for subsequent mineral exploration programs, and by Erie Creek Forest Reserve for logging. The bedrock exposures created were mapped, and some of them were sampled.

REGIONAL GEOLOGY

The immediate region is underlain in the east by Paleozoic clastic and carbonate sedimentary rocks of the Kootenay Terrane, and in the west by Mesozoic volcanic rocks of the Quesnel Terrane. In this region, the stratigraphy of both the Kootenay and Quesnel Terranes have been folded and faulted along an east-west compressional axis. They are intruded by felsic rocks that range in age from Jurassic to Tertiary. Coeval dioritic intrusions are common in the mafic andesitic volcanic rocks of the Jurassic Rossland Group. These tend to be relatively small bodies. Extensive late Mesozoic intrusive activity produced the widely distributed Nelson Group intrusives of granitic to dioritic compositions. Eocene age, typically potassic (monzonite) intrusive rocks of the Coryell Group are also widely distributed in the region. Young (Tertiary) dikes and sills of rhyolite and felsite are common, and some more mafic small intrusives are present. Much older clastic sedimentary rocks of the Proterozoic Aldridge (Belt) Supergroup outcrop extensively to the east.

PROPERTY GEOLOGY

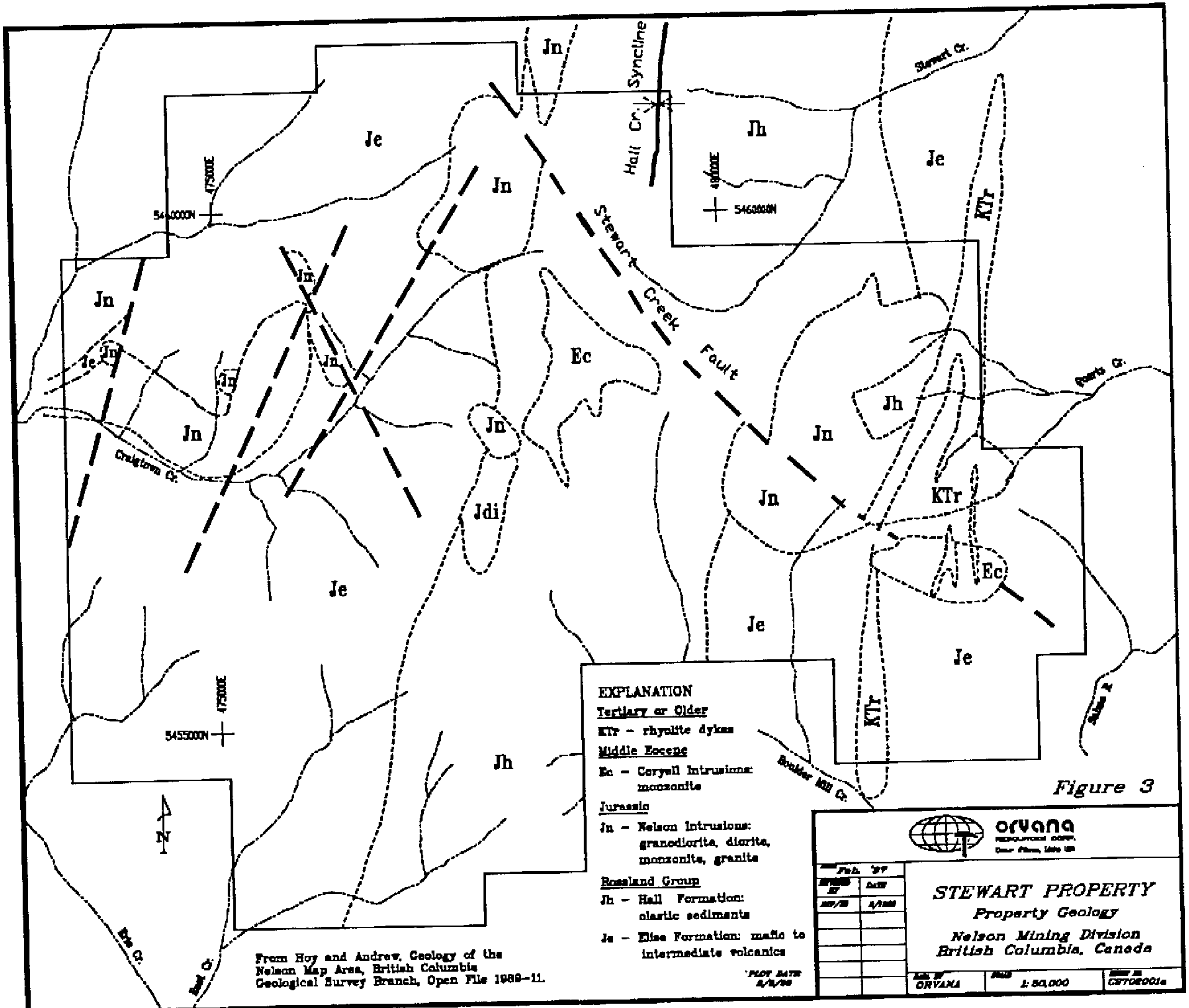
The Stewart property is underlain by sedimentary and volcanic rocks of the Jurassic Rossland Group, and intrusive rocks of various younger ages (Fig. 3). The oldest rocks are of the Elise Formation, the volcanic component of the Rossland Group. The Archibald Formation, which is the basal unit of the Rossland Group and composed of fine clastic sediments, outcrops west of the Stewart Property. The volcanic rocks of the Elise Formation are basaltic to andesitic in composition, tend to be porphyritic flows, breccias, pyroclastics, and subvolcanic intrusives. A fairly significant component of this formation includes fine-grained, equigranular to porphyritic/aphanitic diorite/andesite. Phenocrysts of feldspar, augite, and hornblende are common in some of the units.

Overlying the Elise Formation is the Hall Formation (also Jurassic Rossland Group). These rocks are mostly argillite, siltstone, fine-grained sandstone, and minor conglomerate. They are rarely limy, but are commonly siliceous. Compositionally, the rocks are very heterolithic, with a variety of clasts, including a high percentage of volcanic fragments. The Elise and Hall Formations are folded into a broad, N-S trending syncline (Hall Creek Syncline) that runs through the property and extends both north and south over a 15 mile strike length. This N-S structural feature is the strongest on the property.

A variety of intrusive rock types and ages have intruded the older rocks. These belong to three major groups. The older group consists of coeval diorite intrusives in the andesite pile of the Elise Formation. These tend to be fine to medium-grained, equigranular to weakly porphyritic. They range from very weakly to moderately magnetic. They probably aren't very large, occurring as dikes or sills a few meters thick. Flow lineation in feldspar or hornblende phenocrysts is seen near the intrusive contacts in core.

The next set of intrusive rocks are the Cretaceous Nelson intrusive suite, mostly quartz monzonite on the property, but also monzonite, granite, and diorite. These tend to be large, in places composite, intrusive masses outcropping most extensively in the northern portion of the property, in the Stewart and Craigtown Creek drainages. Smaller stocks occur in the western portion of the property. Rocks of these intrusives are generally medium-grained, equigranular to porphyritic. They seem to range from weakly to fairly strongly magnetic. Porphyry molybdenum mineralization on the property is thought to be related to these intrusives.

Younger intrusives of the Coryell Suite (Eocene or later?) are also monzonitic, but tend to be a little more quartz-poor and alkaline than the Nelson rocks. They are typically biotitic. They may be equigranular or


Jn
Syncline
Hall Cr.
Stewart Cr.
Je
Jh
Je
Jn
475000E
5460000N
490000E
5460000N
Stewart Creek Fault
KTr
Jn
Jn
Je
Jn
Jn
Ec
Jn
Jh
Quartz Cr.
Jn
Jn
Jn
KTr
Craigtown Cr.
Jn
Jdi
Ec
Je
Je
Je
475000E
5455000N
Jh
KTr
Boulder Mill Cr.
N
Erie Cr.
EXPLANATION
Tertiary or Older
KTr – rhyolite dykes
Middle Eocene
Ec – Coryell Intrusions: monzonite
Jurassic
Jn – Nelson Intrusions: granodiorite, diorite, monzonite, granite
Rossland Group
Jh – Hall Formation: clastic sediments
Je – Elise Formation: mafic to intermediate volcanics
From Hoy and Andrew, Geology of the Nelson Map Area, British Columbia Geological Survey Branch, Open File 1989-11.
Figure 3
orvana
Feb. '97
STEWART PROPERTY
Property Geology
Nelson Mining Division
British Columbia, Canada
ORVANA
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porphyritic. They occur in both the east central and west central portions of the property. What are probably the youngest intrusives are rhyolite, latite, and minor basalt sills/dikes that intrude the older Rossland rocks and both Nelson and Coryell intrusives. These cross-cutting intrusives are aphanitic to weakly porphyritic (rhyolite and latite may have quartz eyes), generally strike N-S and are widely scattered on the property. The rhyolite intrusives commonly have distinct flow banding near their contacts with the country rock.

The dominant structural grain on the property is N-S. The Rossland Group stratigraphy generally strikes N-S, as does the Hall Creek Syncline. Northwest and northeast faults and shear zones are known on the property; they appear to be significant controls to mineralization. The common young rhyolite dykes and sills also strike N-S and dip steeply. All of these features indicate that the deformation occurred within a stress regime with an east-west compressional axis that was probably long-lasting and contemporaneous with accretion onto the North American continent.

CRAIGTOWN MAP AREA GEOLOGY

Mapping was conducted over the 1996-1997 grid area, along new and old road cuts, and up some small stream drainages. Much of the area is covered with colluvium or till, so float mapping was employed, and the accuracy of the map is compromised. A geologic map including data points (outcrops, float, etc.) is included in Plate 1. Portions of the area adjacent to this on the east were partially mapped by various earlier workers, including Shell, BP-Selco, Minnova, and Cameco.

The Elise (Jurassic age, Rossland Group) Formation volcanics underlies a large portion of the Craigtown Creek area, and hosts a significant part of the known mineralization. They strike generally N-S and dip moderately to steeply east. Lithologies of the Elise Formation are texturally highly variable. The rocks constitute essentially an andesitic volcanic pile, but include flows, clastics, and intrusives. Color varies from light to dark grey, green, or almost black. Most of the rocks are either porphyritic/aphanitic andesite flows, or tuffs. Feldspar, hornblende, and augite phenocrysts are common. The tuffs vary from ashes to lapilli or even cobble tuffs. Rarely, bedding is visible in ashy beds. Dioritic, porphyritic coeval dikes and/or sills are also common. These commonly have flow lineations preserved in the phenocrysts, near the contacts with the country rock. Compositionally, rocks of the Elise Formation are seen to vary from andesite to gabbro. Some of the rocks are basalt, contain up to 25% dark green to black augite phenocrysts. In the western portion of the map area, a narrow belt of fine-grained tuffaceous volcanics is exposed in road cuts. These rocks lie between the granite and diorite intrusives, and are hornfelsed. They possibly represent a small sliver of the Archibald Formation (rather than the Elise Formation), otherwise not represented in the map area, caught between the two intrusives. Alteration in the Elise Formation wide-spread and commonly consists of a propylitic assemblage, with less common potassic, carbonate, and silicification.

Overlying the Elise Formation on the east are argillite, siltstone and tuffaceous rocks of the Hall Formation. These rocks also strike N-S and dip steeply. They are dark grey, tan, to black, and thinly-bedded. They have not been identified as calcareous in the Craigtown Creek area, although they are, in other areas of the property. They are often graphitic. Mineralization of these rocks in the study area seems to be restricted to the contact aureol around the "West Moly Intrusion", which is mostly further east. This mineralization is limited to disseminated pyrite/pyrrhotite and minor small quartz-sulphide veins. Alteration in this aureol includes silicification and hornfels (possible potassium metasomatism or silica flooding).

In the western portion of the map area, a variety of intrusive rocks occur. These probably represent in part, a lobe of Nelson (Cretaceous) granite, quartz monzonite and diorite that extends eastward from the Bonnington pluton up Craigtown Creek. The granite is light speckled grey, pink and tan, medium to coarse-grained, and unaltered. The diorite is medium to dark grey, medium to fine-grained, and tends to be more mafic in the west. It is generally unaltered to weakly propylitically altered. The monzonite and quartz monzonite outcrop extensively in the western portion of the grid area. This rock is medium to dark grey, medium-grained and generally equigranular to weakly porphyritic. It tends to be more quartz-rich in the southern portion of its distribution. It is generally unaltered or only weakly propylitically altered, except near its contact with the country rocks, where propylitic alteration is stronger. This rock intrudes the volcanic rocks of the Elise Formation.

Small monzonitic feldspar porphyry intrusive plugs occur in the Craigtown study area. These rocks are thought to belong to the Nelson intrusive group (Cretaceous). However, Hoy and Andrew (1988) suggest that rocks similar to these, including the Silver King porphyry, may be synvolcanic. One of these porphyries outcrops east of the 1996 grid on "Anomaly Ridge", where Cameco drilled four holes. Others bodies are certain to underlie other areas, as the float is very common. These rocks are porphyritic, with 10-30% feldspar phenocrysts 1/4 - 1 cm long, set in a fine-grained, tannish grey groundmass. In places, anhedral quartz eyes constitute a few modal percent. Petrographic study indicates that the feldspar crystals are plagioclase. They are cream colored and euhedral. In places they demonstrate a flow lineation. Mafics are mostly hornblende and minor biotite, and constitute a minor portion of the mode. The rocks often contain disseminated pyrite, and in places are cut by stockwork quartz veinlets.

Fine-grained, felsic monzonite intrusives occur in several portions of the map area. These rocks may be from the same magmatic event as the feldspar porphyry intrusive described above, as they are compositionally similar. In a poorly exposed NW trending zone that traverses the central portion of the 1996 grid, a series of outcrops and float of this rock type occurs. These rocks are light tan or grey, with pinkish hue in places, and contain only minor mafic minerals (generally 5% biotite). In places, especially near the ridge crest, brecciation is strong in these rocks. These appear to be intrusive breccias and show several cross-cutting relations. They are altered and mineralized, and are associated with anomalous Au and Cu geochemistry both in soils and rocks. Several percent magnetite is a common component, both as fine to medium-grained disseminations and as stockwork veinlets, with or without quartz. Potassium feldspar and quartz veining and flooding are present in places. These rocks probably represent elongate intrusives, perhaps 100 meters wide by 400 meters long, that were emplaced along the contact between the Elise Formation and the body of medium-grained monzonite. The strong NW elongation implies structural control. A smaller body of similar rock outcrops 1 Km SW of those mentioned above, in the area covered by the 1997 grid. It seems to be less altered, but does have anomalous Cu-Au associated with it. Further to the west, bleached intrusive rocks with similar texture are seen in float. This area has not yet been mapped in any sort of detail.

Latite and quartz latite dykes and small plugs occur in the map area. They are probably Tertiary in age; they intrude the Rossland Group and the diorite and monzonite intrusives. The dykes are only a few meters in width, and have strikes that range from NW to NE, with steep dips. They are usually not altered or mineralized. However, a small plug of a trachytic latite and quartz latite porphyry with quartz veinlet stockwork and anomalous Au (>1 g/t) outcrops poorly in the area of 5458600N 476100E. This plug was intruded along the same NW-striking zone of weakness that parallels the contact between the monzonite intrusives and the volcanics.

Rhyolite dykes are common on the Stewart Property, and a few of these traverse the Craigtown Creek map area. They are also probably Tertiary, as they intrude the Rossland Group and the diorite and monzonite intrusives. They generally strike N-S, and dip near vertically. They are a few meters in thickness. Texturally, the rhyolite is aphanitic, with minor quartz eyes in places. They have been mapped and logged as tuffs, flows, or intrusives by other workers. Based on flow lineations, and chilled lower and upper contacts as seen in core, we believe that they are later intrusives. They are little altered except for some minor late quartz-carbonate veinlets. Some of them contain disseminated pyrite; in fact some earlier workers concluded that they are the source of the Au soil geochemical anomalies at Craigtown Creek. In our experience, they contain very little Au except where accompanied by quartz veinlet stockwork and pyrite.

Minor lamprophyre or porphyritic basaltic dykes, sills, and small plugs are present in the area. They are dark greyish brown, unaltered, not magnetic, and aphanitic, with minor biotite phenocrysts in places. They have distinct chill margins along both contacts in core. They also intrude the Rossland Group and the diorite and monzonite intrusives. They are probably late and unrelated to mineralization.

MINERALIZATION

Mineralization on the property is widespread and varied. Included are porphyry Mo (and Cu?) with high grade breccia (Stewart Moly), contact/skarn related Mo and W (Arrow Tungsten), porphyry/stockwork Au/Cu (Craigtown Creek), stratabound sediment hosted Au-rich sulphide (replacement manto or exhalative, ie.Arlington Mine; Gold Hill?), quartz-pyrite-arsenopyrite stockwork in sediments (Trixi V), sediment hosted Ag-Zn-Pb (Free Silver), and quartz-pyrite veins with gold (Craigtown Creek). Additionally, disseminated pyrite is common in several rock types, including andesite, argillite, rhyolite, and diorite/monzonite intrusives.

In the Craigtown Creek area, where work was conducted in the 1997 program, six types of mineralization are known. These include: 1) disseminated and fracture filling pyrite and/or pyrrhotite, +/- chalcopyrite, 2) quartz-magnetite veinlets, 3) quartz veinlet stockwork, 4) pyrite veinlets, 5) quartz-carbonate veins, and 6) quartz-sulphide veins. The first four types are associated with potentially economic, bulk tonnage, porphyry style gold and copper mineralization. The last type could be associated with the same system that produced the former mineralization types, but is a distinctly different target type that also has economic potential.

Pyrite and pyrrhotite as disseminated grains and fracture fillings is common in the Craigtown Creek area. This type of mineralization is observed in all of the rock types mapped in the area, with the exception of the granite intrusive and basalt dykes. Traces of chalcopyrite are present in places with this mineralization, where it occurs in intrusive or volcanic rocks, usually in association with shearing, brecciation, or quartz veinlets. Propylitically altered quartz monzonite and diorite generally has only 0.5 - 2% sulphide. Andesite typically has more sulphide; 2 - 3% in propylitic rocks and 5 - 10% in silicified rocks, in relative proportion to the amount of alteration. Potassically altered intrusive and volcanic rocks have less sulphide, generally in the 0.5 - 4% range. This type of sulphide is also very common in feldspar porphyry. In the area of grid 8850N 6300E, disseminated and fracture-filling pyrite and pyrrhotite in andesite tuff consistently yield 1-2 g/t Au in rock samples.

Quartz-magnetite veinlets are common in the NNW-trending contact zone between the felsic monzonite intrusives and the Elise volcanics. This zone has strongly anomalous Au and Cu in soils. The host rocks are usually the intrusives and less commonly the volcanics. They are very rarely exposed in outcrop, mostly being seen in float or talus. The veinlets range <1mm - 5mm in thickness, constitute 2 - 20% of the rock, and in places constitute a stockwork. Two or three stages of veining are visible in some hand samples; at least one stage is quartz only. Malachite stains are present in places, though the rocks rarely contain sulphide. Where sampled on the surface, rocks containing this type of mineralization contain anomalous Au (100 - 300ppb range) and Cu (200 - 500 ppm range).

Quartz and quartz-pyrite veinlet stockwork was observed in feldspar porphyry float in several places, and in the small latite plug mapped in the southern portion of the NW-striking zone of alteration and anomalous geochemistry that bisects the central portion of the grid. The rocks hosting this stockwork generally are moderately silicified, and contain several percent disseminated pyrite. Pyrite may also have been a component of the veinlets in some samples, but has been oxidized to limonite. This mineralization potentially represents the potential for discovery of a large tonnage Au deposit, as several samples have returned Au values > 1 g/t. This mineralization may represent more than one stage, as some rock samples contain high Au and low Cu; others have high Cu with high Au.

Pyrite veinlets in mafic andesite-basalt contain highly anomalous Au values in the central portion of Minnova's southern grid, east of Craigtown Creek. Dark green to black augite porphyritic mafic andesite or basalt is exposed in a few small outcrops, subcrop, and float. Petrographic study indicates that this rock is propylitically altered and fragmental. It typically contains a few percent disseminated pyrite. In a couple small outcrops, vague pyrite veinlets and clots are present. These vague veinlets have NE orientations. Samples of this material have run in the 8-10 g/t range.

Quartz-carbonate veinlets are present in both the Bonnington Pluton monzonite-diorite intrusive rocks and the Elise volcanics. They seem to occur in sheared, weakly altered (propylitic) outcrops. Shear directions are either NE or N-S, with near vertical dips. Minor amounts of pyrite and or magnetite are present in the host rocks. Samples of these rocks have weakly anomalous Au and Cu.

Quartz-calcite-sulphide veins occurring in Elise volcanic rocks were intersected in hole DEN-93-4, drilled by Cameco in 1994.. They are range 10 - 30 cm wide, and contain mostly white quartz and calcite, with 10 - 30% sulphide (pyrite, pyrrhotite, and minor chalcopyrite). One of these veins contains 24,854ppb Au. They appear to have high enough grade potential to be considered as targets, even in an underground mining situation. They are not known to outcrop anywhere. It is possible that the NE striking Au in soil anomalies located on Orvana's grid, north of Craigtown Creek, are related to this type of mineralization. These anomalies are fairly narrow and linear, appearing to be derived of relatively narrow veins or structures. Veins like this have been demonstrated to occur around porphyry type mineral systems in other important mining camps in British Columbia. Some of these have been + million ounce producers, and include Rossland and the camps of the Iskut River region (Snip, Johnny Mountain, etc.).

ALTERATION

Various types of alteration are known on the Stewart Property. In the area of the porphyry molybdenum occurrences, phyllic and potassic alteration are reported by earlier workers. Silicification is common in various rock types. Propylitic alteration of intrusive and volcanic rocks is widespread on the property. In the Craigtown Creek area, the focus of work in 1996-97, alteration types observed include propyllitic, silicification, carbonate, potassic, and skarn.

Mapping in the Craigtown Creek area demonstrate that propylitic alteration is common in andesitic volcanic rocks of the Elise Formation. Patchy, pervasive epidote and chlorite tint the rocks green. Fractures in the Elise volcanics have fillings, coatings, or selvages of these minerals. Intrusive rocks, including monzonite and diorite, also commonly display pervasive to fracture-controlled propylitic alteration, where mafic crystals have altered to chlorite and/or epidote. This alteration is not as ubiquitous in the intrusives as it is in the volcanic rocks. The propylitic alteration may be related to the margins of the Bonnington intrusive rocks that invade from the west, and the later fine-grained monzonite plugs that intrude the Elise/Bonnington contacts.

Silicification is intense within the Elise Formation andesite in portions of the map area. These rocks typically have a mottled, bleached coloration. Silicification is pervasive, and mafic minerals are generally chloritized. The silicification is usually accompanied by disseminated pyrite or pyrrhotite. It also is coincident with anomalous soil and rock geochemistry (Au, Cu, As) in places, and therefor is assumed to be a function of the mineralization system. On the surface, these silicified rocks tend to form small, iron-stained ridges and knobs with sparse vegetation. They appear to be associated primarily with NW structures, also possibly intrusive contacts and NE structure. On the ridge crest, in the vicinity of UTM 5,459,200N 476000E, silicified rocks appear to extend 100 meters east of the saddle where several NW structures are mapped. This is also within 100 meters of an intrusive contact where potassic alteration is present.

Carbonate alteration is present in places in the andesite of the Elise Formation. This alteration can be either pervasive or veinlet/fracture controlled. Where pervasive, it tends to be apparent only when the rocks are subjected to HCL acid, or with petrography. Petrographic study indicates that most of the carbonate is ferroan dolomite and is generally a late alteration product. A few outcrops were located containing small veinlets of calcite, commonly associated with N-S or NE shearing. In the north Minnova grid area, a NE-trending zone of carbonate alteration, bleaching, and pervasive hematite/limonite traverses the hillside just downhill and east of the Cameco drill holes. This zone is approximately 20m wide.

Potassic alteration is present in places in brecciated and veined fine-grained felsic monzonite intrusive rocks along the Bonnington Pluton - Elise Formation contact. This alteration is fairly weak, and consists of pinkish to greyish flooding and veinlets of potassium feldspar. Quartz +/- magnetite veinlets are commonly associated with this alteration.

Skarn alteration was observed in two locations in the Craigtown Creek map area. A small outcrop of green calc-silicate skarn was found just off the western end of the 1996 grid. This rock contains green pyroxene, brownish garnet, and black amphibole (+chlorite?). Similar skarn was found in float near the east end of the old road running up the north side of the North Fork Craigtown Creek. The protolith is probably andesitic fragmental volcanic rock.

LITHOGEOCHEMISTRY

Rock samples were collected during the course of geologic mapping. A total of 75 samples were collected from outcrops, float, and a few from small prospects or workings. Sample locations and results are presented in Plates 2 and 3. Field sample descriptions are included in Appendix 1. The rock samples were submitted to SVL Analytical, Inc. of Kellogg, Idaho for analysis of 10 elements. Copies of the lab reports are included in Appendix 2. Sample preparation was accomplished by crushing the sample to 1/8 inch, the rolling to -10 mesh, splitting the sample and pulverizing to -140 mesh. A 30 gram split was used for Au and Ag, analyzed by standard fire assay with an AA finish. At the cupulation stage the bead was dissolved in aqua regia and the resulting solution analyzed by flame atomic absorbtion. The other elements, As, Bi, Co, Cu, Pb, Mo, Zn, and Ba were all determined by ICP. A 0.28 gram sample was digested in aqua regia and analyzed by ICP emission spectroscopy. Detection limits for elements using the above described techniques are as follows:

Element	Lower Limit	Upper Limit
Au	5 ppb	none
Ag	0.1 ppm	25 ppm
As	10 ppm	20000 ppm
Bi	10 ppm	10000 ppm
Co	2 ppm	10000 ppm
Cu	2 ppm	20000 ppm
Pb	5 ppm	20000 ppm
Mo	2 ppm	10000 ppm
Zn	2 ppm	20000 ppm
Ba	2 ppm	50000 ppm

Results of the rock sampling in 1997 are similar to those from 1996 in that they demonstrate that elevated Au, and to a lesser degree Cu, are widespread in the Craigtown Creek area. Values range up to 950 ppb Au, and 1100 ppm Cu. Most Au values are in tens to low hundreds of ppb. The highest Au value is from pyrite> quartz vein material collected at an old prospect shaft located near grid 8400N 4150E (#23386). Samples of the mineralized wall rock (felsic intrusive) at this location carry very little Au. Several samples of mineralized feldspar porphyry monzonite collected west of the grid area have 200-300 ppb Au (#23382, 83, 85, 90). Samples collected near the end of the "340 road" have comparable Au values, and Cu values in the 200-500 ppm range. Mineralization at this site lies along the NW-trending zone that includes the contact between the Elise Formation and the fine-grained, felsic monzonite intrusives. The samples collected here (#25516-24) are mineralized but sub-ore grade. Considerably higher values in Au and Cu soil geochemistry are located 100-200m south of the "340 road", and it is expected that a road cut in this area would expose more strongly mineralized rock.

Two samples collected east of the north Minnova grid contain anomalous Au. Sample #24780 is a feldspar porphyry monzonite with NE-trending seams of FeOx; it runs 368 ppb Au. Sample #24784 is carbonate altered intrusive; it runs 235 ppb Au. These samples may reflect the margins of the mineralization indicated by Minnova's work.

SOIL GEOCHEMISTRY

Soil samples were collected over all of the E-W 1997 grid lines at 30 meter intervals; 309 samples were collected. The samples were submitted to Acme Analytical Laboratories in Vancouver, B.C, for preparation and analysis. Copies of the results are attached (Appendix 3). The samples were prepared by drying and sieving to -80 mesh. Gold was determined using a 10 gram aliquot, digested with hot aqua regia, extracted using MIBK and determined by graphite furnace atomic absorption. The detection limit is 2 ppb.

The elements Mo, Cu, Pb, Ag, Ni, Co, Mn, Fe, As, U, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, Tl, and Hg were determined simultaneously by ICP emission spectroscopy from a 0.5 gram sample aliquot digested with 3 ml of 3-1-2 $HCL-HNO_3-H_2O$ at 90° Celcius for one hour.

Detection limits for the ICP analysis are:

Ag - 0.3 ppm
Al, Ca, Fe, K, Mg, Na, Ti - 0.01%
As, Bi, Mn, Sb, Th, W - 2 ppm
B, Pb - 3 ppm
Ba, Co, Hg, Cr, Cu, La, Mo, Ni, Sr, V, Zn - 1 ppm
Cd - 0.2 ppm
Tl, U - 5 ppm
P - 0.001%

The primary purpose of soil sampling over the 1997 grid extensions was to close off and better define the Au and Cu anomalies that were left open by the 1996 survey. The 1997 sampling generally defined what appear to be the limits of these soil anomalies, although Cu remains open in an area on the western edge of the grid. Additionally, a reconnaissance survey was conducted, consisting of broadly spaced lines 200m apart south of Craigtown Creek. No discrete anomalies of interest were defined in this portion of the grid, although several metals are anomalous in the far SE portion of the grid. The primary elements of interest, including Au, Cu, Pb, Zn, Mo, Ni, Cr and As are plotted at 1:5000 scale and presented in Plates 4-11.

Gold values in 1997 soil samples range from below the detection limit to 509 ppb. Values equal to or greater than 40 ppb are considered anomalous and are contoured in Plate 4. The Au anomalies are related to the NNW-trending contact zone between the Elise Formation and the intrusive rocks, especially the felsic monzonite plugs. There is also an anomaly associated with a felsic monzonite plug located in the west-central portion of the grid. NE-trending structures also appear to control Au mineralization, as demonstrated by the NE trend of portions of the Au anomalies. Some of these anomalies coincide with NE-trending shears mapped on the ground.

Copper values in 1997 soil samples range 18-509 ppm. Values of 135 ppm or greater are considered anomalous and are contoured in Plate 5. The Cu anomalies reflect controls similar to those described for Au. The NNW-trending Elise Formation/intrusive contact is the strongest control of Cu mineralization. This is probably related to the felsic monzonite plugs that have intruded along the contact zone. The 1997 sampling also defines a Cu anomaly of moderate strength related to a felsic monzonite plug outcropping in the west-central portion of the grid. This anomaly remains open on the west.

Lead values in 1997 samples reach a maximum of 111 ppm; values equal to or greater than 30 ppm are considered anomalous and are contoured in Plate 6. Lead seems to reflect a weak halo around the NNW-trending volcanic/intrusive contact zone. The anomalies are small, and have weak N-S, NW, or NE trends, which probably reflect structural control. Zinc exhibits a similar spatial distribution. Values reach a high of 445 ppm, and those equal to or greater than 225 ppm are contoured in Plate 7. Weak NE-trends are detectable in the Zn data. Both Pb and Zn values are elevated along the far eastern end of the southern grid line. The source of this anomaly is not known.

Molybdenum values are very low in the soils. The highest value in the 1997 samples is 4 ppm; 3 ppm is considered anomalous. There is a weak anomaly that seems to be related to the NNW-trending volcanic/intrusive contact zone. There is another weak anomaly trending NE up the bottom of the Craigtown Creek valley.

Nickel values in 1997 soil samples reach a high of 129 ppm; 40 ppm and greater is considered anomalous. There are weak N-S trending Ni anomalies that are restricted to the areas underlain by the Elise Formation. These probably reflect horizons of mafic volcanic rocks. There are also weak NE-trending anomalies that occur in soils overlying both volcanic and intrusive rock types. These anomalies may reflect NE structural control, similar to that seen in several of the other elements. Chromium values reach a maximum of 157 ppm; those equal to or greater than 70 ppm are considered anomalous. Chromium anomalies in soil are generally coincident with the Ni anomalies, reflecting similar lithologic and possibly structural control.

Arsenic values in soil are generally low. Maximum value in the 1997 samples is 96 ppm; 20 ppm and greater is considered anomalous. A broad, low-level anomaly flanks the NNW-trending volcanic/intrusive contact zone on the east. Other small, scattered, weak anomalies have NW and NE trends, probably reflecting structure.

MOSS MAT GEOCHEMISTRY

Moss mat samples were collected in a few drainages to follow up anomalous samples collected the previous year. This was done by sampling up the drainages at regular intervals of 100 or 200m. Some sites sampled last year were resampled. The drainages sampled are located west of the Craigtown Creek grid area. They are relatively small, seasonal streams, and some portions of them were dry when the samples were collected. The samples were collected from boulders, logs, and other objects located in or on the immediate bank of the streams. The purpose of collecting the moss mats is to sample the fine silt sediment trapped in them. This sediment is transported and trapped during high water flows. Eighteen moss mat samples were collected during 1997. The samples were deposited into soil sample bags and shipped to Acme Analytical Labs of Vancouver. There the samples were dried, screened, and analyzed just like the soil samples described above. Element detection limits are the same as those listed in the soil geochemistry section above.

Results of the moss mat sampling tend to confirm the results obtained in the previous season's sampling, and are presented in Plate 3, with laboratory reports included in Appendix 3. Where anomalous amounts of gold were found present in the sediments previously, the anomalies repeated. Correlation of numeric values isn't strong, in fact, values vary dramatically within drainages. In some cases, gold values seem to increase upstream, possibly indicating proximity to a bedrock source (SMM104-109). Au values range 6-906 ppb and Cu values range 49-610 ppm in moss mats.

ROAD CONSTRUCTION

Almost 2400m of road was constructed on the ridge between the two forks of Craigtown Creek. The road is an extension of a pre-existing logging road ("340 Road") that ended on the west end of the ridge. It was continued up the west and north flanks of the ridge to a saddle on the top of the ridge. It was built for dual purposes; it provides access to the proximity of several exploration targets defined in the previous years program, and the road will be used for logging and other forest management activities. The road was engineered by the land owner, Erie Creek Forest Reserve Ltd., and was built by Tom Konkin, contractor from Salmo. Orvana contributed to the cost of building this road under an agreement with Erie Creek Forest Reserve. After the road was completed, the newly created bedrock exposures were mapped, and some were sampled (Plates 1-3).

CONCLUSIONS

The Stewart Property has very prospective geology and mineral occurrences, with the potential to host several different types of ore deposits. Efforts during the past two seasons were directed toward the discovery of bulk tonnage Au-Cu porphyry and/or vein deposits in the Craigtown Creek area. This work was all relatively preliminary in nature, with the purpose of identifying and accessing targets for trenching and or drilling. Results of the work in the Craigtown Creek area are encouraging. Several targets have been identified. The targets are primarily related to late felsic monzonite plugs that have intruded along the contacts between the Elise Formation and a larger stock of monzonite/diorite related to the Bonnington Pluton. Some also seem to be related to NE-trending structures. These targets are based on Au/Cu soil anomalies, limited geophysical data, mineralization seen in outcrop/float, and favorable geologic setting. These targets are ready for testing by a trenching and drilling program.

RECOMMENDATIONS

Results of work conducted during the past two seasons have identified several areas that warrent testing by trenching and drilling. These areas are primarily geochemical and alteration/mineralization features associated with felsic monzonite plugs that that have intruded along the contacts between the Elise Formation and a larger stock of monzonite/diorite related to the Bonnington Pluton. Some also appear to be related to NE-trending structures. As outcrop exposure is limited, a trenching program would significantly increase understanding of the style, strength, and dimensions of mineralization. This is the recommended next phase of exploration. Providing the results of the trenching program are encouraging, a drill program is recommended to test the vertical dimension of the mineralization. A minimum program to test the targets would cost approximately $150,000.

STATEMENT OF COSTS

Geologists (incl. Project Management), 20 days	$7,813.00
Contractors (Grid Installation, Sampling)	$4,551.00
Assays, Sample Shipping, 402 samples	$6,579.00
Room/Board/Travel	$1,908.00
Vehicles/Transportation	$1,161.00
Road Construction, 2.4 Km	$18,190.00
Mapping and Sampling Field Supplies	$236.80
Computer Drafting, Report Compilation	$3,000.00
Total	$43,438.80

STATEMENT OF QUALIFICATIONS

I, Robert T. Fredericks, of 2635 City View Drive, Coeur d'Alene, Idaho, U.S.A., certify that:

1. I am a geologist employed by Orvana Minerals Corporation, 710-1177 West Hastings Street, Vancouver, B.C., V6E 2K3, at their office located at 1755 Silver Beach Road, Coeur d'Alene, Idaho 83814.

2. I am a graduate (1986) of the University of Idaho, Moscow, Idaho, and hold a B.Sc. degree in Geology.

3. I have been practicing my profession for the past 12 years.

4. This report is based on information that I and others working under my direction obtained while working on the Stewart Property during the period June 14 - November 17, 1997.

Robert T. Fredericks
Geologist, Orvana Minerals Corporation

Robert T. Fredericks

STATEMENT OF QUALIFICATIONS

I, Ian Thomson of 1628 West 66 Avenue, Vancouver, British Columbia, V6P 2S2, do hereby certify that:

1. I am a graduate (1967) of the University of London, England, with a Bachelor of Science degree in Geology and a graduate (1971) of the University of London, England, with a Doctor of Philosophy degree in Applied Geochemistry.

2. I am a registered Professional Geoscientist in the Province of British Columbia.

3. I have been continuously employed as a geologist-geochemist involved with mineral exploration for 24 years.

4. I hold the position of Vice President, Technical and Environment, with Orvana Minerals Corporation, Vancouver, British Columbia.

5. This report is based on information obtained by others working under my guidance and from analytical data obtained from commercial laboratories.

Ian Thomson, B.Sc., Ph.D., P.Geo.
Vice President, Orvana Minerals Corporation

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Appendix 1

Rock Sample Field Descriptions

№ 23374

2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

DATE 6/16/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 100m S of Avalanche cr on rd
KIND OF SAMPLE grab from rock pit
DESCRIPTION Andesite, Tuffaceous, dk grey to mottled light green, grey to brown (hornfelsed). 2-3% dissem clots of py. Stg dk org FeOx on fx. Not magnetic.

Au	Ag	As	Bi	Cu	Mo
10 ppb	0.2 ppm	<10 ppm	130 ppm	106 ppm	40 ppm

Pb = 18 ppm Zn = 70 ppm

№ 23375

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

DATE 6/16/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 30m N on rd from #374
KIND OF SAMPLE grab over 5m
DESCRIPTION Andesitic volcanic, more massive w/ mafic phenos than #374. Some bedding visible in tuffaceous interbeds @ 015° 85°E. Stg dull org/brn FeOx on fx. Not magnetic, tr-2% dissem dots py.

Au	Ag	As	Bi	Cu	Mo
<5	0.1	<10	120	75	35

Pb = 12 ppm Zn = 64 ppm

№ 23376

2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

DATE 6/16/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 20m S of avalanche ck on rd
KIND OF SAMPLE select common in bank
DESCRIPTION Gossan / weathered magnetite, pyrite, + some altered, bleached volcanic. Some still strongly magnetic. Has a banded appearance - tuff?

Au	Ag	As	Bi	Cu	Mo
464	4.7	500	650	1100	190

Pb = 190 ppm Zn = 210 ppm Co = 260 ppm

№ 23377

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

DATE 6/16/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION landing on avalanche cr rd, (N of ck) grid 8200N 6840E
KIND OF SAMPLE float various grab
DESCRIPTION Andesitic volcaniclastic w/ stg rusty stain, common. Various textures from hornblende porph to mottled fragmental w/ hornfelsy color. tr-3% dissem + clots of py, po. Not magnetic.

Au	Ag	As	Bi	Cu	Mo
14	0.1	<10	130	120	38

Pb = 6 Zn = 38

№ 23378

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

DATE 6/17/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Red bed of main cragtown rd, grid 8820N 6870E
KIND OF SAMPLE chip - subcrop?
DESCRIPTION Brecciated volcanic +/- tuffaceous or clastic component. Mod carbonate alteration, stg brn/org FeOx on weathered surfaces, 1-2% dissem py. Some calcite vlts.

Au	Ag	As	Bi	Cu	Mo
351	0.2	<10	120	85	40

Pb = 11 Zn = 57

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23379

DATE 6/17/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Up ridge from target 2 grid 8920N 6200E
KIND OF SAMPLE float - very common
DESCRIPTION Andesitic volcanic fragmental w/ stg dk org + red/brn FeOx on surfaces, 1-4% dissem + cloty blebs of py, po + tr cpy. Mod.-wkly bleached. If this runs anything, need to resample in detail.

Au	Ag	As	Bi	Cu	Mo
180	0.1	<10	79	200	20

Pb = 5 Zn = 18

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23380

DATE 6/15/97
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION grid 8710N 6200E
KIND OF SAMPLE float
DESCRIPTION Andesitic volcanic, somewhat porphyritic w/ biotite. Common (~10%) spidery magnetite veinlets; also dissem mt. Fairly uniform texture, med gry/green. Mod-stg magnetic. Wk FeOx

Au	Ag	As	Bi	Cu	Mo
126 ppb	0.2 ppm	<10 ppm	100 ppm	310 ppm	22 ppm

Pb = 7 ppm Zn = 21 ppm

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23381

DATE June 9, 1997
SAMPLED BY Jack D
OWNER OR CLAIM Stewart (E Claire #16)
LOCATION approx UTM 5455400N, 474000E, SE of E Claire 13/14 E common post
KIND OF SAMPLE dump (prospect)
DESCRIPTION Massive pyrrhotite + minor cpy in mostly glassy-looking felsic intrusive (like Hattie porph?) + minor argillaceous, brecciated sediment.

Au	Ag	As	Bi	Cu	Mo
15	4.8	110	660	1000	55

Pb = 300 Zn = 67 ppm

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23382

DATE Aug. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Cragtown C, 1230m el, 300m up between SMM32,33, grid 8500N, ~~5~~4100E
KIND OF SAMPLE float
DESCRIPTION Feldspar porphyritic monzonite? w/ i.g. feldspar phenos. Mod fx, w/ tr dissem + fx py/po. No veining. Stg dk org/brn FeOx. Very felsic

Au	Ag	As	Bi	Cu	Mo
237 ppb	1.0 ppm	12 ppm	11 ppm	180 ppm	3 ppm

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23383

DATE Aug 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Approx 350m up SMM33 ck from rd 1240m el finger ridge to W, grid 8520N 4180E
KIND OF SAMPLE float
DESCRIPTION Similar to #382. Feldspar porphyritic felsic intrusive w/ common fx and py? (FQ) + chlorite on fx. Stg orange FeOx. Minor bleached appearance.

Au	Ag	As	Bi	Cu	Mo
303	0.4	<10	15	110	<2

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23384

DATE Aug. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Same as #383
KIND OF SAMPLE float
DESCRIPTION Altered felsic volcanic or intrusive, w/ vague skarn alteration, including chlorite > pyx >> garnet. 1-2% py assoc. w/ chlorite, Dk brown FeOx stain.

Au	Ag	As	Bi	Cu	Mo
4	0.3	<10	11	79	3

* ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23385

DATE Ag. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION hillslope ~ 40m W of SMM 105, below big o.c., grid 8520N 4200E
KIND OF SAMPLE float
DESCRIPTION Felsic intrusive w/ thin black stringer veinlets of chlorite + oxides? Mod. dk brn FeOx

Au	Ag	As	Bi	Cu	Mo
397	1.1	<10	<10	150	<2

ORVANA

Orvana Resources Corp, 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23386

DATE Ag. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION prospect dig ~ 300m up SMM 109 SMM33 ck, grid 8400N 4150E
KIND OF SAMPLE grab
DESCRIPTION Pyrite vein ~ 10cm thick, w/ minor qtz selvages. Vein @ 040° 75° NW.

Au	Ag	As	Bi	Cu	Mo
950	>25	1200	190	330	<2

Pb = 15700 ppm

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23387

DATE Ag. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Same as #386
KIND OF SAMPLE
DESCRIPTION Footwall to vein in sx #23386. Looks like bleached felsic fg. intrusive. Stg. oxidation of dissem + veinlets of py. Zone > 5m wide.

Au	Ag	As	Bi	Cu	Mo
<5	5.0	16	<10	130	<2

ORVANA

Orvana Resources Corp., 2005 Ironwood Parkway, Coeur d'Alene, Idaho 83814, (208) 667-6000

№ 23388

DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Same as previous 2
KIND OF SAMPLE 10' chip
DESCRIPTION Hanging wall to vein in #386. Highly mineralized felsic intrusive, 5-10% veinlets, dissem + big blebs/blobs of pyrite. Very minor qtz assoc w/ veinlets

Au	Ag	As	Bi	Cu	Mo
25 ppb	5.4 ppm	24 ppm	<10 ppm	28 ppm	<2 ppm

Orvana Resources Corp.
2005 Ironwood Parkway
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Aug. 6, 1997

№ 23389 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8120N 5810E

KIND OF SAMPLE Float - not common

DESCRIPTION Fine-grained monzonite w/ white qtz vein. Vein has lots of chlorite + epidote too. Dk oxides. Rock not altered, except for minor chlorite.

Au	Ag				
68	0.4	<10	<10	120	<2

Orvana Resources Corp.
2005 Ironwood Parkway
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Aug. 6, 1997

№ 23390 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8095N 5755E

KIND OF SAMPLE Float - fairly common

DESCRIPTION Fine grained felsic intrusive (monzonite) w/ ~10% vague graph. tan quartz veinlets. Highly fractured. Most of float is highly fx, but w/o qtz vlts. Chlorite alt.

Au	Ag				
399	0.3	<10	<10	34	2

Orvana Resources Corp.
2005 Ironwood Parkway
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Aug. 6, 1997

№ 23391 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8100N 8720E

KIND OF SAMPLE Subcrop

DESCRIPTION Highly brecciated f.g. monzonite w/ stg. qtz druse (v.f.g.) in fx. Mod dk org/brn FeOx, Chlorite, minor sericite. Not magnetic.

Au	Ag				
29	0.1	<10	<10	28	<2

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2005 Ironwood Parkway
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(208) 667-6000

DATE Aug. 6, 1997

№ 23392 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8110N 6640E

KIND OF SAMPLE Float - common

DESCRIPTION Andesitic volcanic w/ common white qtz veins 1-2 cm, w/ minor py + cpy. Also dissem py. Chlorite skins on fx. Not magnetic. Mostly monzonite in float.

Au	Ag				
234	1.2	61	11	140	4

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DATE Aug 6, 1997

№ 23393 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8100N 5010E

KIND OF SAMPLE grab - large o.c.

DESCRIPTION Fine-grained monzonite w/ stg fx 320-340°, less @ 045°. Some shearing, minor qtz veinlets. Dissem py + minor cpy (tr).

Au	Ag				
236	0.5	21	<10	260	<2

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DATE Aug. 6, 1997

№ 23394 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8100N 5430E

KIND OF SAMPLE grab

DESCRIPTION Monzonite. Fine grained mod. fx, w/ some epidote, chlorite veinlets, + minor qtz vlts, Tr dissem py. Chlorite alt. Mod. magnetic.

Au	Ag	As	Bi	Cu	Mo
67ppb	0.2ppm	<10ppm	23ppm	86ppm	<2ppm

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DATE Aug. 6, 1997

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OWNER OR CLAIM Stewart

LOCATION Grid 8110N 5080E

KIND OF SAMPLE float in creek - fairly com.

DESCRIPTION Vein quartz. White, minor pieces w/ limonite. No wall rock.

Au	Ag				
130	0.2	<10	<10	40	<2

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DATE Aug. 6, 1997

№ 23396 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Grid 8100N 4970E

KIND OF SAMPLE float + o.c. (similar)

DESCRIPTION Andesitic volcanic, chlorite altered, w/ K-spar veinlets (2 mm) + minor magnetite vlts, Mod stg magnetic.

Au	Ag				
28	0.2	<10	19	200	<2

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DATE Aug. 7, 1997

№ 23397 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION SMM21 ck, 50m above N Fk Creighton Cr. Grid 9825N 5080E

KIND OF SAMPLE Float - common

DESCRIPTION Andesitic agglomerate. Various clasts. Propylitic alteration. Very rare dissem py, wk - mod magnetic.

Au	Ag				
7	0.1	<10	10	53	<2

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DATE Aug. 7, 1997

№ 23398 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION SMM21 ck, just above #397 Grid 9820N 5080E

KIND OF SAMPLE Float - fairly common

DESCRIPTION Andesite w/ 20% chloritic mafics, fairly f.g. 5% dissem v.f.g. po > py also minor on fx, Stg mod org/brn FeOx on surfaces. Wkly magnetic.

Au	Ag				
41	0.3	<10	<10	160	<2

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DATE Aug. 7, 1997

№ 23399 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION 10m above #398 Grid 9810N 5080E

KIND OF SAMPLE Float - not common

DESCRIPTION Andesitic tuff. grey green, w/ 2-3% dissem + fx f.g. po. Weakly magnetic, Banded.

Au	Ag				
5	0.4	12	<10	340	3

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DATE Aug. 7, 1997

№ 23400 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION 5m above #399

KIND OF SAMPLE float - not common

DESCRIPTION Gossany altered andesite w/ minor dull grey qtz veinlets. Rock is bleached + leached, tannish grey w/ minor remnant mafics. Stg brn/org FeOx, Not magnetic.

Au	Ag				
<5	0.1	<10	<10	100	<2

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DATE Aug. 7, 1997

№ 24770 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION 30m above SMM114 (SMM-21 ck), grid 9700N 5110E (don't see line)

KIND OF SAMPLE Float - not too common

DESCRIPTION Tuff. Fine-grained, thinly-bedded, grey + brown hornfelsed 2-3% dissem po > py. Wkly magnetic. Stg brn/org limonite.

Au	Ag	As	Bi	Cu	Mo
<5ppb	0.7ppm	34ppm	<10ppm	200ppm	6ppm

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DATE Aug. 7, 1997

№ 24771 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION skid rd/ck, ~grid 9410N 5140E

KIND OF SAMPLE Float - not common

DESCRIPTION Andesite with strong patchy dissem (clasts?) + fx controlled selvages of epidote. Not magnetic. Dk grey to black where unaltered, f.g. No sulphides. Mod org/brn FeOx.

Au	Ag				
2.1	0.1	<10	11	6	<2

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DATE Aug. 7, 1997

№ 24772 SAMPLED BY RTF

OWNER OR CLAIM Stewart

LOCATION Dog saddle rd, 100m down (E) of saddle, grid 9350N 5100E

KIND OF SAMPLE Subcrop

DESCRIPTION Andesite, possibly tuff. Mottled dk green + pinkish grey, carbonate altered, 5% dissem fine pyrite. Weakly magnetic. Very strong brn/org FeOx on fx + pervasive.

Au	Ag				
33	0.2	28	<10	130	<2

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№ 24773
DATE Aug 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 60m E of Dog Saddle along road, grid 9340N 5160E
KIND OF SAMPLE subcrop
DESCRIPTION Hornblende needle fine-grained diorite. Altered, fairly soft, chlorite. Tr dissem blebs of sulphide (cc). Dull brown FeOx. In road bed over ~5m-10m.

Au	Ag				
53	0.1	13	44	130	<2

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№ 24774
DATE Aug 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION near saddle, Grid 9060N 5920E
KIND OF SAMPLE grab
DESCRIPTION Dk green altered diorite or volcanic. Highly fx / sheared (looks tectonized), fine-grained w/ granular appearance. Chlorite-carbonate alt. Mod magnetic (dissem). Tr dissem py. Hematite on fx.

Au	Ag				
38	0.2	<10	59	100	<2

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№ 24775
DATE Aug 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION E of Minnow Ngrid ~100m above road, approx grid 9780N 8240E
KIND OF SAMPLE Float - several pieces
DESCRIPTION Porphyritic (feldspar) intrusive, could be fg. feld. porph., Monzonite? 5-10% dull grey qtz vlts w/ some py. Bleached. Some open fx w/ qtz druse. Mod. dk or/brn limonite.

Au	Ag				
8	0.2	<10	21	39	<2

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№ 24776
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION ~150m uphill of #775 approx grid 9920N 8290E
KIND OF SAMPLE grab over 2m
DESCRIPTION Andesite? Aphanitic med grey grndmass w/ hornblende ~5%. Fine-grained. Mod. fx, w/ minor qtz veinlets +/- py. 2-3% dissem f.g. po. Not magnetic. Stg. med or/brn FeOx. Not very altered.

Au	Ag	As	Bi	Cu	Mo
16ppb	0.3ppm	<10ppm	23ppm	110ppm	<2ppm

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№ 24777
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION above #776 ~250m approx grid 5460140N 478250E
KIND OF SAMPLE grab/subcrop
DESCRIPTION Fine-grained porphyritic (feldspar) intrusive, lt grey, bleached + pheno vague. Highly fx w/ minor qtz-chl veinlets. Stg med-dk or/brn FeOx, some after sulphides that are leached. Minor voids in fx.

Au	Ag				
<5	0.4	10	<10	39	<2

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2005 Ironwood Parkway
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№ 24778
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION ~70m above #777, approx grid 5460200N 478260E
KIND OF SAMPLE float - several pieces
DESCRIPTION Gossanous shale. Tuffaceous dk grey, strongly fractured. Very strong dk or/brn limonite. Some leached texture.

Au	Ag				
50	2.4	340	<10	84	23

Pb = 100 ppm, Zn = 570 ppm

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№ 24779
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION W side of summit, Anomaly Pk approx grid 5460400N 478180E
KIND OF SAMPLE grab
DESCRIPTION Porph. (feldspar) monzonite. Stg fx + minor qtz veins w/ open, toothy structure, 2% dissem f.g. po. Not magnetic. Stg or/brn FeOx. Relatively small patch 5x5m, next to 045° notch in hill.

Au	Ag				
21	0.6	19	<10	74	<2

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№ 24780
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION ~250m W of Anomaly Pk, 20m S of ridge crest, grid 5460320N 478000E
KIND OF SAMPLE select
DESCRIPTION Anomaly Pk porphyry (feldspar) monzonite w/ 040° oxidized sulphide seam 2mm wide. Rock not much altered.

Au	Ag				
368	1.0	48	32	110	<2

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№ 24781
DATE Aug. 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Bluff another ~100m W of #780 grid 5460280N 477920E
KIND OF SAMPLE character
DESCRIPTION Pyrite veins in hornblend tuff. Veins are 1-2cm wide, + strike 350° to 360°, vertical. Tuff bedding @ 345° 90°. Old sx flag @ site.

Au	Ag				
167	1.4	80	22	160	2

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№ 24782
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION ~150m W down ridge from #781 small knoll, grid 5460230N 477800E
KIND OF SAMPLE character float
DESCRIPTION Qtz-carbonate vein material in carbonate altered rock. Fairly common.

Au	Ag	As	Bi	Cu	Mo
16ppb	0.3ppm	400ppm	<10ppm	26ppm	<2ppm

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№ 24783
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Same as #782
KIND OF SAMPLE float character across 10m
DESCRIPTION Carbonate altered f.g. intrusive? rock. Very stg pervasive calcite + earthy or/brn FeOx. 1% dissem blebs po in fresh samples. From zone ~20m wide trending 040° - 028° az from W Moly rd jctn.

Au	Ag				
22	0.4	51	<10	97	<2

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№ 24784
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION ~70m on trend (220°) from #783 approx grid 5460150N 477750E
KIND OF SAMPLE float
DESCRIPTION Carbonate altered intrusive w/ 2% dissem f.g. py. Highly bleached. Very stg br/or FeOx. Minor py on fx.

Au	Ag				
235	0.4	81	<10	180	<2

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№ 24785
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Minnow 6100N 3400E approx grid 5459900N 477550E
KIND OF SAMPLE float - common
DESCRIPTION Andesitic volcanic, some calcite on fx, mottled and altered (mostly chlorite). 5% po as dissem + fx coatings. Weakly magnetic. Stg FeOx.

Au	Ag				
90	0.2	13	15	110	7

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№ 24786
DATE Aug. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION ~180 downhill of #785 (S) approx grid 5459720N 477600E
KIND OF SAMPLE float - couple pieces
DESCRIPTION Grungy altered (chlorite) andesitic volcanic (possibly intrusive?) Stg fx w/ clots of py + po. Stg dk limonite. Carbonate altered.

Au	Ag				
50	1.6	52	32	310	<2

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№ 24787
DATE Aug 9, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7800N 5650E
KIND OF SAMPLE float
DESCRIPTION Med-grained monzonite w/ 15-20% biotite, carbonate altered (but not w/ FeOx), w/ 5% qtz-py veinlets. Wk-mod. magnetic. 10m from 441 ppb Au in soil.

Au	Ag	As	Bi	Cu	Mo
16ppb	0.3ppm	17ppm	47ppm	21ppm	<2ppm

№ 24788

20' ...od Parkway
Coe... , Idaho 83814
... 667-6000

DATE Aug. 9, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7910N 5630E
KIND OF SAMPLE float rubble - common
DESCRIPTION Gougy, sheared, bx monzonite w/ minor qtz veinlets on mm scale. Mod. FeOx. Shears @ 345° 90°

Au	Ag				
23	0.3	<10	10	37	<2

№ 24789

2005 Ironwood Parkway
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Aug. 9, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7915N 5820E
KIND OF SAMPLE Float
DESCRIPTION Sheared, bx monzonite w/ 1% oxidized cubes of py + wk qtz seams (mostly dry bx). No carbonate.

Au	Ag				
11	0.2	<10	<10	39	<2

№ 24790

Orv... ...rces Corp.
200... ...d Parkway
Coeur ... , Idaho 83814
(208) 667-6000

DATE Sept. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7700N 5285E
KIND OF SAMPLE float - 1 piece
DESCRIPTION Brecciated qtz monzonite propylitic to wk silic/sericite alt. w/ 3% pyrite in gougy crushed zones. No qtz veinlets.

Au	Ag				
9	0.2	<10	43	60	<2

№ 24791

Orvana Resources Corp.
2005 Ironwood Parkway
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Sept. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7700N 5170E
KIND OF SAMPLE select
DESCRIPTION Rhyolite, aphanitic, lt. tannish gray, w/ stg FeOx, looks like after minor py in fx + small brecciated zones. No qtz veining.

Au	Ag				
<5	<.1	<10	15	63	5

№ 24792

Orva... ...rces Corp.
2005 ...d Parkway
Coeur ... , Idaho 83814
(208) 667-6000

DATE Sept. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7905N 5590E
KIND OF SAMPLE grab - small o.c.
DESCRIPTION Dk grey andesite? Propylitic alt, wkly magnetic, w/ carbonate (pervasive). No veining. 10 m from 526ppb Au soil. Wk fx. Could be alt. fg. qtz mz intrusive

Au	Ag				
5	<.1	<10	160	43	<2

ORVANA № 24793

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(208) 667-6000

DATE Sept. 5, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 7940N 5630E
KIND OF SAMPLE grab over 3m
DESCRIPTION Sheared, gougy qtz mz w/ wk silicification and tr pyrite. Shearing @ 330° 90°. Wk FeOx. Looks lime.

Au	Ag				
13	0.2	22	20	46	3

ORVANA № 24794

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(208) 667-6000

DATE Sept. 6, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 road grid 5459550N 474480E
KIND OF SAMPLE 5 m chip
DESCRIPTION Gougy, sheared andesite, soft, clay weathering. Shear @ NW, 90°. Very minor qtz veinlets. Dull brown FeOx. Zone ~15m wide.

Au	Ag				
<5	<.1	<10	120	210	<2

ORVANA № 24795

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(208) 667-6000

DATE Sept. 6, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 road grid 9210N 4240E
KIND OF SAMPLE character
DESCRIPTION Fractured, moderately alt. andesitic volcaniclastic, w/ zones of bleaching + qtz-sericite along fx. Alt. isn't very pervasive. Minor pyrite + qtz veinlets. Possible tr. bornite.

Au	Ag	As	Bi	Cu	Mo
<5ppb	1.0ppm	<10ppm	45ppm	510ppm	58ppm

ORVANA № 24796

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(208) 667-6000

DATE Sept. 6, 1997
SAMPLED BY RTF/JD
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 road ~30m up from #797, grid 9200N 4225E
KIND OF SAMPLE grab/character
DESCRIPTION Andesite, dk green/grey w/ minor qtz veinlets/selvages, some mottled bleaching, + 2-3% py on fx + stringers. Stg. med org/brn FeOx.

Au	Ag				
14	0.3	1500	27	110	5

ORVANA № 24797

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(208) 667-6000

DATE Sept. 6, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 road 9165N 4185E
KIND OF SAMPLE grab/character
DESCRIPTION Hornfels, bleached, mottled andesite w/ lt. grey selvages. 3-5% py > po on fx + stringers. Stg. dk org/brn FeOx + some MnOx. Stg. shearing.

Au	Ag				
17	0.3	41	54	350	17

ORVANA № 24798

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DATE Sept. 6, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 road 9025N 4055E
KIND OF SAMPLE grab over 15m
DESCRIPTION Soft, chlorite to clay altered fg. andesite, tends to be mafic, but can see feldspar crystals. Wk FeOx. No veining.

Au	Ag				
<5	0.2	<10	290	84	<2

ORVANA № 24 99

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DATE Sept. 6, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 road, 25m up road from #800, grid 9050N 3930E
KIND OF SAMPLE grab
DESCRIPTION Hornfelsed andesitic tuff, m.g. - can see feldspar crystals, 1-2% v.f.g. py on fx. Stg dk org/brn FeOx.

Au	Ag				
<5	0.1	<10	64	140	7

ORVANA № 24800

Orvana Resources Corp.
2005 Ironwood Parkway
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(208) 667-6000

DATE Sept 6, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 Rd grid 9080N 3930E
KIND OF SAMPLE grab
DESCRIPTION Hornfelsed andesitic f.g. tuff w/ 3-5% dissem + blebs of py (after mafics). Some weak selvages along fx. Stg dk org/brn FeOx on fx. Taken 8m from contact w/ granite.

Au	Ag				
10	0.1	<10	86	91	12

ORVANA № 25501

Orvana Resources Corp.
1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Sept. 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 Rd spur above 1st switchback 5458850N 473800E
KIND OF SAMPLE grab over 5m
DESCRIPTION Tuff, hornfelsed, andesitic, w/ mottled bleaching from dk grey to light green or grey. Minor k-spar selvages + silicified seams w/ py. Also dissem py clots after mafics. Very stg dk org/brn FeOx on fx.

Au	Ag	As	Bi	Cu	Mo
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ORVANA № 25502

Orvana Resources Corp.
1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

DATE Sept. 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 rd spur 5458785N 473790E
KIND OF SAMPLE grab
DESCRIPTION Porphyritic, felsic feldspar porph. intrusive w/ lt grey feldspar phenos ½-2cm long in groundmass of almost all grey feldspar. Very low mafics (~5%) that are stg. alt (chlorite to py) 2-3% dissem py. Bleached lite tan/grey, wk pervasive sericite. Stg. med org/brn FeOx.

Au	Ag				
16	0.5	<10	43	125	18

Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25503
DATE Sept. 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart - E Claire
LOCATION 340 Rd spr, e end, 25m S of #502, 5458760N 473790E
KIND OF SAMPLE grab
DESCRIPTION Same as #502, w/ minor FeOx seams - after py? Alteration is irregular.

Au	Ag				
<5	0.6	11	38	100	<2

Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25504
DATE Sept. 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 30m above #505, 5457950N 474280E
KIND OF SAMPLE 5m grab
DESCRIPTION Sheared altered m.g. monzonite w/ very stg FeOx after dissem + stringer py. Rock bleached + wk sericite, clay alt. Stg shear/alteration schistose fabric @ 030° 90°.

Au	Ag				
34	2.29oz/t	<10	620	230	<2

Pb = 4600ppm

Nº 25505
DATE Sept. 7, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Simmons ck ~80 above rd @ shaft adit (020°), 5457925N 474280E
KIND OF SAMPLE 1.5m grab
DESCRIPTION Sheared altered monzonite w/ very strong med. org/brn FeOx after dissem. + stringers of py along 020° 90° shear zone. Mafics chloritized, rock is bleached w/ wk sericite + clay alt. No obvious vein, but minor qtz filling in box.

Au	Ag	As	Bi	Cu	Mo
15ppb	2.7ppm	<10ppm	44ppm	210ppm	<2ppm

1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25506
DATE Sept. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 8600N 5315E
KIND OF SAMPLE Float - 1 piece (rounded)
DESCRIPTION Mafic pheno (pyx?) porph. andesite w/ 1-2% dissem blebs & py > po. Wk bleaching, mottled. Not magnetic. Mod org/brn FeOx on fx.

Au	Ag				
19	0.1	<10	47	160	<2

Orvana
1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25507
DATE Sept. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 8500N 5260E
KIND OF SAMPLE float - common
DESCRIPTION Fine-grained felsic monzonite. 10-20% chloritized mafics. Common epidote on fx, minor py also, & tr mt veinlets. Rock wk-mod magnetic.

Au	Ag	As	Bi	Cu	Mo
15ppb	0.1ppm	<10ppm	23ppm	61ppm	<2ppm

ORVANA
Orvana Resources Corp.
1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25508
DATE Sept. 8, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION Grid 8450N 5100E
KIND OF SAMPLE grab
DESCRIPTION Andesite, mafic phenos, + dissem blebs py 1-2%. Mod FeOx. By contact w/ f.g. felsic monzonite.

Au	Ag				
50	0.2	<10	35	140	<2

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Nº 25516
DATE Oct. 20 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 Rd @ saddle, (120m W of saddle) 9255N 5800E
KIND OF SAMPLE grab
DESCRIPTION Sheared phyllitic f.g. andesite. Dk greenish grey. Stg NE shear fabric. Mod. FeOx on fx. Slickensides.

Au	Ag	As	Bi	Cu	Mo
5ppb	0.1ppm	<10ppm	<10ppm	180ppm	<2ppm

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Nº 25517
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 rd, ~20m E of #516, grid 9260N 5820E
KIND OF SAMPLE grab
DESCRIPTION Sheared, dk grey, f.g. andesite. Wk chlorite? Mod-stg FeOx on fx.

Au	Ag				
38	<.1	<10	130	230	<2

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(208) 667-6000

Nº 25518
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 rd, ~10m E of #517, grid 9260N 5830E
KIND OF SAMPLE grab
DESCRIPTION Sheared andesite (or diorite), med. greenish grey, w/ wisps + fx fillings of f.g. magnetite. Mod-stg FeOx on fx. More felsic - may be intrusive. Stg. magnetic.

Au	Ag				
118	0.2	<10	110	360	<2

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1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25519
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 rd, ~20m E of #518, 9265N 5850E
KIND OF SAMPLE grab
DESCRIPTION Andesite. Fine-grained, med-dk grey, w/ 1% f.g. py as dissem. + on fx. Stg org FeOx on fx. Dissem magnetite.

Au	Ag				
322	0.6	<10	21	540	4

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(208) 667-6000

Nº 25520
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 rd, ~20m E of #519, 9265N 5870E
KIND OF SAMPLE grab
DESCRIPTION Feldspar porphyritic monzonite. Fine grained grdmass, trachytic feldspar phenos (laths) up to .25cm. Wk chlorite alt. 3% dissem + wispy stringers of f.g. py. Also 2-3% mt as dissem + wisps. Lt. greenish grey. Mod FeOx.

Au	Ag				
118	0.2	<10	82	400	15

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1755 Silver Beach Loop
Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25521
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 rd, ~30m E of #519, grid 9255N 5895E
KIND OF SAMPLE grab
DESCRIPTION Andesite, f.g. w/ minor hornblende phenos/laths. Lt green/grey. Common vlts of py, qtz + minor mt. Common dissem mt + minor py. Not very altered. Mod. dk FeOx.

Au	Ag				
67	0.1	<10	120	210	3

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(208) 667-6000

Nº 25522
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 Rd, ~15m E of #521, grid 9250N 5910E
KIND OF SAMPLE grab
DESCRIPTION Andesite. Fine-grained, med. greenish grey, pervasive chlorite alt. 2% py as dissem + thin veinlets, fx coatings. Stg dk FeOx on fx.

Au	Ag	As	Bi	Cu	Mo
261ppb	0.2ppm	<10ppm	65ppm	296ppm	33ppm

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Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25523
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 Rd, ~3m E of #522, grid 9250N 5913E
KIND OF SAMPLE grab
DESCRIPTION Porphyritic diorite/andesite. Felsic, w/ 40% white feldspar phenos. Mafics in grdmass pervasively chloritized. 2% dissem f.g. py. Stg dk org-red brn FeOx.

Au	Ag				
191	0.1	<10	24	160	<2

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Coeur d'Alene, Idaho 83814
(208) 667-6000

Nº 25524
DATE Oct. 20, 1997
SAMPLED BY RTF
OWNER OR CLAIM Stewart
LOCATION 340 rd between #520, 521, 9260N, 5875E
KIND OF SAMPLE grab
DESCRIPTION Andesite. Wk feldspar phenos, generally f.g. Mafics are pervasively chloritized in matrix. 2-3% dissem + fx controlled f.g. py. Minor mt as dissem + on fx. Dk FeOx stain.

Au	Ag				
131	0.1	<10	77	270	3

Appendix 2

Rock Sample Geochemical Labratory Reports

SVL ANALYTICAL, INC.
REPORT OF ANALYTICAL RESULTS

SVL Job Number :X70114
Sample Receipt : 6/20/97
Date of Report : 7/01/97
No. of Samples : 31 Rock
P.O. No. :SKARN

Client: PAUL DIRCKSEN
ORVANA RESOURCES
1755 SILVER BEACH LOOP
COEUR D'ALENE ID 83814

ATTN: ROB FREDERICKS
7/3/97 - Corrected values for Bi,Mo

CLIENT SAMPLE ID	Test :	Au	Ag	As	Bi	Co	Cu	Pb	Mo
	Units :	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	Method:	FA+AA	FA+AA	ICP	ICP	ICP	ICP	ICP	ICP
23374		10	.2	<10	<10	19	100	8	<2
23375		<5	.1	<10	<10	18	75	12	<2
23376		484	4.7	500	<10	260	1100	190	<2
23377		14	.1	<10	<10	20	120	6	<2
23378		351	.2	<10	<10	14	85	11	4
23379		180	.1	<10	<10	19	200	5	<2
23380		128	.2	<10	<10	17	310	7	<2
23381		15	4.8	110	31	89	1000	300	<2

CLIENT SAMPLE ID	Test :	Zn	Ba
	Units :	ppm	ppm
	Method:	ICP	ICP
23374		70	150
23375		84	180
23376		210	28
23377		38	120
23378		57	40
23379		18	31
23380		21	67
23381		67	22

SVL ANALYTICAL, INC.
REPORT OF ANALYTICAL RESULTS

SVL Job Number :X70169
Sample Receipt : 8/12/97
Date of Report : 8/27/97
No. of Samples : 39 Rock
P.O. No. :SKARN PKG

Client: PAUL DIRCKSEN
ORVANA RESOURCES
1755 SILVER BEACH LOOP
COEUR D'ALENE ID 83814

REVISED REPORT

CLIENT SAMPLE ID	Test : Units : Method:	Au ppb FA+AA	Ag ppm FA+AA	As ppm ICP	Bi ppm ICP	Co ppm ICP	Cu ppm ICP	Pb ppm ICP	Mo ppm ICP
23382		237	1.0	12	11	2	180	19	3
23383		303	.4	<10	15	<2	110	17	<2
23384		46	.3	<10	11	9	79	20	3
23385		397	1.1	<10	<10	<2	150	30	<2
23386		950	>25	1200	190	57	330	15700	<2
23387		<5	5.0	16	<10	2	130	360	<2
23388		25	5.4	24	<10	6	61	380	28
23389		68	.4	<10	<10	11	120	22	<2
23390		399	.3	<10	<10	8	34	30	2
23391		29	.1	<10	<10	13	28	47	<2
23392		234	1.2	61	11	14	140	56	4
23393		236	.5	21	<10	11	260	31	<2
23394		67	.2	<10	23	7	86	21	<2
23395		130	.2	<10	<10	3	40	30	<2
23396		28	.2	<10	19	7	200	16	<2
23397		7	.1	<10	10	13	53	18	<2
23398		41	.3	<10	<10	11	160	25	<2
23399		5	.4	12	<10	35	340	17	3
23400		<5	.1	<10	<10	17	100	14	<2
24770		<5	.7	34	<10	31	200	57	6
24771		21	.1	<10	11	5	6	15	<2
24772		33	.2	28	<10	32	130	41	<2
24773		53	.1	13	44	17	130	32	<2
24774		38	.2	<10	59	22	100	48	<2
24775		8	.2	<10	21	9	39	32	<2
24776		16	.3	<10	23	22	110	42	<2
24777		<5	.4	10	<10	12	39	76	<2
24778		50	2.4	340	<10	110	84	100	23
24779		21	.6	19	<10	18	74	40	<2
24780		368	1.0	48	32	10	110	39	<2
24781		167	1.4	80	22	26	160	40	2
24782		16	.3	400	<10	6	28	24	<2
24783		22	.4	51	<10	23	97	34	<2
24784		235	.4	81	<10	18	180	39	<2
24785		90	.2	13	15	12	110	19	7
24786		50	1.6	52	32	18	340	32	<2
24787		162	.3	17	42	14	21	24	<2
24788		23	.3	<10	10	11	37	54	<2
24789		111	.2	<10	<10	10	39	17	<2

SVL ANALYTICAL, INC.
REPORT OF ANALYTICAL RESULTS

SVL Job Number :X70169
Sample Receipt : 8/12/97
Date of Report : 8/27/97
No. of Samples : 39 Rock
P.O. No. :SKARN PKG
Page 2 of 2

Client: PAUL DIRCKSEN
ORVANA RESOURCES
1755 SILVER BEACH LOOP
COEUR D'ALENE ID 83814

REVISED REPORT

CLIENT SAMPLE ID	Test : Units : Method:	Zn ppm ICP	Ba ppm ICP
23382		21	67
23383		16	24
23384		21	65
23385		40	17
23386		320	9
23387		40	14
23388		33	21
23389		26	20
23390		44	30
23391		83	73
23392		67	45
23393		63	32
23394		47	32
23395		24	22
23396		27	14
23397		53	18
23398		28	18
23399		19	11
23400		10	16
24770		140	60
24771		31	19
24772		88	45
24773		33	90
24774		95	270
24775		57	53
24776		170	73
24777		200	27
24778		570	100
24779		220	41
24780		120	27
24781		[illegible]	30
24782		61	54
24783		100	63
24784		52	31
24785		33	20
24786		46	80
24787		44	96
24788		120	57
24789		29	36

Reviewed By: C. Meyer/BR Date: 08/27/97 Charges : $653.25

/ Stewart

SVL ANALYTICAL, INC.
REPORT OF ANALYTICAL RESULTS

SVL Job Number :X70217
Sample Receipt : 9/17/97
Date of Report :10/02/97
No. of Samples : 26 Rock
P.O. No. :SKARN

Client: PAUL DIRCKSEN
ORVANA RESOURCES
1755 SILVER BEACH LOOP
COEUR D'ALENE ID 83814

ATTN: ROB FREDERICKS

CLIENT SAMPLE ID	Test : / Units : / Method:	Au ppb FA+AA	Ag ppm FA+AA	As ppm ICP	Bi ppm ICP	Co ppm ICP	Cu ppm ICP	Pb ppm ICP	Mo ppm ICP
24790		9	.2	<10	43	10	60	<5	<2
24791		<5	<.1	<10	15	<2	63	20	5
24792		5	<.1	<10	160	10	43	<5	<2
24793		13	.2	22	20	16	46	120	3
24794		<5	<.1	<10	120	29	210	<5	<2
24795		<5	1.0	<10	45	28	510	160	58
24796		14	.3	1500	27	16	110	43	5
24797		17	.3	41	54	17	350	11	17
24798		<5	.2	<10	290	41	84	580	<2
24799		<5	.1	<10	64	16	140	<5	7
24800		10	.1	<10	86	10	91	<5	12
25501		14	.1	<10	80	10	130	<5	<2
25502		16	.5	<10	43	<2	120	13	18
25503		<5	.6	11	38	3	100	9	<2
25504		34	>25	<10	620	6	230	4600	<2
25505		15	2.7	<10	44	5	210	77	<2
25506		19	.1	<10	47	16	160	<5	<2
25507		15	.1	<10	23	5	60	<5	<2
25508		50	.2	<10	35	21	140	<5	<2

CLIENT SAMPLE ID	Test : / Units : / Method:	Zn ppm ICP	Ba ppm ICP	Ag oz/t FA
24790		44	110	
24791		11	38	
24792		80	64	
24793		140	45	
24794		92	140	
24795		79	16	
24796		540	29	
24797		260	66	
24798		350	480	
24799		26	40	
24800		37	54	
25501		43	27	
25502		14	92	
25503		16	31	
25504		66	110	2.29
25505		28	16	
25506		17	110	
25507		34	18	
25508		24	33	

SVL ANALYTICAL, INC.
REPORT OF ANALYTICAL RESULTS

SVL Job Number :X70266
Sample Receipt :10/30/97
Date of Report :11/10/97
No. of Samples : 9 Rock
P.O. No. :SKARN
Page 1 of 2

Client: PAUL DIRCKSEN
ORVANA RESOURCES
1755 SILVER BEACH LOOP
COEUR D'ALENE ID 83814

ATTN: ROB FREDERICKS

CLIENT SAMPLE ID	Test : Units : Method:	Au ppb FA+AA	Ag ppm FA+AA	As ppm ICP	Bi ppm ICP	Co ppm ICP	Cu ppm ICP	Pb ppm ICP	Mo ppm ICP
25516		56	.1	<10	<10	20	180	22	<2
25517		38	<.1	<10	130	27	230	34	<2
25518		118	.2	<10	110	31	360	23	<2
25519		322	.6	<10	21	30	540	17	4
25520		118	.2	<10	82	24	400	8	15
25521		67	.1	<10	120	17	210	13	3
25522		261	.2	<10	65	14	290	<5	33
25523		191	.1	<10	24	15	160	5	<2
25524		131	.1	<10	77	14	270	8	3

CLIENT SAMPLE ID	Test : Units : Method:	Zn ppm ICP	Ba ppm ICP
25516		75	59
25517		110	300
25518		80	180
25519		43	280
25520		21	78
25521		27	37
25522		21	46
25523		14	12
25524		28	82

Appendix 3

Soil & Moss Mat Sample Geochemical Labratory Reports

ACME A YTICAL LABORATORIES LTD. 852 E. HASTINGS ST. \ 'OUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604' \-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Orvana Minerals Corp. File # 97-3331 Page 1

710 - 1177 W. Hastings St, Vancouver BC V6E 2K3 Submitted by: Jack Denny

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
L85N 50+10E	1	230	32	163	.5	59	26	1453	4.71	7	<5	<2	<2	39	.4	<2	<2	116	.38	.213	10	85	1.32	237	.19	<3	3.29	.02	.19	<2	19
L85N 50+40E	1	140	28	180	<.3	69	25	1617	4.66	4	<5	<2	<2	59	.2	<2	<2	109	.49	.216	8	95	1.30	255	.18	<3	2.93	.02	.20	<2	6
L85N 50+70E	2	284	30	156	.3	85	32	973	5.07	6	<5	<2	3	45	<.2	<2	<2	131	.39	.094	13	139	1.67	146	.19	<3	3.40	.02	.22	<2	14
L85N 51+00E	1	201	36	249	.8	103	31	2017	5.47	12	<5	<2	<2	64	1.0	<2	<2	146	.54	.113	16	157	2.17	240	.22	<3	4.25	.02	.27	<2	14
RE L85N 51+00E	2	199	43	249	.8	104	31	2024	5.43	9	<5	<2	<2	64	.8	<2	<2	145	.55	.113	16	155	2.18	240	.22	<3	4.25	.02	.28	<2	13
L85N 51+30E	1	122	36	235	.5	34	23	1948	4.11	6	<5	<2	<2	50	1.4	<2	<2	97	.48	.277	9	50	.63	204	.11	<3	3.17	.02	.14	<2	19
L85N 51+60E	1	126	33	155	.4	30	21	2064	4.37	12	<5	<2	<2	47	.2	<2	<2	105	.47	.286	9	49	.76	191	.14	<3	3.17	.02	.14	<2	15
L85N 51+90E	1	130	48	131	.3	28	23	2607	4.60	14	<5	<2	<2	62	.6	<2	<2	116	.52	.202	9	50	.84	246	.14	<3	2.62	.02	.17	<2	18
L85N 52+20E	1	224	28	125	.3	27	27	1319	6.43	23	<5	<2	<2	63	<.2	<2	2	173	.56	.194	7	55	1.23	126	.15	<3	2.67	.01	.18	<2	17
L85N 52+50E	1	401	20	127	.3	32	26	1023	6.37	22	<5	<2	<2	41	<.2	<2	<2	191	.34	.214	7	50	1.74	123	.20	<3	3.91	.01	.29	<2	34
L85N 52+80E	1	357	34	144	.3	35	30	2114	6.69	39	<5	<2	<2	35	.3	<2	2	185	.27	.261	7	58	1.53	154	.18	<3	3.75	.01	.22	<2	87
L85N 53+10E	2	255	21	243	.3	66	28	1460	5.69	11	<5	<2	<2	39	.4	<2	2	143	.34	.256	5	99	1.50	175	.21	<3	3.68	.01	.24	<2	20
L85N 53+40E	1	287	18	137	.4	78	29	879	4.91	10	<5	<2	<2	40	<.2	<2	<2	131	.40	.136	5	130	1.68	189	.22	<3	3.82	.01	.26	<2	16
L85N 53+70E	1	183	13	139	.4	56	27	1195	5.07	6	<5	<2	<2	44	.4	<2	4	132	.34	.103	4	93	1.27	273	.18	<3	3.15	.01	.22	<2	26
L85N 54+00E	1	167	21	125	.4	46	24	1149	5.02	7	<5	<2	<2	57	<.2	<2	<2	126	.45	.128	7	76	1.14	203	.18	<3	3.26	.01	.17	<2	99
L85N 54+30E	1	206	20	112	.6	39	24	1073	4.55	6	<5	<2	<2	50	<.2	<2	<2	114	.41	.104	7	66	1.01	192	.17	<3	3.27	.01	.15	<2	29
L85N 54+60E	2	163	16	88	.3	44	25	1735	4.54	9	<5	<2	<2	43	<.2	<2	<2	117	.36	.063	6	78	1.15	180	.18	<3	2.60	.02	.12	<2	524
L85N 54+90E	1	161	26	141	.6	56	24	745	4.81	16	<5	<2	<2	48	.3	<2	<2	117	.43	.247	7	93	1.34	260	.17	<3	3.56	.02	.19	<2	309
L83N 50+10E	<1	144	17	138	.4	24	22	1260	5.83	8	<5	<2	2	87	.2	<2	<2	162	.70	.240	13	40	1.20	191	.18	<3	3.25	.02	.20	<2	7
L83N 50+40E	<1	152	18	127	.6	21	21	1046	5.40	10	<5	<2	2	64	<.2	2	<2	150	.46	.281	8	34	.87	136	.15	<3	2.96	.02	.15	<2	13
L83N 50+70E	<1	96	14	66	<.3	27	19	642	4.21	7	<5	<2	2	57	<.2	2	<2	110	.49	.171	8	49	.72	140	.14	<3	2.61	.02	.09	<2	30
L83N 51+00E	1	77	25	73	<.3	26	20	1776	4.20	9	<5	<2	<2	67	<.2	<2	<2	101	.52	.185	6	55	.62	297	.12	<3	1.90	.02	.09	<2	88
L83N 51+30E	1	86	18	64	.3	26	19	1074	3.92	12	<5	<2	<2	64	<.2	<2	<2	95	.47	.130	6	48	.65	129	.11	3	2.03	.02	.08	<2	13
L83N 51+60E	1	92	18	107	.3	37	21	1043	4.08	9	<5	<2	<2	53	.4	<2	<2	91	.48	.261	7	51	.86	214	.15	<3	3.54	.02	.13	<2	14
L83N 51+90E	1	148	19	126	.5	35	25	994	4.22	13	<5	<2	<2	58	.6	<2	<2	96	.55	.104	8	49	.85	161	.16	<3	3.25	.02	.13	<2	13
L83N 52+20E	1	120	19	124	.6	35	23	1246	4.83	16	<5	<2	<2	37	<.2	<2	<2	112	.29	.262	8	50	.93	198	.15	<3	3.10	.01	.14	<2	12
L83N 52+50E	<1	111	20	115	.4	37	24	1216	5.30	17	<5	<2	<2	50	<.2	<2	<2	127	.38	.230	9	55	1.05	174	.19	<3	2.99	.02	.17	<2	9
L83N 52+80E	1	191	18	106	.5	37	22	735	4.80	15	<5	<2	<2	42	<.2	<2	2	123	.35	.112	6	56	1.08	127	.17	<3	2.68	.01	.13	<2	68
L83N 53+10E	1	121	16	91	.4	31	22	1390	4.62	10	<5	<2	<2	46	<.2	<2	3	120	.36	.113	6	54	1.07	150	.16	<3	2.81	.01	.10	<2	31
L83N 53+40E	<1	62	19	79	.4	25	18	1338	4.10	7	<5	<2	<2	39	<.2	<2	<2	93	.31	.256	7	38	.67	233	.14	<3	2.71	.02	.09	<2	72
L83N 53+70E	1	65	18	72	.9	22	18	1409	4.26	8	<5	<2	<2	41	<.2	<2	<2	103	.32	.118	7	36	.62	155	.16	<3	2.77	.02	.10	<2	14
L83N 54+00E	1	52	19	67	.4	18	16	1014	3.89	10	<5	<2	<2	30	<.2	<2	<2	89	.25	.140	5	31	.49	117	.14	<3	2.51	.01	.08	<2	15
L83N 54+30E	1	68	15	71	.9	19	17	1191	4.42	11	<5	<2	<2	25	<.2	2	<2	106	.21	.118	5	33	.47	117	.16	<3	2.86	.02	.08	<2	9
L83N 54+60E	1	96	16	104	.5	17	17	2291	4.57	8	<5	<2	<2	36	<.2	<2	<2	120	.35	.137	8	25	.69	181	.17	<3	3.08	.02	.09	<2	9
L83N 54+90E	<1	70	14	106	.8	17	17	1588	4.70	6	<5	<2	<2	45	.3	<2	<2	118	.34	.171	4	34	.82	209	.16	<3	2.99	.01	.15	<2	10
STANDARD C3/AU-S	25	63	36	157	5.8	36	12	775	3.62	56	19	4	17	31	24.3	13	22	80	.62	.087	17	164	.70	153	.10	20	1.97	.04	.18	18	44

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 3 1997 DATE REPORT MAILED: July 10/97 SIGNED BY. ....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

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
L81N 50+10E	<1	87	20	85	.5	23	17	647	4.70	3	<5	<2	2	42	<.2	<2	<2	119	.39	.215	6	36	.60	84	.14	<3	2.91	.02	.09	<2	590
L81N 50+40E	<1	113	14	68	.4	23	20	632	5.83	<2	<5	<2	<2	52	<.2	<2	<2	159	.51	.208	8	40	.78	105	.11	<3	2.47	.02	.09	<2	34
L81N 50+70E	<1	146	13	84	.7	21	19	974	5.02	5	<5	<2	<2	48	.2	<2	<2	139	.42	.227	11	40	.81	151	.14	<3	3.12	.02	.13	<2	15
L81N 51+00E	<1	178	15	104	.5	33	21	715	4.22	4	<5	<2	2	45	<.2	<2	<2	109	.40	.265	7	52	1.06	128	.15	<3	3.12	.02	.12	<2	16
L81N 51+30E	<1	106	9	64	.4	24	16	470	3.97	7	<5	<2	2	43	<.2	<2	2	98	.41	.187	6	38	.71	124	.14	<3	2.96	.02	.07	<2	27
L81N 51+60E	<1	97	12	65	.6	24	20	348	4.86	13	<5	<2	2	44	<.2	<2	<2	124	.40	.232	6	38	.67	81	.11	<3	2.63	.02	.09	<2	29
L81N 51+90E	<1	72	12	65	.5	22	17	652	4.55	7	<5	<2	2	37	.2	<2	<2	110	.30	.128	9	35	.59	126	.13	<3	2.88	.02	.08	<2	59
RE L81N 51+90E	<1	70	18	67	.5	22	19	637	5.02	5	<5	<2	2	37	<.2	<2	<2	123	.30	.123	9	35	.58	121	.13	<3	2.71	.02	.08	<2	14
L81N 52+20E	<1	87	13	58	.4	26	19	408	4.61	11	<5	<2	2	54	<.2	<2	<2	115	.46	.123	7	43	.69	100	.13	<3	2.86	.02	.10	<2	19
L81N 52+50E	1	100	19	94	.8	33	24	992	4.99	10	<5	<2	2	52	<.2	<2	3	118	.43	.154	11	50	.94	124	.12	<3	3.27	.02	.12	<2	13
L81N 52+80E	<1	76	12	89	.4	25	24	1139	5.48	6	<5	<2	<2	55	<.2	<2	<2	122	.42	.278	7	48	.89	207	.10	<3	2.37	.01	.12	<2	30
L81N 53+10E	<1	98	10	73	.4	24	22	666	5.24	11	<5	<2	<2	49	<.2	2	<2	126	.39	.128	10	48	.70	102	.12	<3	2.36	.01	.10	<2	71
L81N 53+40E	<1	110	13	83	1.2	20	20	1060	5.03	5	<5	<2	<2	47	<.2	<2	<2	120	.37	.154	9	38	.75	131	.13	<3	3.05	.01	.12	<2	74
L81N 53+70E	1	133	12	94	.4	25	24	1290	6.15	5	<5	<2	<2	52	<.2	<2	2	154	.41	.126	8	49	1.09	155	.14	<3	2.83	.01	.14	<2	41
L81N 54+00E	1	160	25	167	.4	21	25	2823	7.19	6	<5	<2	<2	69	1.3	<2	<2	176	.57	.217	9	36	1.29	334	.17	<3	2.95	.01	.34	<2	13
L81N 54+30E	<1	146	18	174	<.3	23	25	3061	6.90	5	<5	<2	<2	71	.8	<2	2	162	.61	.200	10	35	1.47	395	.19	<3	2.64	.01	.41	<2	280
L81N 54+60E	1	132	18	127	.3	25	25	1699	6.74	9	<5	<2	<2	48	.4	<2	2	161	.39	.168	8	50	.88	185	.13	<3	2.63	.01	.14	<2	26
L81N 54+90E	1	142	49	155	<.3	21	23	3688	5.72	17	6	<2	<2	58	1.4	<2	2	127	.49	.190	7	39	.73	263	.10	<3	2.30	.01	.14	<2	32
L79N 50+10E	<1	76	20	130	.3	28	22	1205	5.65	7	<5	<2	<2	38	<.2	<2	<2	147	.42	.265	6	52	.67	160	.13	<3	2.48	.02	.10	<2	28
L79N 50+40E	<1	103	15	91	.6	26	21	550	4.65	<2	<5	<2	2	26	<.2	<2	<2	120	.26	.264	5	39	.58	125	.17	<3	3.61	.02	.08	<2	6
L79N 50+70E	<1	145	15	87	.4	35	24	670	6.95	<2	<5	<2	<2	48	<.2	<2	<2	209	.44	.129	5	48	.93	141	.19	<3	2.54	.03	.12	<2	4
L79N 51+00E	<1	73	10	72	.6	20	16	605	5.03	2	<5	<2	<2	41	<.2	<2	<2	132	.36	.254	6	26	.60	146	.16	<3	3.30	.03	.09	<2	11
L79N 51+30E	<1	70	8	69	.6	20	18	712	5.62	<2	<5	<2	2	47	<.2	<2	<2	146	.39	.222	9	29	.57	167	.16	<3	3.53	.03	.08	<2	10
L79N 51+60E	<1	103	17	77	.5	30	20	949	4.85	<2	<5	<2	2	33	.4	<2	<2	126	.29	.251	9	61	.80	184	.19	<3	5.15	.03	.10	<2	9
L79N 51+90E	<1	89	11	65	.7	21	21	662	5.57	8	<5	<2	2	45	.2	<2	3	151	.42	.221	9	35	.63	146	.15	<3	3.25	.02	.14	<2	9
L79N 52+20E	<1	47	13	55	.3	16	20	1795	6.16	10	<5	<2	<2	43	<.2	<2	2	163	.40	.242	7	34	.47	190	.12	<3	2.06	.02	.09	<2	22
L79N 52+50E	<1	84	12	55	<.3	21	22	566	6.02	8	<5	<2	<2	45	<.2	<2	<2	161	.44	.332	7	41	.73	200	.11	<3	2.54	.02	.09	<2	18
L79N 52+80E	<1	56	9	63	.3	19	20	649	5.58	4	<5	<2	<2	45	.2	<2	<2	146	.38	.205	7	31	.63	148	.16	<3	2.86	.02	.09	<2	11
L79N 53+10E	<1	54	21	119	.4	17	19	3422	5.56	8	<5	<2	<2	129	.3	<2	<2	151	.79	.295	7	29	.38	620	.12	4	1.94	.04	.18	<2	9
L79N 53+40E	<1	52	12	81	.3	18	18	1226	4.51	5	<5	<2	<2	54	<.2	<2	<2	112	.44	.312	6	33	.55	160	.14	<3	3.11	.02	.12	<2	20
L79N 53+70E	<1	64	10	85	.4	21	22	1144	6.04	2	<5	<2	<2	48	<.2	2	<2	149	.37	.216	9	41	.71	97	.14	<3	2.91	.02	.11	<2	8
L79N 54+00E	1	73	21	106	<.3	20	19	1413	4.94	5	<5	<2	<2	55	.7	<2	<2	126	.54	.063	10	38	.89	110	.15	<3	2.48	.02	.10	<2	11
L79N 54+30E	1	49	11	93	<.3	18	20	1750	6.01	4	<5	<2	<2	43	<.2	2	<2	148	.30	.150	5	43	.77	150	.15	<3	2.48	.02	.14	<2	120
L79N 54+60E	1	59	15	83	<.3	19	17	774	5.33	6	<5	<2	<2	45	<.2	<2	2	131	.40	.140	8	33	.74	103	.17	<3	3.32	.02	.10	2	14
L79N 54+90E	1	73	14	118	.3	23	21	1009	5.93	5	<5	<2	<2	59	.3	<2	<2	142	.50	.218	7	41	.76	176	.15	<3	2.92	.02	.13	<2	20
STANDARD C3/AU-S	25	64	38	162	5.9	36	12	779	3.66	57	22	3	18	32	24.8	14	24	81	.62	.089	17	166	.70	159	.10	19	2.10	.04	.18	21	45

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA ___

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
L78N 55+20N	1	84	17	82	.5	18	19	1139	6.01	3	<5	<2	<2	54	.2	<2	<2	143	.44	.158	7	34	.78	123	.13	<3	2.33	.01	.12	<2	41
L78N 55+50N	<1	47	16	69	<.3	15	16	1049	5.31	3	<5	<2	<2	37	<.2	<2	<2	120	.26	.215	6	27	.60	139	.12	<3	2.33	.01	.07	<2	21
L78N 55+80N	1	47	17	80	<.3	16	16	1441	5.21	<2	<5	<2	<2	44	<.2	<2	<2	114	.34	.221	7	26	.59	172	.14	<3	2.53	.02	.10	<2	20
L78N 56+10N	<1	61	19	87	.4	16	19	1033	6.28	3	<5	<2	<2	46	<.2	<2	<2	142	.37	.258	6	34	.82	127	.12	<3	2.21	.02	.10	<2	29
L78N 56+40N	1	123	56	115	.3	18	19	665	7.17	9	<5	<2	<2	41	<.2	<2	<2	166	.43	.215	9	33	.69	111	.13	<3	2.63	.01	.13	2	441
L78N 56+70N	1	116	24	111	.8	19	20	823	6.68	8	<5	<2	<2	41	<.2	<2	<2	159	.40	.195	7	33	.83	128	.15	<3	2.58	.02	.11	<2	44
L78N 57+00N	1	85	28	127	<.3	15	18	1066	6.06	6	<5	<2	<2	38	<.2	<2	<2	137	.35	.276	7	30	.70	128	.14	<3	2.71	.01	.11	<2	70
L78N 57+30N	<1	70	28	120	<.3	18	18	1520	6.55	5	<5	<2	<2	42	<.2	<2	<2	148	.39	.294	7	31	.60	244	.14	<3	2.63	.02	.11	<2	107
L78N 57+60N	1	92	22	102	.4	16	16	739	5.50	<2	<5	<2	<2	28	<.2	<2	<2	124	.29	.289	9	27	.66	132	.15	3	3.76	.02	.10	2	39
L78N 57+90N	<1	63	33	109	<.3	12	18	1328	6.62	7	<5	<2	<2	32	<.2	<2	<2	152	.28	.244	6	27	.61	98	.14	<3	2.10	.01	.16	<2	142
L78N 58+20N	1	64	25	147	.6	14	15	977	5.20	4	<5	<2	<2	34	.2	2	<2	112	.32	.397	5	24	.63	140	.12	<3	2.86	.01	.09	<2	31
L78N 58+50N	2	107	15	151	.4	26	21	693	5.63	5	<5	<2	<2	49	.5	2	<2	142	.42	.092	7	53	1.01	93	.14	<3	2.19	.01	.14	<2	105
L78N 58+80N	3	115	17	176	.3	31	22	954	5.14	10	<5	<2	<2	57	1.2	2	4	121	.54	.145	9	60	1.24	126	.13	<3	2.73	.01	.12	<2	18
L78N 59+10N	1	121	21	186	<.3	19	21	1179	5.54	9	<5	<2	<2	29	.5	2	3	129	.33	.139	10	30	1.24	113	.18	<3	3.60	.02	.19	<2	12
L78N 59+40N	1	97	17	121	.4	22	18	562	5.40	<2	<5	<2	2	28	<.2	2	5	125	.29	.104	8	30	1.14	118	.20	<3	3.53	.01	.14	<2	22
L78N 59+70N	2	106	52	101	.4	18	19	875	5.64	5	<5	<2	<2	36	.3	<2	<2	138	.32	.117	7	34	.95	92	.16	<3	2.82	.01	.12	<2	18
L78N 60+00N	2	70	20	117	.3	14	20	1026	5.23	3	<5	<2	<2	26	<.2	<2	<2	113	.20	.112	6	27	.79	76	.21	<3	3.08	.01	.11	2	130
L77N 50+10E	1	103	12	70	<.3	36	16	420	3.63	3	<5	<2	<2	35	<.2	<2	5	98	.49	.148	6	55	1.32	136	.17	<3	3.06	.03	.18	2	7
L77N 50+40E	<1	73	16	107	.3	27	19	1298	4.16	2	<5	<2	<2	35	.4	<2	2	101	.41	.323	6	45	.90	273	.13	<3	2.72	.03	.14	<2	7
L77N 50+70E	1	82	15	86	.3	27	19	771	4.39	5	<5	<2	<2	45	.2	<2	<2	110	.49	.228	7	49	.88	177	.15	<3	3.10	.03	.13	<2	15
L77N 51+00E	<1	55	14	94	<.3	30	19	947	4.38	5	<5	<2	<2	45	.3	3	<2	101	.47	.332	6	53	.75	245	.14	<3	2.54	.03	.11	<2	6
L77N 51+30E	<1	60	14	68	<.3	29	20	864	4.66	4	<5	<2	<2	47	<.2	<2	<2	122	.52	.155	5	48	.75	159	.14	<3	2.30	.03	.11	2	8
L77N 51+60E	1	99	30	104	.3	37	22	1010	5.63	<2	<5	<2	2	51	<.2	<2	16	134	.47	.226	10	75	1.14	187	.17	<3	3.58	.02	.16	3	8
L77N 51+90E	1	121	16	85	<.3	30	21	549	5.14	2	<5	<2	2	51	<.2	<2	6	140	.51	.178	7	55	1.18	170	.17	<3	3.33	.03	.19	2	14
RE L77N 51+90E	1	118	14	82	<.3	30	21	528	5.24	3	<5	<2	2	50	<.2	2	4	143	.50	.169	7	55	1.14	162	.17	<3	3.19	.03	.19	2	21
L77N 52+20E	1	73	18	95	.3	26	21	962	4.78	7	<5	<2	<2	65	<.2	<2	<2	117	.47	.289	5	46	.86	235	.13	<3	2.68	.02	.12	<2	8
L77N 52+50E	<1	142	11	113	.3	40	27	1563	5.89	5	<5	<2	<2	47	.3	<2	5	164	.45	.279	8	71	1.58	238	.19	<3	3.53	.02	.37	<2	8
L77N 52+80E	1	77	17	123	.5	32	21	1202	5.07	<2	<5	<2	<2	42	.5	<2	2	124	.37	.300	7	47	1.00	183	.16	<3	3.67	.02	.13	<2	11
L77N 53+10E	1	87	19	119	.5	32	22	1087	5.05	3	<5	<2	<2	38	.2	<2	2	122	.36	.349	7	51	.99	201	.15	<3	3.54	.02	.12	3	12
L77N 53+40E	1	129	14	113	.5	36	21	1458	4.89	2	<5	<2	<2	38	.3	<2	4	124	.37	.276	9	51	1.11	240	.18	<3	4.14	.02	.15	3	6
L77N 53+70E	<1	162	16	106	.5	41	24	1075	5.07	<2	<5	<2	<2	55	.4	2	5	133	.52	.253	6	63	1.52	197	.19	<3	3.38	.02	.20	2	6
L77N 54+00E	<1	103	19	98	.3	31	22	1742	5.04	3	<5	<2	<2	60	.3	<2	2	127	.52	.236	8	53	1.07	215	.16	<3	3.02	.02	.15	<2	9
L77N 54+30E	1	72	14	88	.4	23	19	867	4.80	5	<5	<2	2	42	<.2	<2	<2	111	.44	.189	7	37	.83	125	.17	<3	3.65	.02	.11	<2	102
L77N 54+60E	1	107	15	91	.6	33	22	610	5.62	5	<5	<2	<2	41	<.2	<2	2	150	.38	.144	7	58	1.09	145	.17	<3	3.37	.02	.11	2	59
L77N 54+90E	1	71	15	87	.3	28	21	783	5.52	2	<5	<2	2	33	<.2	<2	<2	137	.30	.228	7	51	.84	151	.16	<3	3.13	.02	.10	2	32
STANDARD C3/AU-S	25	62	36	162	5.7	36	12	766	3.55	56	19	4	17	30	24.9	15	22	78	.61	.088	16	161	.67	152	.10	20	2.01	.04	.16	20	50

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA

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
L77N 55+20E	1	73	12	102	<.3	24	22	1294	6.05	5	<5	<2	<2	42	<.2	<2	<2	154	.40	.219	6	42	1.01	92	.14	<3	2.81	.02	.11	<2	8
L77N 55+50E	<1	163	12	103	.5	36	27	732	5.25	6	<5	<2	<2	35	<.2	<2	2	141	.36	.221	7	60	1.14	131	.15	<3	3.36	.02	.14	<2	15
L77N 55+80E	<1	61	16	106	.8	28	19	1079	4.53	3	<5	<2	<2	29	<.2	<2	<2	111	.26	.150	8	46	.78	174	.17	<3	3.26	.02	.09	2	13
L77N 56+10E	<1	60	26	126	.6	26	18	1313	4.19	7	<5	<2	<2	34	.4	<2	2	106	.29	.166	7	45	.85	151	.14	<3	2.82	.02	.09	<2	6
L77N 56+40E	1	61	18	196	.8	30	18	1051	4.67	5	<5	<2	<2	27	.9	<2	3	109	.23	.213	7	44	.91	168	.15	<3	3.68	.02	.09	<2	11
L77N 56+70E	2	104	23	126	.3	29	23	567	5.78	13	<5	<2	<2	39	.3	<2	<2	142	.38	.199	6	56	1.21	81	.14	<3	2.63	.01	.10	<2	36
L77N 57+00E	<1	76	10	163	.9	16	16	397	6.50	9	<5	<2	<2	41	.8	<2	<2	150	.43	.297	7	38	.67	128	.12	<3	2.23	.01	.09	<2	99
L77N 57+30E	1	113	25	121	.5	20	16	425	5.91	8	<5	<2	<2	40	.8	<2	<2	144	.45	.209	7	41	.93	78	.12	<3	2.26	.01	.13	<2	45
L77N 57+60E	3	75	16	167	.3	25	14	664	4.33	12	<5	<2	<2	49	.5	<2	<2	112	.57	.108	8	50	1.25	72	.10	<3	2.23	.02	.09	<2	16
L77N 57+90E	2	85	22	150	.7	24	15	982	4.24	6	<5	<2	<2	35	.3	<2	<2	99	.36	.133	5	44	.93	83	.14	<3	3.40	.01	.10	<2	12
L77N 58+20E	2	71	37	108	1.0	15	15	1082	4.60	6	<5	<2	<2	32	<.2	2	<2	112	.28	.123	6	33	.67	106	.13	<3	2.21	.01	.08	<2	29
L77N 58+50E	3	80	51	115	.5	15	14	763	5.30	5	<5	<2	<2	27	<.2	<2	<2	112	.18	.118	5	29	.68	72	.15	<3	2.17	.01	.07	<2	40
L77N 58+80E	2	192	25	108	1.2	22	17	775	4.50	<2	<5	<2	<2	25	<.2	<2	<2	103	.22	.089	5	38	.96	92	.16	<3	3.72	.01	.09	<2	24
L77N 59+10E	2	120	28	133	1.4	24	17	1256	4.24	<2	<5	<2	<2	22	.4	2	<2	92	.19	.125	6	37	.90	109	.15	<3	4.03	.01	.10	<2	17
L77N 59+40E	2	84	38	96	.8	20	19	1010	4.48	6	<5	<2	<2	32	<.2	<2	<2	108	.27	.111	5	35	.92	81	.16	<3	2.73	.01	.10	<2	74
L77N 59+70E	1	58	19	133	.6	17	18	1060	4.05	3	<5	<2	<2	21	<.2	<2	<2	93	.20	.235	5	24	.73	116	.17	<3	3.38	.02	.10	<2	11
L77N 60+00E	1	151	36	149	.4	29	26	825	5.08	5	<5	<2	<2	31	.5	2	<2	124	.30	.150	8	33	1.25	128	.18	<3	3.44	.01	.13	<2	18
L76N 55+20E	1	64	16	94	.3	19	16	1107	4.51	<2	<5	<2	<2	37	<.2	<2	<2	105	.30	.149	6	32	.61	124	.14	<3	3.22	.02	.07	<2	15
L76N 55+50E	1	57	13	110	.7	23	15	747	3.87	3	<5	<2	2	22	<.2	<2	<2	88	.18	.246	6	37	.71	113	.14	<3	4.24	.02	.08	<2	10
L76N 55+80E	<1	59	12	132	.3	22	18	1286	4.80	7	<5	<2	<2	49	.5	2	<2	120	.48	.237	5	41	.98	161	.16	<3	2.42	.02	.16	<2	11
L76N 56+10E	1	61	16	164	.4	22	16	1166	4.52	4	<5	<2	<2	25	.6	<2	2	100	.24	.340	7	42	.76	160	.13	<3	3.61	.02	.10	<2	16
L76N 56+40E	1	61	14	203	.5	25	18	608	4.63	5	<5	<2	<2	28	.7	<2	<2	105	.29	.280	7	40	.86	142	.13	<3	3.33	.02	.12	<2	22
L76N 56+70E	1	172	25	124	.7	40	17	539	3.98	9	<5	<2	<2	36	.2	<2	4	107	.40	.137	8	59	1.18	89	.13	<3	3.42	.02	.10	<2	13
RE L76N 56+70E	1	180	28	127	.7	41	18	555	4.10	6	<5	<2	<2	38	.4	<2	3	110	.42	.140	8	61	1.22	92	.14	<3	3.54	.02	.11	<2	12
L76N 57+00E	1	146	43	154	<.3	41	21	736	4.27	12	<5	<2	<2	32	.2	<2	2	106	.36	.145	7	59	1.00	110	.14	<3	3.70	.02	.08	<2	86
L76N 57+30E	1	150	54	123	1.2	46	25	915	4.65	21	<5	<2	<2	26	<.2	<2	<2	112	.24	.111	7	74	1.10	101	.16	<3	3.35	.01	.07	<2	16
L76N 57+60E	2	157	111	137	.6	39	21	799	4.91	8	<5	<2	<2	26	.4	<2	3	124	.25	.171	5	75	1.12	80	.15	<3	2.94	.01	.05	<2	31
L76N 57+90E	1	126	47	151	.6	33	22	773	4.31	6	<5	<2	<2	25	<.2	<2	3	97	.25	.336	5	54	1.09	136	.15	<3	3.99	.01	.09	<2	9
L76N 58+20E	1	98	39	116	.6	49	23	638	4.22	<2	<5	<2	<2	26	<.2	2	<2	102	.25	.133	3	80	1.21	113	.19	<3	3.24	.01	.10	<2	9
L76N 58+50E	1	111	31	115	1.1	39	21	573	4.14	3	<5	<2	<2	24	<.2	<2	2	102	.22	.157	5	66	1.22	112	.16	<3	3.43	.01	.09	<2	10
L76N 58+80E	1	110	24	112	.9	27	19	825	4.37	<2	<5	<2	<2	27	<.2	<2	<2	108	.23	.150	5	50	1.14	155	.19	<3	4.40	.02	.16	<2	13
L76N 59+10E	1	89	27	109	.4	22	18	725	4.68	2	<5	<2	<2	30	<.2	<2	<2	109	.24	.166	5	33	.89	117	.16	<3	3.31	.02	.11	<2	11
L76N 59+40E	1	91	29	103	.9	21	19	847	4.24	3	<5	<2	<2	30	<.2	<2	<2	98	.22	.196	6	28	.79	112	.14	<3	3.47	.01	.10	<2	15
L76N 59+70E	1	92	29	117	.6	25	18	980	4.25	3	<5	<2	<2	28	<.2	<2	<2	100	.22	.181	5	36	.90	141	.16	<3	3.52	.02	.12	<2	12
L76N 60+00E	1	101	23	105	.3	24	18	776	4.20	3	<5	<2	<2	29	<.2	<2	2	101	.25	.133	6	34	.99	138	.18	<3	3.68	.02	.12	<2	35
STANDARD C3/AU-S	24	64	34	158	5.7	35	12	751	3.50	52	19	3	16	30	24.4	14	24	77	.60	.086	16	157	.69	150	.09	19	2.01	.04	.16	15	48

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data___ FA ____

ACME ANALYTICAL

Orvana Minerals Corp. FILE # 97-3331

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
L75N 53+40E	1	125	17	97	.4	50	21	435	3.58	6	<5	<2	<2	29	.5	<2	3	84	.31	.130	5	61	.99	99	.15	<3	4.88	.02	.12	2	4
L75N 53+70E	1	41	11	109	.4	30	20	408	4.17	4	<5	<2	2	41	<.2	<2	<2	88	.43	.340	4	51	.56	126	.15	<3	4.51	.02	.05	<2	3
L75N 54+00E	1	59	8	61	.3	33	14	195	3.06	<2	<5	<2	<2	11	<.2	<2	<2	52	.11	.121	4	47	.31	57	.16	3	5.87	.02	.04	<2	2
L75N 54+30E	1	60	15	75	.4	40	17	353	4.13	2	<5	<2	<2	29	<.2	<2	<2	104	.25	.087	6	63	.93	109	.19	<3	3.82	.02	.07	<2	8
L75N 54+60E	1	42	22	84	.4	25	14	787	3.64	<2	<5	<2	<2	19	<.2	<2	<2	83	.20	.161	6	45	.53	93	.16	<3	3.52	.02	.06	<2	4
L75N 54+90E	1	43	17	54	.3	22	11	612	4.28	6	<5	<2	<2	29	.3	<2	<2	91	.31	.354	4	51	.49	84	.17	<3	1.79	.02	.06	<2	8
L75N 55+20E	2	74	19	107	.5	36	20	420	3.60	7	<5	<2	<2	36	<.2	2	<2	78	.41	.094	8	45	.76	84	.16	<3	4.68	.02	.07	<2	10
L75N 55+50E	1	43	17	114	.5	29	15	513	3.21	4	<5	<2	<2	25	<.2	<2	<2	64	.29	.133	5	46	.64	97	.14	<3	4.17	.02	.06	3	4
L75N 55+80E	1	45	25	89	.4	20	16	840	4.94	16	<5	<2	<2	66	.3	<2	<2	106	.62	.403	4	46	.79	93	.15	<3	2.17	.02	.15	<2	7
L75N 56+10E	1	106	33	123	.8	42	22	1104	4.02	9	<5	<2	<2	37	.6	<2	6	101	.40	.174	7	66	1.14	129	.12	<3	2.70	.02	.12	<2	58
L75N 56+40E	1	88	36	123	.9	38	19	753	4.03	6	<5	<2	<2	32	.3	<2	3	110	.37	.116	6	65	1.08	107	.15	<3	2.56	.02	.09	<2	13
L75N 56+70E	2	125	31	137	.8	51	25	672	4.86	19	<5	<2	2	23	.2	<2	4	120	.22	.113	8	72	1.16	130	.19	<3	3.84	.02	.08	2	7
L75N 57+00E	2	96	31	99	1.1	44	23	435	4.42	9	<5	<2	2	22	.2	<2	<2	102	.20	.088	4	58	.92	118	.20	<3	4.24	.02	.07	2	5
L75N 57+30E	1	108	68	116	.4	39	24	1650	4.38	16	<5	<2	<2	48	.6	<2	<2	106	.41	.135	6	63	.95	130	.15	<3	2.99	.01	.12	<2	9
L75N 57+60E	1	89	30	95	.5	42	22	597	4.21	9	<5	<2	2	23	.2	<2	<2	107	.22	.105	6	60	1.00	108	.19	<3	3.47	.02	.07	<2	490
L75N 57+90E	1	79	27	117	.8	38	19	792	4.16	7	<5	<2	3	26	<.2	<2	<2	97	.25	.213	7	54	.98	117	.17	<3	3.95	.02	.11	<2	14
L75N 58+20E	1	102	36	117	.5	46	26	736	4.28	6	<5	<2	<2	29	<.2	<2	4	109	.28	.108	6	64	1.23	151	.21	<3	3.50	.02	.11	<2	10
L75N 58+50E	1	87	43	118	1.1	38	21	826	4.16	6	<5	<2	<2	28	.3	<2	<2	101	.28	.141	8	57	1.04	157	.19	<3	3.74	.02	.09	<2	10
L75N 58+80E	2	106	32	101	.7	35	23	887	4.20	6	<5	<2	<2	27	<.2	<2	<2	97	.23	.176	9	52	1.03	187	.19	<3	3.50	.02	.10	<2	13
L75N 59+10E	2	133	63	86	.7	30	20	565	4.00	9	<5	<2	3	24	<.2	<2	<2	94	.20	.169	7	41	.93	113	.19	<3	4.47	.02	.09	<2	25
L75N 59+40E	2	131	53	95	.5	29	22	645	4.92	5	<5	<2	2	33	.4	2	<2	119	.27	.085	9	41	1.12	146	.20	<3	3.29	.01	.12	<2	18
L75N 59+70E	2	139	53	102	.9	27	25	1118	4.46	2	<5	<2	<2	42	<.2	2	2	106	.34	.093	10	35	1.12	190	.20	<3	3.47	.01	.14	<2	14
RE L75N 59+70E	2	149	56	110	1.0	29	27	1227	4.71	5	<5	<2	<2	45	.4	2	2	111	.36	.099	10	39	1.20	208	.20	<3	3.74	.01	.15	<2	13
L75N 60+00E	1	81	59	138	.4	24	29	4168	4.70	4	6	<2	<2	36	.9	<2	<2	108	.28	.163	8	35	.90	326	.19	<3	2.53	.02	.13	<2	19
L73N 50+10E	1	38	12	84	.3	27	13	427	3.07	<2	<5	<2	<2	26	<.2	<2	<2	64	.29	.131	7	43	.68	103	.15	<3	4.54	.02	.08	2	3
L73N 50+40E	1	33	14	85	.5	26	17	608	3.76	<2	<5	<2	<2	26	<.2	<2	<2	73	.31	.206	6	45	.63	111	.18	<3	3.84	.03	.07	<2	7
L73N 50+70E	<1	18	6	38	.3	11	8	246	1.78	3	<5	<2	<2	21	<.2	2	<2	23	.26	.064	6	12	.16	65	.13	3	4.77	.02	.04	<2	2
L73N 51+00E	1	43	12	98	.6	30	12	584	3.24	<2	<5	<2	<2	29	.3	<2	<2	70	.38	.091	6	50	.75	94	.16	<3	3.64	.02	.09	<2	21
L73N 51+30E	1	59	23	109	.4	35	16	641	4.72	<2	5	<2	4	28	.2	<2	2	75	.28	.263	10	54	.92	136	.15	<3	3.69	.02	.12	<2	9
L73N 51+60E	1	57	16	86	1.1	49	29	704	4.11	4	<5	<2	<2	31	.2	<2	<2	97	.31	.058	11	75	1.08	136	.22	<3	3.53	.02	.11	<2	9
L73N 51+90E	1	75	16	115	.4	50	21	432	4.61	9	<5	<2	3	27	.2	<2	4	102	.32	.242	8	78	1.33	131	.16	<3	4.55	.02	.13	2	94
L73N 52+20E	1	76	18	98	.5	41	25	413	4.17	4	<5	<2	2	24	<.2	<2	<2	93	.27	.113	9	63	1.05	140	.20	<3	4.89	.02	.11	3	10
L73N 52+50E	1	43	15	87	.5	34	18	671	4.10	2	<5	<2	<2	26	<.2	<2	<2	93	.29	.197	6	63	.85	127	.17	<3	3.53	.02	.07	<2	5
L73N 52+80E	<1	39	14	79	.3	31	17	585	3.45	4	<5	<2	2	21	<.2	<2	<2	74	.26	.165	6	52	.78	91	.16	<3	3.95	.02	.08	<2	7
L73N 53+10E	<1	66	12	92	.6	32	18	1072	3.76	6	<5	<2	<2	34	.3	<2	3	86	.38	.198	4	52	.85	146	.18	<3	2.81	.03	.13	<2	7
STANDARD C3/AU-S	25	61	36	158	5.7	35	12	747	3.46	55	22	4	16	29	24.1	14	23	77	.60	.086	17	157	.67	148	.09	18	1.87	.04	.16	18	43

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ___ FA ___

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
L73N 53+40E	1	84	15	89	<.3	38	18	561	3.78	41	<5	<2	<2	31	.3	<2	5	79	.38	.180	10	65	1.09	143	.14	<3	4.65	.03	.19	<2	24
L73N 53+70E	1	62	18	95	.7	33	16	764	3.38	4	<5	<2	<2	31	<.2	<2	<2	74	.35	.098	7	56	.89	108	.15	<3	3.30	.03	.11	<2	10
L73N 54+00E	1	60	16	96	.3	45	20	890	3.72	8	<5	<2	2	31	<.2	<2	<2	82	.34	.192	8	60	.93	143	.17	<3	4.34	.03	.10	<2	7
L73N 54+30E	1	84	16	114	.6	67	24	440	4.24	4	<5	<2	2	27	<.2	<2	6	100	.23	.121	7	83	1.34	161	.22	<3	5.46	.02	.14	<2	10
L73N 54+60E	1	63	19	98	.5	40	16	374	4.41	12	<5	<2	2	29	<.2	<2	<2	99	.28	.224	6	63	.88	114	.20	<3	4.79	.03	.12	<2	9
L73N 54+90E	1	69	16	83	.4	47	21	355	3.84	4	<5	<2	2	26	<.2	<2	<2	89	.23	.101	6	54	.91	156	.22	<3	5.08	.02	.11	<2	8
L73N 55+20E	1	46	14	87	.4	31	21	1053	3.59	5	<5	<2	<2	23	<.2	<2	<2	80	.23	.151	5	48	.72	113	.19	<3	3.60	.02	.08	<2	11
L73N 55+50E	1	61	18	119	.3	42	19	406	3.87	10	<5	<2	2	24	<.2	<2	3	89	.22	.129	8	55	1.01	126	.20	<3	4.83	.02	.11	<2	6
L73N 55+80E	1	66	25	175	.5	45	24	764	4.26	6	<5	<2	2	24	<.2	<2	5	91	.22	.174	8	57	1.11	157	.16	<3	4.86	.02	.13	<2	3
L73N 56+10E	1	47	17	81	.4	34	15	535	3.36	<2	<5	<2	2	18	<.2	<2	<2	72	.18	.101	8	48	.71	114	.16	<3	4.73	.02	.07	<2	5
L73N 56+40E	1	36	14	89	.4	29	15	659	3.68	5	<5	<2	<2	26	<.2	<2	<2	80	.28	.120	5	51	.63	98	.15	<3	3.66	.02	.07	<2	4
L73N 56+70E	1	45	14	174	.5	28	17	615	4.10	14	<5	<2	<2	41	.7	<2	<2	98	.54	.125	6	50	1.01	131	.20	<3	3.00	.03	.16	<2	6
RE L73N 56+70E	1	47	14	179	.5	29	18	627	4.22	16	<5	<2	<2	42	.4	<2	2	101	.55	.128	6	53	1.04	135	.20	<3	3.11	.03	.16	<2	4
L73N 57+00E	2	88	19	110	.6	33	20	334	5.24	30	<5	<2	<2	37	.4	2	<2	105	.40	.050	8	56	.80	112	.26	<3	3.99	.02	.12	<2	6
L73N 57+30E	1	110	24	166	.3	29	30	1136	4.24	45	<5	<2	<2	53	.7	<2	4	94	.69	.237	9	43	.82	142	.13	<3	4.03	.02	.14	<2	6
L73N 57+60E	1	141	33	147	.5	39	34	1452	4.29	20	<5	<2	<2	45	.9	<2	<2	104	.56	.073	8	54	1.03	101	.16	<3	3.12	.02	.12	<2	11
L73N 57+90E	1	64	21	119	.4	29	21	846	4.20	12	<5	<2	<2	40	<.2	<2	<2	99	.47	.066	8	53	.94	128	.19	<3	2.57	.02	.16	<2	8
L73N 58+20E	1	509	56	199	4.2	71	53	1780	4.20	96	<5	<2	<2	102	2.6	<2	7	117	1.17	.203	52	157	1.19	202	.12	<3	5.41	.03	.23	<2	22
L73N 58+50E	1	48	22	146	.7	26	22	725	4.73	14	<5	<2	<2	33	.3	<2	3	98	.35	.325	6	49	.75	164	.19	<3	3.82	.02	.11	<2	3
L73N 58+80E	1	45	19	130	.7	22	12	688	3.71	12	<5	<2	<2	22	.2	<2	<2	85	.24	.117	8	43	.55	96	.16	<3	3.57	.02	.08	2	8
L73N 59+10E	1	53	17	143	.3	18	16	978	4.13	17	<5	<2	<2	25	.8	<2	2	80	.24	.412	7	37	.64	98	.11	<3	4.09	.02	.11	<2	7
L73N 59+40E	1	73	21	152	.3	28	18	633	3.50	15	<5	<2	<2	25	<.2	<2	<2	75	.27	.158	6	37	.80	116	.16	<3	5.35	.02	.09	<2	9
L73N 59+70E	2	47	31	170	.5	22	15	1175	3.55	12	<5	<2	<2	19	1.0	<2	<2	67	.15	.138	8	31	.48	129	.12	<3	5.39	.02	.07	<2	3
L73N 60+00E	1	82	17	187	<.3	51	22	809	4.58	17	<5	<2	<2	52	.2	<2	4	101	.45	.253	15	65	1.48	281	.25	<3	4.76	.02	.19	<2	6
L71N 50+10E	<1	55	11	50	.5	31	17	596	3.75	4	<5	<2	<2	44	<.2	<2	<2	80	.59	.160	5	60	.84	111	.17	<3	3.11	.03	.10	<2	4
L71N 50+40E	<1	51	9	65	.3	36	16	727	3.30	<2	<5	<2	<2	36	<.2	<2	<2	73	.45	.234	6	66	.87	142	.13	<3	2.73	.03	.09	<2	7
L71N 50+70E	1	52	20	29	.6	26	11	435	4.12	3	<5	<2	<2	23	<.2	<2	4	103	.28	.041	8	57	.53	105	.30	<3	2.13	.02	.10	<2	22
L71N 51+00E	1	41	14	78	.4	31	15	602	3.95	9	<5	<2	2	46	.3	<2	<2	89	.48	.200	5	59	.77	181	.18	<3	3.48	.03	.10	<2	4
L71N 51+30E	1	53	8	89	.5	71	25	432	3.99	<2	<5	<2	2	21	<.2	<2	6	85	.23	.088	5	66	1.17	154	.24	<3	4.63	.02	.14	<2	7
L71N 51+60E	1	50	17	98	.3	43	21	509	4.07	6	<5	<2	<2	32	<.2	<2	2	90	.41	.077	5	67	.95	127	.21	<3	3.94	.03	.12	<2	5
L71N 51+90E	<1	30	13	59	.3	30	15	421	3.69	3	<5	<2	<2	32	<.2	<2	<2	76	.33	.193	4	58	.73	100	.18	<3	2.99	.02	.09	<2	2
L71N 52+20E	1	38	23	81	<.3	26	21	648	3.72	21	<5	<2	2	22	<.2	<2	<2	68	.23	.254	7	41	.57	121	.17	<3	3.70	.02	.10	<2	3
L71N 52+50E	1	71	15	71	<.3	50	18	531	3.70	27	<5	<2	<2	39	<.2	<2	7	88	.51	.110	9	73	1.26	154	.16	<3	3.90	.02	.18	<2	12
L71N 52+80E	1	47	12	62	.3	41	20	547	3.50	8	<5	<2	<2	33	<.2	<2	<2	78	.40	.053	6	58	.92	130	.21	<3	3.92	.03	.10	<2	10
L71N 53+10E	1	45	18	54	.3	29	15	589	3.58	8	<5	<2	<2	39	<.2	2	<2	75	.47	.058	9	55	.63	131	.21	<3	2.45	.02	.10	<2	17
STANDARD C3/AU-S	26	66	38	170	6.2	37	12	789	3.69	58	21	4	18	31	25.0	14	24	83	.63	.091	18	172	.68	157	.10	20	2.03	.04	.16	18	49

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ___ FA ____

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
L71N 53+40E	1	56	14	65	.5	33	16	479	3.20	12	<5	<2	<2	46	<.2	<2	<2	69	.54	.058	11	50	.58	153	.18	<3	3.02	.02	.11	<2	2
L71N 53+70E	1	44	8	71	.4	29	15	735	2.89	8	<5	<2	<2	60	.2	2	<2	65	.85	.082	8	47	.65	153	.14	3	2.84	.02	.12	<2	12
L71N 54+00E	1	42	12	79	.3	44	19	547	3.44	7	<5	<2	<2	32	<.2	2	<2	82	.39	.081	6	60	.87	107	.19	<3	3.70	.02	.11	<2	5
L71N 54+30E	<1	38	43	100	.4	30	16	1132	3.17	10	<5	<2	<2	75	.2	<2	<2	74	.66	.468	5	58	.63	264	.14	<3	2.42	.03	.16	<2	12
L71N 54+60E	1	35	16	67	.4	26	14	795	3.25	5	<5	<2	<2	22	<.2	<2	2	74	.26	.133	6	56	.63	93	.18	<3	2.80	.02	.11	<2	4
L71N 54+90E	1	61	13	133	.8	45	23	1092	3.62	15	<5	<2	<2	40	<.2	<2	2	85	.54	.199	7	62	1.14	211	.15	<3	3.51	.03	.16	<2	3
L71N 55+20E	<1	66	13	124	.4	58	26	575	3.70	15	<5	<2	2	23	<.2	<2	2	94	.36	.074	6	68	1.26	162	.24	<3	3.78	.03	.15	<2	6
L71N 55+50E	<1	50	23	148	.3	44	20	941	3.61	13	<5	<2	<2	29	<.2	3	2	98	.42	.096	5	74	1.34	124	.25	<3	2.93	.04	.17	2	2
L71N 55+80E	1	58	14	116	.7	55	24	663	4.39	11	<5	<2	2	23	<.2	<2	<2	127	.26	.105	6	87	1.71	201	.24	<3	4.57	.02	.13	<2	5
L71N 56+10E	<1	41	20	90	.4	39	20	1238	3.77	15	<5	<2	<2	23	<.2	<2	2	109	.24	.185	5	62	1.19	192	.22	<3	3.69	.04	.12	<2	3
RE L71N 56+10E	<1	42	21	92	.4	40	20	1271	3.82	14	<5	<2	<2	23	<.2	<2	<2	111	.23	.190	5	63	1.21	197	.21	<3	3.80	.03	.12	<2	4
L71N 56+40E	1	36	15	86	.4	35	19	395	3.59	12	<5	<2	2	24	<.2	<2	3	94	.31	.085	4	51	.99	155	.22	<3	3.53	.03	.10	<2	5
L71N 56+70E	<1	36	21	107	.4	32	20	666	3.43	10	<5	<2	<2	22	<.2	<2	<2	84	.31	.124	4	51	.87	132	.19	<3	3.20	.03	.10	<2	3
L71N 57+00E	<1	93	22	131	.6	54	22	1213	3.35	13	<5	<2	<2	29	.3	<2	2	83	.39	.107	5	53	.80	158	.18	<3	2.96	.03	.13	<2	9
L71N 57+30E	1	93	23	151	.6	71	27	1134	3.56	17	<5	<2	<2	31	1.2	<2	2	88	.42	.101	6	84	1.05	154	.18	<3	3.01	.03	.15	<2	3
L71N 57+60E	<1	66	15	114	.8	46	21	997	3.19	10	<5	<2	<2	33	.7	<2	<2	77	.46	.088	6	73	.87	123	.15	<3	2.75	.03	.13	<2	4
L71N 57+90E	1	75	16	108	.5	41	23	1127	2.85	10	<5	<2	<2	50	.5	<2	<2	72	.69	.114	11	67	.93	108	.10	<3	3.01	.03	.11	<2	2
L71N 58+20E	<1	74	17	115	.8	40	25	1081	3.41	12	<5	<2	<2	47	.7	<2	2	84	.59	.064	8	70	.85	183	.18	<3	2.75	.03	.14	<2	7
L71N 58+50E	1	63	17	149	.7	42	27	1044	4.02	12	<5	<2	<2	47	.4	<2	<2	99	.57	.102	7	85	1.01	143	.17	<3	3.06	.03	.14	<2	4
L71N 58+80E	1	55	19	168	.3	37	24	1630	3.68	10	<5	<2	<2	41	1.3	<2	<2	86	.56	.127	7	66	.81	179	.17	<3	3.54	.02	.12	<2	3
L71N 59+10E	1	55	22	171	<.3	30	24	1396	3.83	14	<5	<2	<2	36	.5	<2	<2	98	.38	.147	6	51	.82	159	.18	<3	3.18	.03	.11	<2	23
L71N 59+40E	1	46	15	119	.6	33	20	654	3.67	11	<5	<2	2	24	<.2	<2	<2	96	.30	.133	6	52	.90	127	.20	<3	3.76	.03	.11	<2	3
L71N 59+70E	1	44	18	109	.7	30	18	508	3.72	10	<5	<2	2	24	<.2	<2	<2	91	.26	.122	6	51	.82	120	.19	<3	4.19	.02	.10	<2	4
L71N 60+00E	1	75	25	150	.6	36	25	1093	3.90	21	<5	<2	<2	29	<.2	<2	2	102	.30	.200	6	60	.99	129	.17	<3	4.08	.02	.13	<2	5
L71N 60+30E	1	49	20	197	.9	36	21	1613	3.27	14	<5	<2	<2	31	.6	<2	<2	80	.38	.134	5	59	.86	180	.17	<3	3.34	.03	.11	<2	5
L71N 60+60E	1	50	29	141	.7	33	24	1356	4.04	21	<5	<2	<2	30	.3	<2	<2	104	.30	.158	7	60	1.01	170	.16	<3	3.19	.02	.11	<2	18
L71N 60+90E	<1	140	28	218	.8	55	33	1315	4.21	31	<5	<2	<2	39	.9	<2	<2	95	.38	.278	6	113	1.13	141	.14	<3	3.81	.02	.19	<2	9
L71N 61+20E	1	44	23	139	.8	30	20	1076	3.86	13	<5	<2	<2	24	.3	<2	<2	89	.23	.163	5	98	.75	132	.16	<3	2.68	.02	.12	<2	5
L71N 61+50E	1	46	15	157	.7	48	21	880	3.82	12	<5	<2	<2	17	<.2	<2	3	83	.19	.116	4	138	1.07	87	.18	<3	3.69	.02	.15	<2	1
L71N 61+80E	1	56	20	155	.9	36	19	851	3.84	12	<5	<2	<2	23	<.2	<2	2	87	.25	.229	6	94	.93	109	.14	<3	3.52	.02	.12	<2	3
L71N 62+10E	1	52	21	115	.8	22	11	701	3.45	13	<5	<2	<2	19	<.2	<2	<2	83	.21	.145	6	60	.62	81	.12	<3	2.47	.01	.10	<2	4
L71N 62+40E	1	183	25	298	.9	38	21	1609	3.59	53	<5	<2	<2	70	2.8	<2	2	90	1.12	.118	9	68	.98	138	.13	<3	3.22	.03	.21	<2	4
L71N 62+70E	1	105	50	235	.5	35	22	1895	3.72	26	<5	<2	<2	42	1.6	<2	<2	92	.57	.096	10	66	.80	119	.13	<3	2.54	.02	.16	<2	5
L71N 63+00E	1	64	81	275	.7	25	23	2310	3.98	45	<5	<2	<2	34	1.7	<2	<2	96	.34	.136	12	39	.74	254	.14	<3	3.12	.02	.12	<2	5
L71N 63+30E	1	95	78	318	.7	31	28	2678	4.13	46	<5	<2	<2	50	1.3	<2	<2	104	.59	.200	7	45	.94	217	.15	<3	3.16	.02	.15	<2	8
STANDARD C3/AU-S	27	68	34	172	6.2	38	13	812	3.42	52	23	4	19	32	26.8	15	25	85	.65	.091	18	175	.66	158	.10	22	2.11	.04	.17	21	44

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ___ FA ____

Orvana Minerals Corp. FILE # 97-3331

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
L71N 63+60E	1	103	39	235	.7	46	24	1402	4.55	28	<5	<2	<2	32	.6	<2	3	105	.32	.100	8	62	1.20	120	.18	5	3.49	.02	.12	<2	9
L71N 63+90E	1	144	47	368	.6	100	32	1846	4.83	25	<5	<2	2	45	1.7	<2	<2	108	.51	.064	11	153	1.62	151	.19	3	3.37	.02	.17	<2	353
L71N 64+20E	1	113	52	299	.7	82	25	1729	4.03	27	<5	<2	<2	55	2.3	<2	2	87	.71	.087	9	118	1.26	100	.13	<3	3.03	.02	.14	<2	5
L71N 64+50E	1	109	43	445	.8	95	29	1487	4.47	34	<5	<2	2	33	1.7	<2	<2	97	.41	.123	8	146	1.61	102	.19	<3	3.61	.02	.17	<2	3
L71N 64+80E	1	104	49	274	.4	81	29	1799	4.28	32	<5	<2	3	31	1.3	<2	<2	95	.29	.129	6	137	1.51	125	.16	<3	2.83	.02	.15	<2	7
L71N 65+10E	1	104	76	234	.6	61	29	1904	4.15	25	<5	<2	<2	55	1.9	<2	3	91	.61	.127	6	95	1.20	209	.15	<3	2.14	.02	.17	<2	13
RE L71N 65+10E	1	104	77	234	.6	61	29	1906	4.20	24	<5	<2	<2	55	1.6	<2	<2	94	.61	.130	6	95	1.22	210	.15	<3	2.16	.02	.17	2	4

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ✓ FA ____

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Orvana Minerals Corp. PROJECT STEWART File # 97-4293

710 - 1177 W. Hastings St, Vancouver BC V6E 2K3 Submitted by: R. Fredericks

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
81N 48+60E	1	70	19	82	.3	16	14	1229	3.82	5	<8	<2	2	38	.3	<3	<3	107	.39	.116	10	23	.43	153	.14	<3	3.03	.02	.06	<2	9
81N 48+90E	1	106	15	92	<.3	29	19	1042	4.39	4	<8	<2	2	35	<.2	<3	<3	118	.33	.136	11	49	.63	132	.16	<3	3.47	.02	.08	<2	8
81N 49+20E	<1	68	14	79	<.3	19	16	562	5.04	4	<8	<2	2	50	.2	<3	<3	147	.52	.141	10	29	.48	136	.14	<3	2.81	.02	.08	<2	18
81N 49+50E	1	157	11	75	<.3	33	21	472	5.54	8	<8	<2	<2	48	.3	<3	5	166	.56	.183	8	56	.77	75	.13	<3	2.45	.02	.08	<2	19
81N 49+80E	<1	132	16	92	<.3	30	23	1066	5.66	5	<8	<2	3	40	<.2	<3	<3	162	.42	.225	11	53	.75	150	.16	<3	2.93	.02	.10	<2	12
80N 60+00E	1	191	<3	104	.3	26	24	602	6.59	9	<8	<2	<2	50	<.2	<3	<3	164	.53	.306	9	44	1.06	124	.15	<3	3.29	.01	.18	<2	40
80N 60+30E	1	175	7	110	<.3	27	23	440	7.00	9	<8	<2	<2	34	<.2	<3	<3	178	.36	.180	8	49	.97	126	.17	<3	3.57	.01	.12	<2	46
80N 60+60E	1	120	6	116	.5	22	18	542	5.15	9	<8	<2	2	24	.3	<3	3	120	.23	.259	8	34	.76	126	.19	<3	4.81	.02	.10	<2	17
80N 60+90E	1	134	5	121	.5	24	20	896	5.38	7	<8	<2	<2	27	.5	<3	<3	134	.23	.191	7	41	.89	141	.17	<3	3.65	.01	.12	<2	26
80N 61+20E	2	110	4	124	.6	21	21	712	5.21	17	<8	<2	<2	32	.4	<3	<3	119	.36	.310	6	42	.80	125	.12	<3	3.50	.01	.13	<2	53
RE 80N 61+20E	2	112	8	127	.6	21	21	726	5.40	16	<8	<2	<2	32	.6	<3	4	124	.37	.313	6	43	.81	128	.12	<3	3.58	.01	.13	<2	22
80N 61+50E	4	225	11	116	<.3	31	22	791	4.84	16	<8	<2	<2	64	.5	<3	3	122	.66	.078	10	52	1.39	127	.14	<3	3.36	.01	.19	<2	25
80N 61+80E	2	92	12	123	.7	25	18	866	4.17	10	<8	<2	2	33	.8	<3	6	94	.34	.238	6	46	.86	136	.14	<3	2.79	.01	.13	2	16
79N 60+30E	1	124	<3	105	.7	21	19	704	5.71	9	<8	<2	<2	67	.8	<3	4	151	.76	.143	6	45	.83	102	.14	<3	2.33	.01	.12	<2	39
79N 60+60E	6	88	22	189	<.3	28	20	1569	4.24	13	<8	<2	<2	59	3.0	<3	5	109	.83	.108	7	48	1.13	121	.13	<3	2.08	.03	.22	<2	8
STANDARD C3/AU-S	25	63	32	166	5.3	35	12	724	3.48	55	22	3	18	30	23.4	15	23	81	.58	.085	18	161	.64	146	.10	21	1.97	.04	.16	22	44

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 11 1997 DATE REPORT MAILED: Aug 21/97 SIGNED BY .... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ___ FA ___

ACME A" 'LYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. V''NCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604'`53-1716

GEOCHEMICAL ANAL..SIS CERTIFICATE

Orvana Minerals Corp. PROJECT STEWART File # 97-5260 Page 1

710 - 1177 W. Hastings St, Vancouver BC V6E 2K3 Submitted by: R. Fredericks

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
L88N 50+10E	<1	221	15	91	.4	43	23	672	4.32	3	<8	<2	<2	37	.6	4	<3	134	.37	.130	3	75	.79	81	.21	<3	2.80	.02	.10	<2	6
L88N 50+40E	<1	126	16	135	<.3	36	23	1732	3.78	2	<8	<2	2	36	.5	<3	<3	91	.33	.249	6	56	.62	127	.17	3	3.02	.02	.09	<2	5
L88N 50+70E	1	108	17	126	.4	49	22	825	4.05	4	<8	<2	3	37	.5	<3	<3	101	.46	.149	7	78	.76	80	.16	4	2.90	.02	.11	<2	4
L88N 51+00E	2	95	26	110	<.3	46	23	1152	3.86	4	<8	<2	4	35	.6	<3	<3	99	.37	.151	11	72	.73	92	.18	4	3.15	.02	.10	<2	4
L88N 51+30E	1	66	34	276	.3	33	23	1777	3.43	3	<8	<2	3	30	2.1	<3	<3	78	.27	.301	8	50	.56	156	.12	3	3.02	.02	.09	<2	1
L88N 51+60E	1	94	34	128	.4	44	25	961	4.04	5	<8	<2	3	39	.6	<3	<3	92	.38	.149	9	76	.81	109	.18	5	2.98	.02	.10	<2	4
L88N 51+90E	1	88	40	126	<.3	42	26	2378	3.79	7	<8	<2	<2	35	.4	<3	<3	90	.33	.159	7	68	.74	185	.16	4	2.69	.02	.09	<2	10
L88N 52+20E	<1	110	30	104	<.3	50	26	760	4.06	8	<8	<2	<2	36	.5	<3	<3	105	.33	.114	7	76	.92	110	.20	<3	3.12	.02	.09	<2	10
L88N 52+50E	<1	90	31	97	<.3	48	22	665	3.69	5	<8	<2	2	29	.5	<3	<3	94	.29	.136	8	77	.93	87	.19	<3	3.21	.02	.12	<2	8
L88N 52+80E	<1	89	20	137	<.3	56	26	1037	3.88	8	<8	<2	2	34	.7	<3	<3	93	.31	.232	5	77	1.02	97	.20	<3	2.97	.02	.11	<2	46
L88N 53+10E	1	127	26	137	<.3	44	27	895	4.38	5	<8	<2	2	31	.7	<3	<3	127	.30	.176	8	67	1.22	151	.21	<3	3.65	.02	.16	<2	33
L88N 53+40E	<1	76	37	92	<.3	29	19	1110	3.14	5	<8	<2	<2	25	.6	<3	<3	77	.24	.137	5	53	.53	106	.18	<3	2.30	.01	.07	<2	15
L88N 53+70E	<1	176	26	127	1.8	46	24	1474	3.81	8	<8	<2	<2	24	.5	<3	<3	108	.20	.111	6	80	.91	125	.20	<3	3.30	.01	.09	<2	36
L88N 54+00E	<1	72	13	82	1.0	26	17	547	2.91	5	<8	<2	<2	23	.5	3	<3	72	.16	.134	5	44	.52	131	.19	<3	3.75	.02	.07	<2	13
L88N 54+30E	1	80	17	89	1.0	27	16	1131	2.89	4	<8	<2	<2	25	.5	3	<3	74	.19	.141	6	43	.50	139	.16	<3	2.90	.01	.07	<2	29
L88N 54+60E	1	110	18	96	.9	50	16	902	3.00	5	<8	<2	<2	18	.6	3	<3	68	.15	.142	9	53	.52	131	.12	<3	3.73	.01	.08	<2	19
L88N 54+90E	1	107	15	76	.7	30	17	689	2.79	<2	<8	<2	3	18	.3	<3	<3	70	.15	.105	7	46	.47	104	.18	3	4.22	.02	.07	<2	12
L86N 50+10E	<1	114	26	120	<.3	39	24	1401	4.28	6	<8	<2	2	46	.5	<3	<3	112	.43	.221	9	59	.75	134	.10	<3	2.59	.02	.11	<2	9
L86N 50+40E	2	107	32	144	.4	63	31	1387	4.63	6	<8	<2	2	43	.8	<3	<3	112	.43	.115	12	124	1.11	127	.15	3	3.27	.02	.20	<2	3
L86N 50+70E	1	98	27	196	<.3	46	30	1826	4.03	6	<8	<2	<2	44	.9	3	<3	99	.40	.284	8	73	.77	183	.11	<3	2.92	.02	.12	<2	5
RE L86N 50+70E	1	97	28	197	<.3	47	30	1839	4.08	4	<8	<2	<2	44	.8	<3	<3	98	.41	.278	8	73	.78	181	.11	<3	2.89	.02	.12	<2	8
L86N 51+00E	<1	71	21	124	<.3	40	23	1121	3.72	4	<8	<2	<2	51	.8	<3	<3	93	.46	.194	8	54	.67	149	.12	<3	2.85	.02	.13	<2	3
L86N 51+30E	<1	88	19	111	<.3	40	23	1512	3.93	3	<8	<2	3	58	.5	<3	<3	99	.44	.159	8	65	.86	210	.12	4	2.64	.02	.12	<2	5
L86N 51+60E	<1	101	26	121	<.3	38	21	1090	3.99	4	<8	<2	2	45	.5	<3	<3	102	.41	.214	8	60	.88	137	.16	<3	2.91	.01	.15	<2	13
L86N 51+90E	<1	80	18	132	<.3	33	20	1370	3.32	6	<8	<2	<2	41	.8	<3	<3	84	.39	.259	6	45	.67	231	.12	<3	2.97	.02	.14	<2	5
L86N 52+20E	<1	130	27	123	.3	33	26	1490	3.94	8	<8	<2	3	47	.6	<3	<3	95	.33	.317	7	50	.71	304	.15	3	2.92	.02	.14	<2	6
L86N 52+50E	1	205	31	125	<.3	37	28	1620	4.79	17	<8	<2	<2	41	1.1	<3	<3	136	.40	.190	7	59	1.07	234	.18	<3	2.82	.01	.22	<2	22
L86N 52+80E	4	338	22	151	<.3	58	31	1012	5.04	9	<8	<2	<2	40	1.0	<3	<3	147	.34	.188	7	83	1.20	102	.20	<3	3.36	.01	.29	<2	28
L86N 53+10E	2	261	21	137	<.3	129	40	1508	4.37	8	<8	<2	<2	51	1.1	<3	<3	122	.48	.179	5	107	1.37	266	.19	<3	3.44	.01	.19	<2	8
L86N 53+40E	1	200	30	140	<.3	67	30	1123	3.65	4	<8	<2	<2	40	1.2	<3	<3	93	.37	.162	5	84	.95	161	.18	<3	2.71	.01	.12	<2	561
L86N 53+70E	2	459	21	100	<.3	61	41	1104	4.83	12	<8	<2	<2	40	.7	<3	<3	147	.37	.173	6	91	1.48	151	.20	<3	3.60	.01	.21	<2	71
L86N 54+00E	1	278	14	81	<.3	50	33	699	4.85	5	<8	<2	<2	41	.5	<3	<3	140	.37	.146	5	81	1.31	134	.22	<3	2.98	.01	.19	<2	51
L86N 54+30E	2	171	27	89	<.3	30	22	1144	3.69	4	<8	<2	<2	25	.5	<3	<3	90	.20	.151	5	41	.77	161	.19	<3	3.59	.01	.10	<2	20
L86N 54+60E	1	108	19	91	<.3	26	24	764	5.23	3	<8	<2	<2	29	.6	<3	<3	145	.24	.198	6	38	1.06	118	.21	<3	3.74	.01	.14	<2	15
L86N 54+90E	<1	114	20	127	.3	59	27	1756	5.10	3	<8	<2	2	40	.7	<3	<3	131	.33	.176	7	95	1.33	331	.20	<3	3.47	.01	.20	2	13
STANDARD C3/AU-S	25	65	41	160	5.6	39	13	773	3.48	44	16	<2	19	30	24.0	12	20	83	.60	.087	17	176	.62	137	.08	20	1.99	.04	.16	17	45

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 11 1997 DATE REPORT MAILED: Sept 22/97 SIGNED BY........D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ___ FA ___

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
L84N 50+10E	<1	129	29	111	.6	32	21	1725	3.88	6	<8	<2	3	44	.8	<3	<3	91	.34	.186	9	49	.59	244	.17	4	2.54	.02	.08	<2	18
L84N 50+40E	1	157	33	79	.5	36	22	1888	3.97	5	<8	<2	2	52	.7	<3	<3	106	.39	.081	10	55	.68	142	.17	6	2.43	.02	.10	<2	16
L84N 50+70E	1	130	32	94	.7	31	22	1845	4.29	8	<8	<2	2	55	.5	3	<3	114	.41	.204	9	49	.63	144	.12	4	2.51	.02	.09	<2	9
L84N 51+00E	2	160	27	122	.5	47	24	1575	4.60	5	<8	<2	4	59	.9	<3	<3	108	.45	.177	12	66	.99	282	.18	7	3.19	.02	.14	<2	15
L84N 51+30E	<1	163	25	104	.5	40	29	1189	4.57	16	<8	<2	3	60	.6	<3	<3	116	.48	.181	9	65	.96	261	.12	6	3.01	.01	.16	<2	102
L84N 51+60E	<1	135	33	124	.4	40	27	1917	4.40	9	<8	<2	<2	64	1.2	<3	<3	113	.53	.203	13	66	.94	259	.12	5	3.10	.01	.17	<2	26
L84N 51+90E	<1	122	34	133	.4	47	28	1520	4.15	6	<8	<2	<2	65	1.0	<3	<3	98	.57	.163	11	73	1.00	244	.10	6	3.20	.01	.29	<2	33
L84N 52+20E	2	235	58	378	1.0	34	28	3700	5.41	9	<8	<2	3	86	2.7	<3	<3	116	.63	.414	11	52	1.07	457	.18	9	3.82	.01	.27	<2	30
L84N 52+50E	<1	221	22	243	.7	29	27	2045	5.44	12	<8	<2	<2	59	2.7	<3	<3	148	.51	.196	10	46	1.02	238	.20	5	3.33	.01	.25	<2	70
L84N 52+80E	1	247	37	104	.5	27	27	1527	6.72	14	<8	<2	<2	87	1.2	<3	<3	207	.91	.077	9	40	1.09	127	.22	5	2.62	.01	.33	<2	136
L84N 53+10E	<1	189	37	195	.6	25	24	2971	5.29	9	<8	<2	3	74	1.2	<3	<3	139	.60	.187	7	45	1.16	163	.20	7	2.74	.01	.23	<2	135
L84N 53+40E	1	210	14	100	.3	34	24	876	4.94	8	<8	<2	<2	42	.6	<3	<3	141	.38	.155	9	57	.99	81	.19	4	3.03	.01	.13	<2	41
L84N 53+70E	1	171	27	98	.4	36	24	1468	4.73	8	<8	<2	<2	51	.5	<3	<3	132	.44	.100	9	61	.90	122	.19	3	3.12	.01	.11	<2	27
RE L84N 53+70E	2	163	27	95	.4	34	22	1430	4.55	7	<8	<2	<2	49	.6	<3	<3	124	.42	.097	9	62	.86	116	.18	5	3.00	.01	.10	<2	86
L84N 54+00E	1	128	25	101	.4	28	24	2113	4.94	6	<8	<2	<2	39	.5	<3	<3	141	.34	.133	8	51	.83	154	.19	<3	2.76	.01	.11	<2	16
L84N 54+30E	<1	120	48	111	.3	32	24	1831	4.52	7	<8	<2	<2	77	.9	<3	<3	122	.58	.199	6	56	.82	268	.16	5	2.71	.01	.16	<2	17
L84N 54+60E	1	146	52	152	.3	30	22	3099	4.21	9	<8	<2	<2	55	1.5	<3	<3	111	.48	.145	8	43	.82	327	.18	7	2.68	.01	.15	<2	6
L84N 54+90E	2	170	22	102	.4	34	23	1806	4.38	8	<8	<2	<2	48	.6	<3	<3	119	.42	.100	8	61	.92	106	.18	4	2.86	.01	.13	<2	28
STANDARD C3/AU-S	24	65	37	157	5.7	38	13	769	3.53	47	20	3	19	31	23.2	16	20	83	.59	.089	19	177	.61	134	.09	22	1.99	.04	.17	18	47

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA

ACME A YTICAL LABORATORIES LTD.   852 E. HASTINGS ST. V 'OUVER BC V6A 1R6   PHONE(604)253-3158 FAX(604' 3-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Orvana Minerals Corp. PROJECT STEWART File # 97-4294

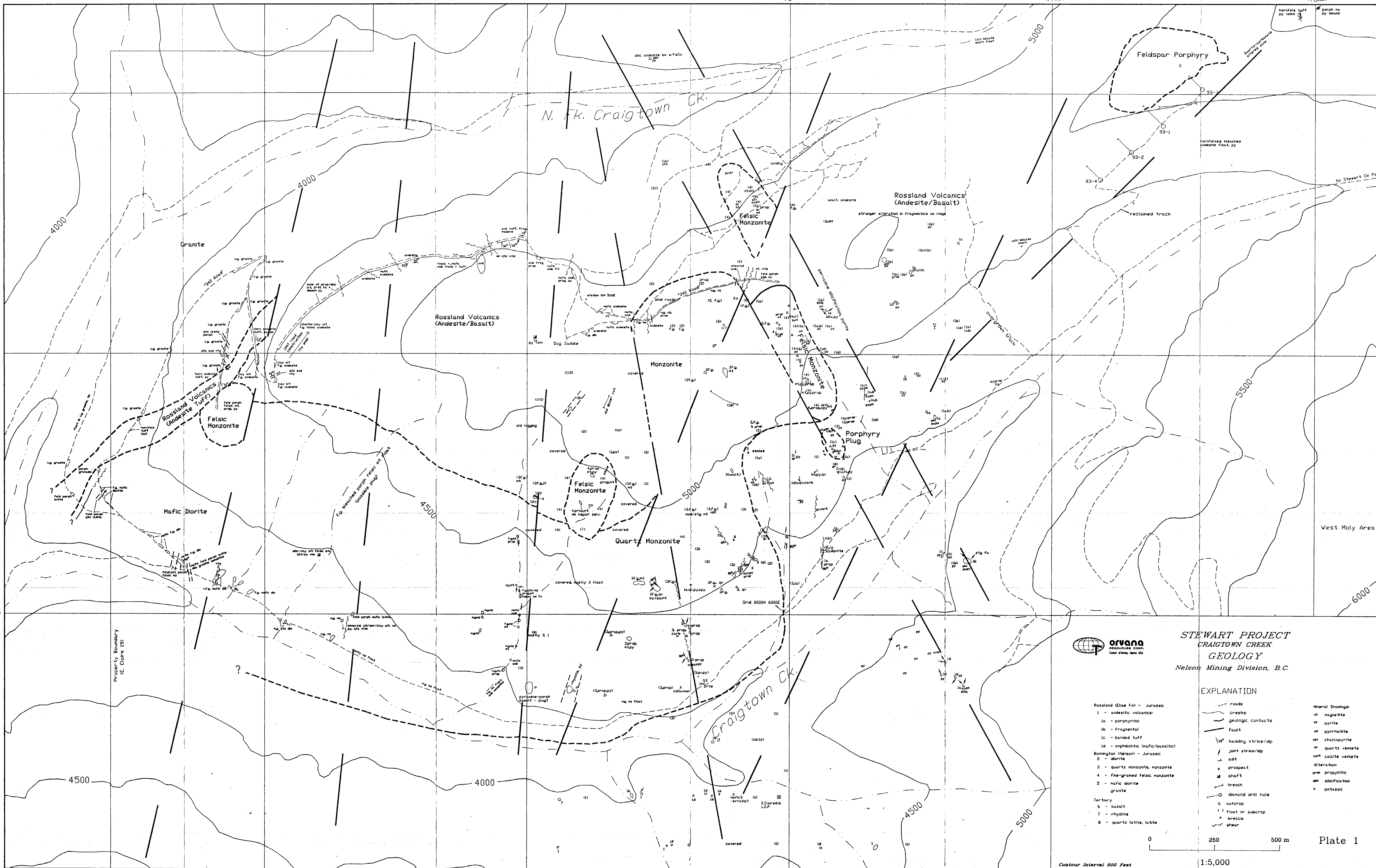
710 - 1177 W. Hastings St, Vancouver BC V6E 2K3   Submitted by: R. Fredericks

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
POMM-1	<1	12	8	42	<.3	10	7	286	1.46	6	<8	<2	3	24	.3	6	<3	32	.33	.050	24	10	.28	143	.07	<3	1.08	.01	.15	<2	38
POMM-2	1	15	12	46	<.3	16	6	352	1.88	9	<8	<2	5	22	.3	<3	<3	25	.22	.044	22	12	.34	84	.07	<3	1.31	.01	.20	<2	4
POMM-3	<1	15	9	45	<.3	10	4	265	1.48	2	<8	<2	2	20	.3	3	<3	32	.19	.042	18	10	.32	46	.09	<3	1.13	.01	.18	2	<1
POMM-4	1	22	9	66	<.3	21	7	251	2.69	8	<8	<2	6	28	.5	<3	<3	106	.33	.046	20	22	.34	68	.11	<3	1.21	.02	.18	<2	<1
POMM-5	<1	24	14	87	<.3	27	8	432	2.15	13	<8	<2	5	67	.5	5	<3	27	.73	.078	18	18	.40	84	.09	4	1.95	.02	.28	<2	1
SMM 101	2	240	57	191	.8	41	16	1321	6.09	9	<8	<2	2	84	2.6	<3	<3	196	1.30	.124	18	64	.78	121	.13	9	2.41	.04	.25	3	14
SMM 102	1	280	77	173	.4	31	13	1080	3.95	5	<8	<2	<2	124	2.7	3	<3	122	1.65	.160	16	40	.72	123	.09	5	2.07	.02	.22	3	11
SMM 103	2	315	79	264	.4	64	15	1386	4.53	5	<8	<2	2	89	2.5	3	<3	141	1.13	.099	18	63	.81	167	.14	3	3.05	.03	.25	3	10
SMM 104	1	156	35	181	<.3	19	16	1161	6.69	8	<8	<2	3	74	1.9	<3	<3	213	.93	.115	15	41	.76	78	.13	<3	1.67	.03	.25	<2	46
SMM 105	1	162	36	191	.4	20	18	1309	7.76	7	<8	<2	4	82	1.5	6	<3	251	1.03	.129	16	45	.81	79	.14	9	1.78	.03	.30	2	294
SMM 106	1	141	32	181	.4	20	18	1328	9.79	11	<8	<2	5	80	1.9	5	<3	313	1.02	.128	15	49	.78	72	.13	6	1.69	.03	.31	2	144
SMM 107	<1	165	32	181	.5	20	20	1595	11.10	11	<8	<2	4	88	1.7	4	6	347	1.14	.141	14	48	.84	87	.13	5	1.77	.03	.35	<2	906
SMM 108	1	204	42	212	<.3	20	15	1439	4.16	6	<8	<2	2	92	2.5	<3	<3	137	1.13	.122	18	38	.83	94	.12	<3	1.90	.03	.32	<2	29
SMM 109	1	243	53	256	.7	25	16	1351	4.49	6	<8	<2	3	105	2.8	<3	<3	143	1.22	.126	20	45	.80	115	.11	6	1.96	.03	.28	4	16
SMM 110	2	610	63	155	1.0	20	23	1506	5.04	5	<8	<2	3	128	1.8	3	4	155	1.73	.160	20	27	.79	119	.11	<3	1.59	.03	.26	4	5
RE SMM 111	1	275	36	94	.9	34	18	788	5.49	14	<8	<2	3	90	1.6	3	<3	161	1.22	.100	10	57	.76	73	.11	3	1.83	.02	.18	<2	66
SMM 111	1	276	31	93	.6	34	17	795	5.62	13	<8	<2	2	91	2.0	6	<3	165	1.23	.100	10	56	.76	83	.11	6	1.83	.02	.19	<2	27
SMM 112	1	109	26	71	<.3	31	21	574	6.24	12	<8	<2	4	62	1.3	5	<3	183	.80	.109	10	84	.65	60	.10	<3	1.47	.02	.15	4	72
SMM 113	1	72	20	71	<.3	34	21	565	3.36	11	<8	<2	3	57	1.2	3	<3	83	.69	.100	8	73	.91	70	.13	<3	1.74	.02	.21	<2	54
SMM 114	1	67	24	73	<.3	32	17	642	2.86	10	<8	<2	<2	68	1.1	5	<3	72	.80	.114	8	68	.87	66	.11	4	1.82	.02	.20	3	753
SMM 115	1	62	26	71	<.3	27	15	601	2.87	9	<8	<2	2	74	1.3	3	<3	74	.87	.100	11	71	.85	80	.13	4	1.71	.03	.20	<2	10
SMM 116	2	49	50	87	<.3	19	9	590	1.78	7	<8	<2	<2	108	1.1	4	<3	48	1.53	.157	11	59	.52	76	.06	<3	1.26	.02	.32	2	6
SMM 117	1	70	14	52	<.3	36	16	417	2.62	6	<8	<2	<2	65	.8	3	<3	78	.82	.084	7	70	.75	59	.12	<3	1.58	.03	.22	<2	55
SMM 118	1	73	16	70	<.3	27	28	597	5.95	22	<8	<2	3	61	1.1	3	<3	120	.65	.111	10	67	1.02	84	.14	<3	1.61	.01	.13	2	163
STANDARD C3/AU-S	26	68	36	157	5.0	36	10	733	3.52	55	20	<2	21	30	23.5	16	19	82	.59	.085	18	161	.65	141	.10	22	1.92	.04	.16	22	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.
- SAMPLE TYPE: MOSS MAT   AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 11 1997 DATE REPORT MAILED: Aug 23/97 SIGNED BY. C.L. ...D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ✓ FA ____



GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,388

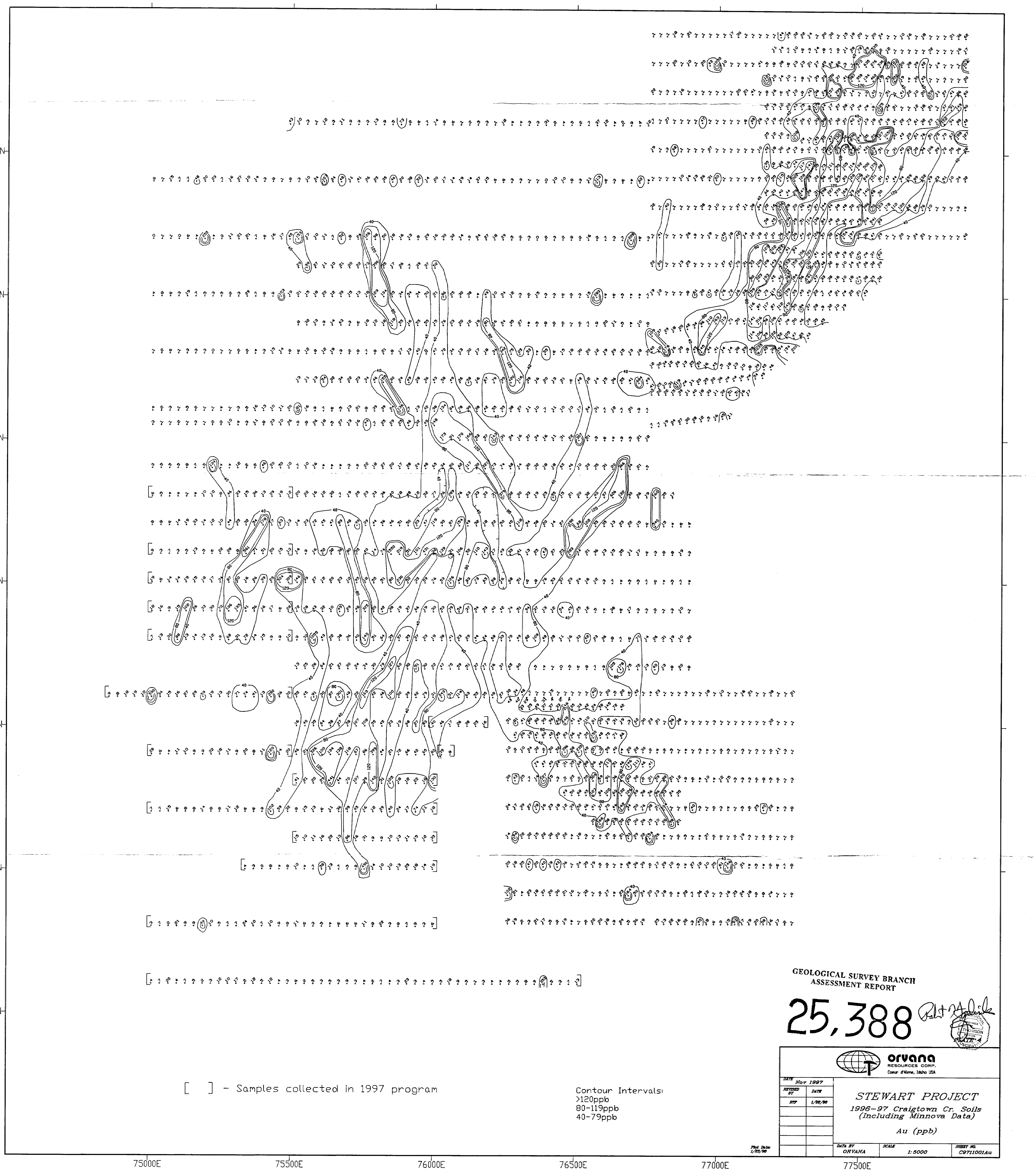
Data by Orvana
November 1997
R. Fredericks
Base map adapted from 82F/6
Plot Date: 1/23/98

(1)

Data by Orvana
November 1997
R. Fredericks
Base map adapted from 82F/6
Plot Date: 1/23/98

(2)

STEWART PROJECT
CRAIGTOWN CREEK
orvana RESOURCES CORP. Coeur d'Alene, Idaho USA
Nelson Mining Division, B.C.
ROCK AND MOSS MAT SAMPLE GEOCHEMISTRY
GOLD (ppb), COPPER (ppm)
EXPLANATION
adit
prospect
shaft
trench
rock sample
moss mat sample
GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT
25,388
0 250 500 m
1:5,000
Plate 3
Contour Interval 500 Feet
Data by Orvana
November 1997
R. Fredericks
Base map adapted from 82F/8
Plot Date: 1/23/98
N. Fk. Craigtown Ck.
Craigtown Ck.
Dog Saddle
West Moly Area
reclaimed track
to Stewart Ck Pass
Property Boundary (E. Claire 19)
Grid 8000N 6000E
474000m
475000m
476000m
477000m
478000m
5460000m
5459000m
5458000m
4000
4500
5000
5500
6000



[ ] - Samples collected in 1997 program

Contour Intervals:
>120ppb
80-119ppb
40-79ppb

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,388

orvana RESOURCES CORP.
Coeur d'Alene, Idaho USA

DATE Nov 1997

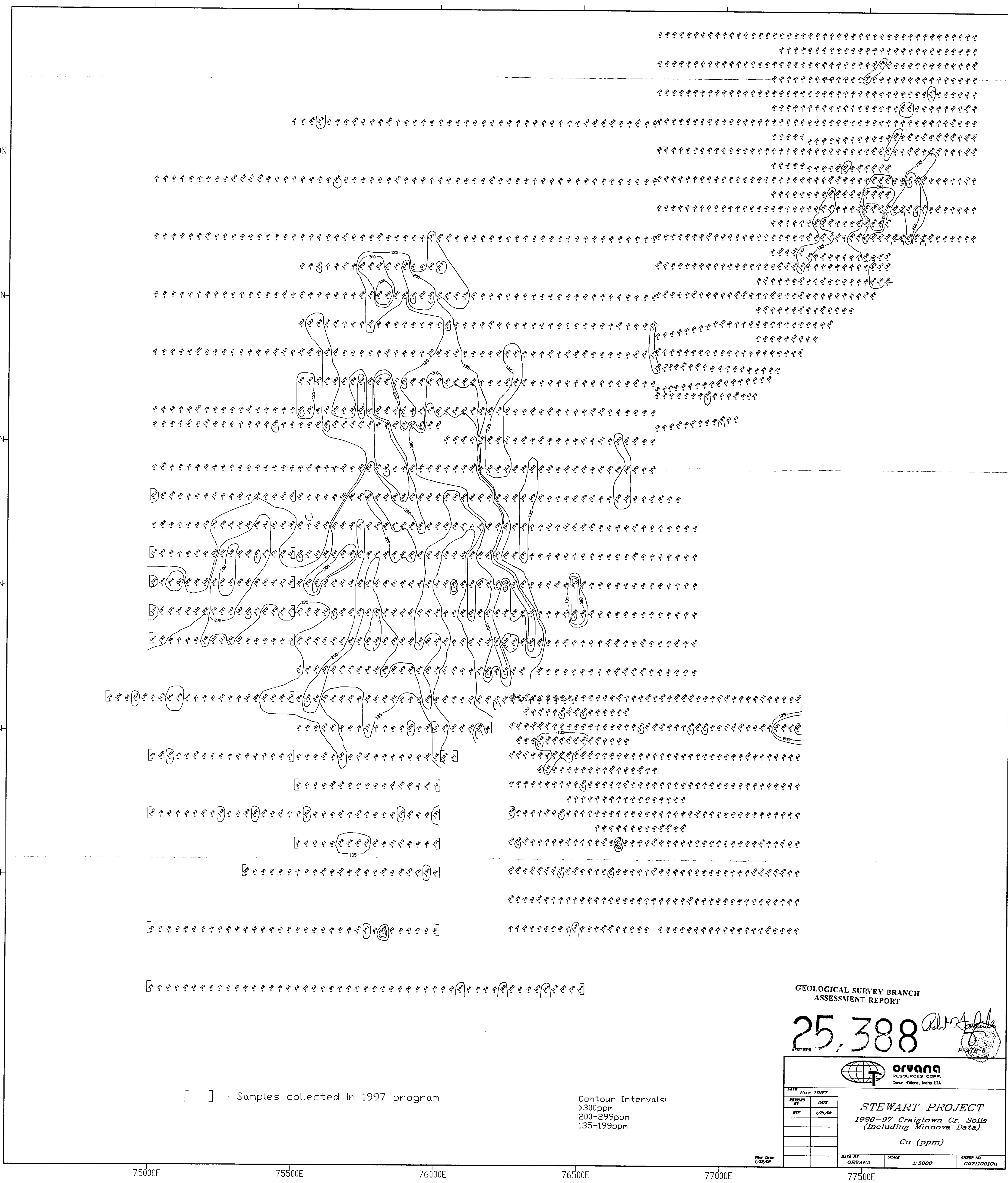
STEWART PROJECT

1996-97 Craigtown Cr. Soils
(Including Minnova Data)

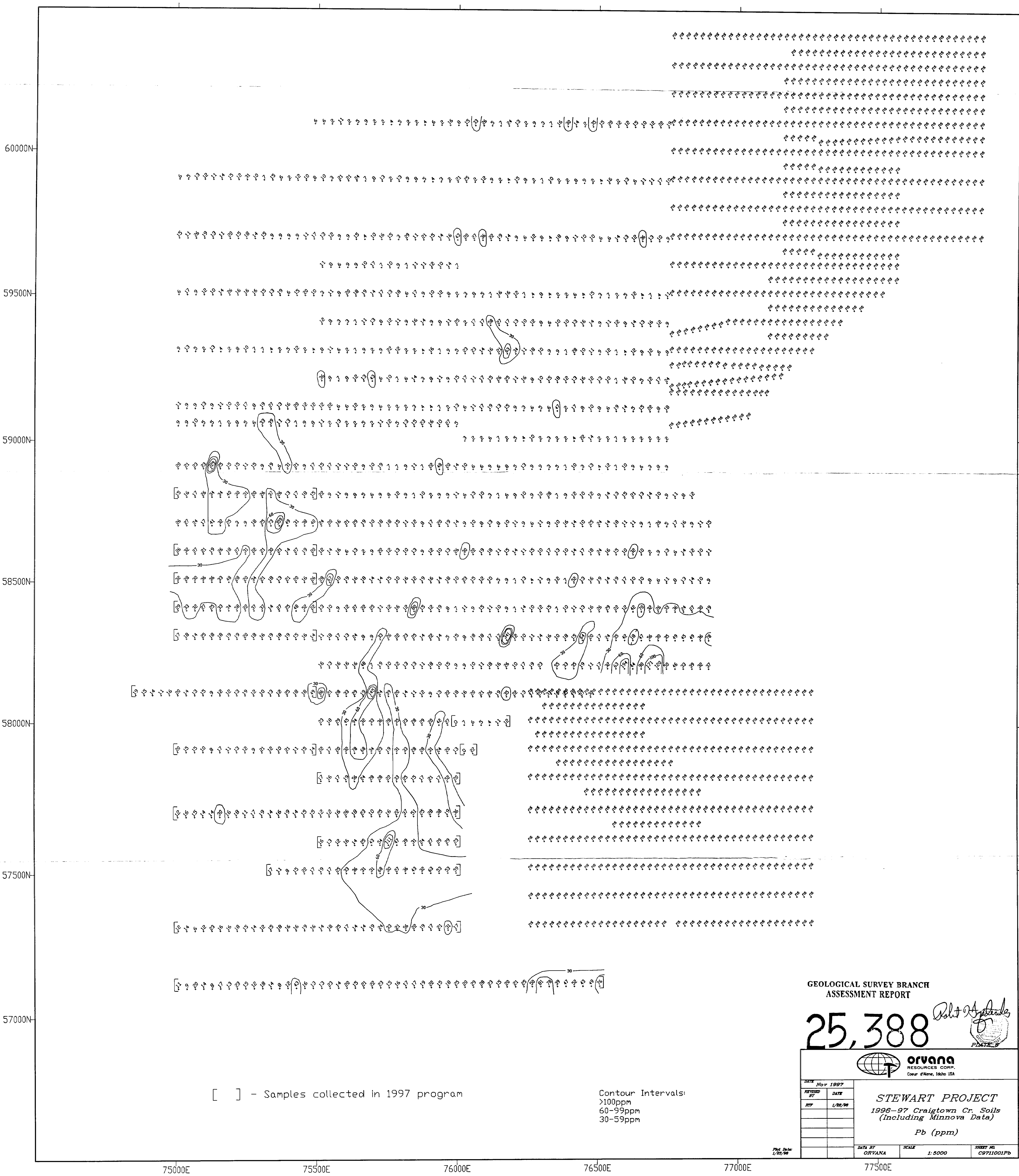
Au (ppb)

DATA BY ORVANA | SCALE 1:5000 | SHEET NO. C9711001Au

(4)


60000N
59500N
59000N
58500N
58000N
57500N
57000N
75000E
75500E
76000E
76500E
77000E
77500E
[ ] - Samples collected in 1997 program
Contour Intervals:
>300ppm
200-299ppm
135-199ppm
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,388
PLATE 5
orvana
RESOURCES CORP.
Coeur d'Alene, Idaho USA
DATE Nov 1997
REVISED BY
DATE
RTF
1/21/98
STEWART PROJECT
1996-97 Craigtown Cr. Soils
(Including Minnova Data)
Cu (ppm)
Plot Date: 1/23/98
DATA BY ORVANA
SCALE 1:5000
SHEET NO. C9711001Cu

(5)



GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,388

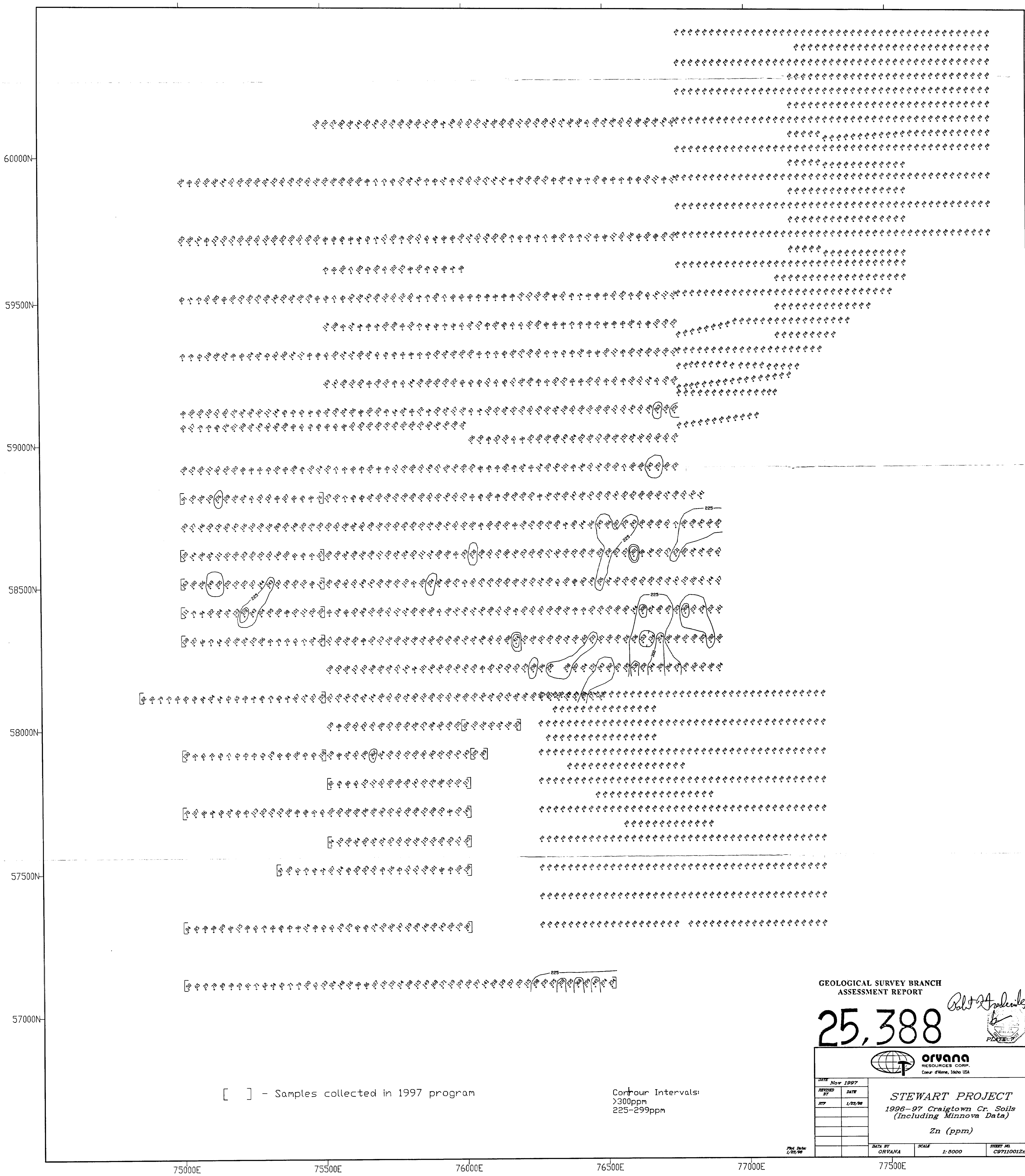
PLATE 6

orvana RESOURCES CORP.
Coeur d'Alene, Idaho USA

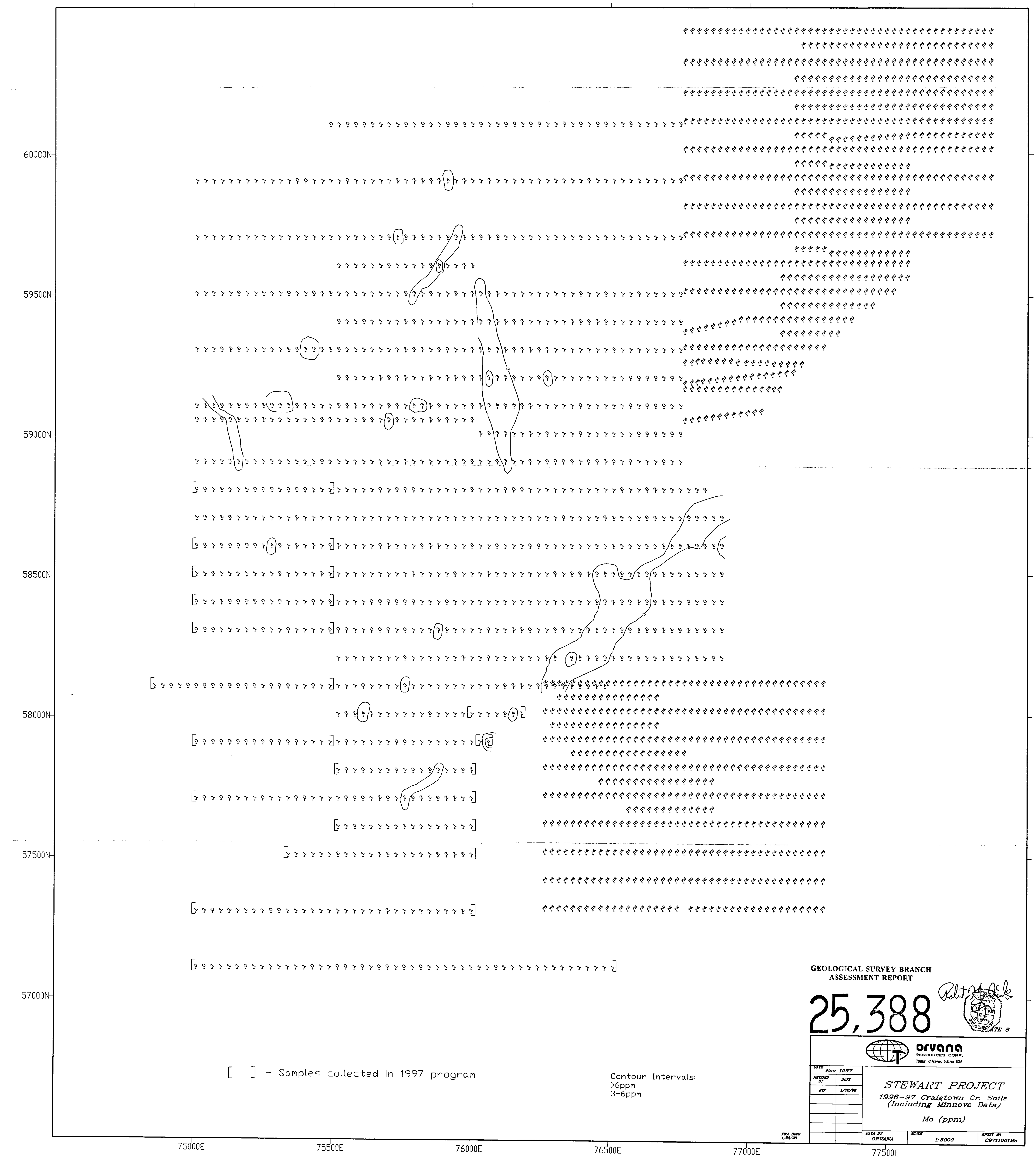
DATE Nov 1997		STEWART PROJECT
REVISED BY	DATE	1996–97 Craigtown Cr. Soils (Including Minnova Data)
RTF	1/22/98	Pb (ppm)

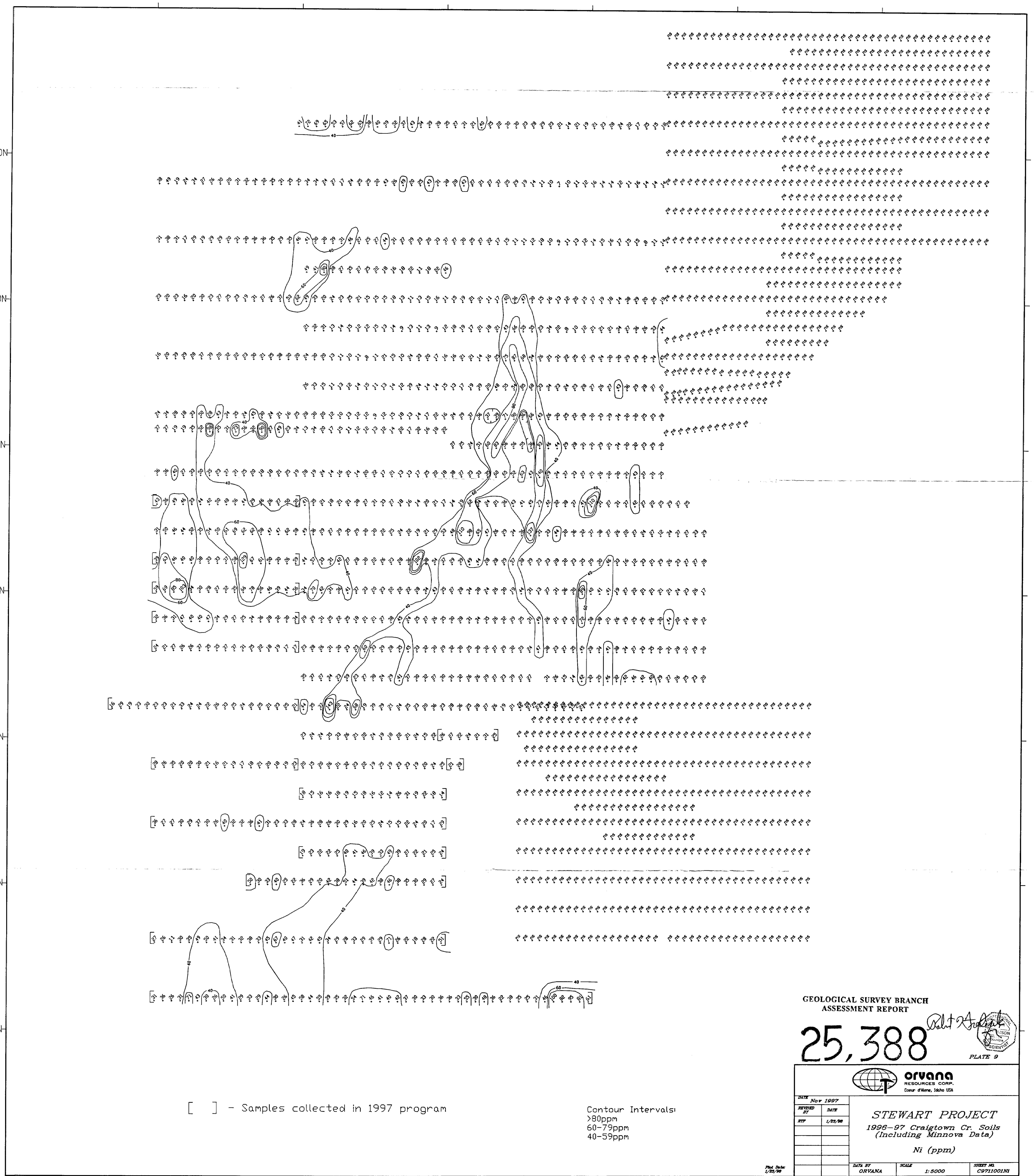
DATA BY	SCALE	SHEET NO.
ORVANA	1:5000	C9711001Pb

(6)

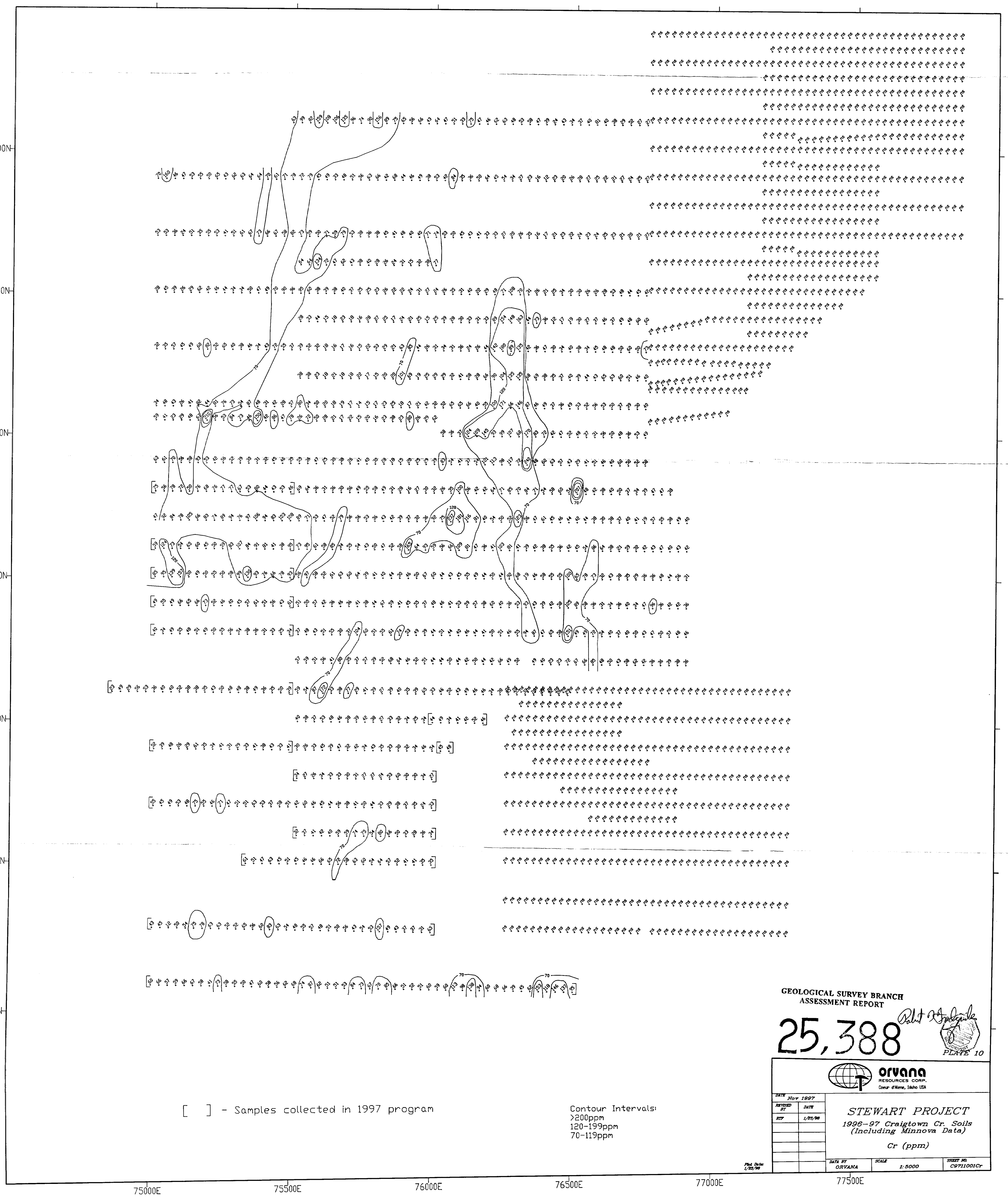

60000N
59500N
59000N
58500N
58000N
57500N
57000N
75000E
75500E
76000E
76500E
77000E
77500E
225
[ ] - Samples collected in 1997 program
Contour Intervals:
>300ppm
225-299ppm
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,388
PLATE 7
orvana
RESOURCES CORP.
Coeur d'Alene, Idaho USA
DATE Nov 1997
REVISED
DATE 1/23/98
STEWART PROJECT
1996-97 Craigtown Cr. Soils
(Including Minnova Data)
Zn (ppm)
DATA BY ORVANA
SCALE 1:5000
SHEET NO. C97110012n
Plot Date: 1/23/98

(7)

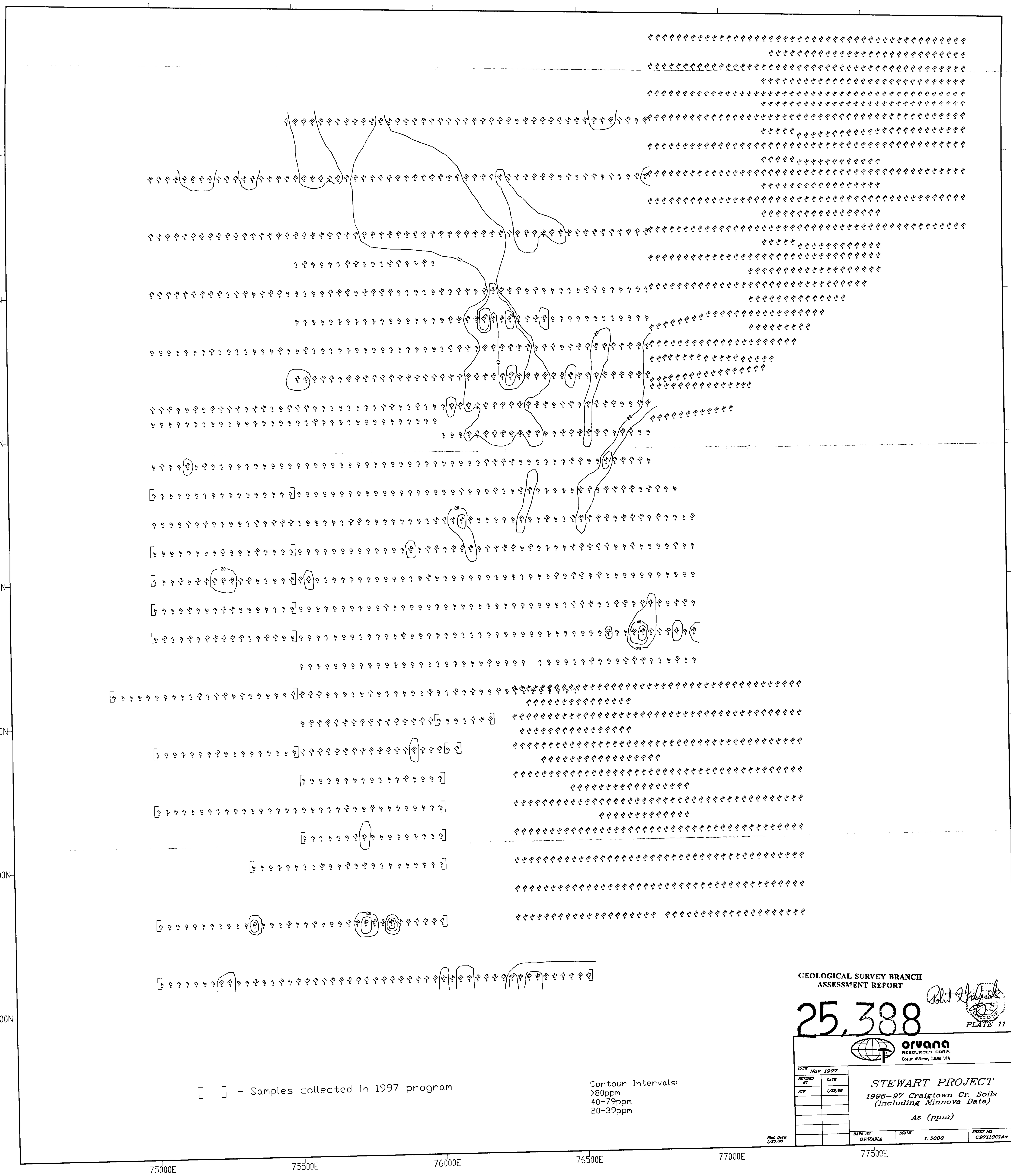

60000N
59500N
59000N
58500N
58000N
57500N
57000N
75000E
75500E
76000E
76500E
77000E
77500E
[ ] - Samples collected in 1997 program
Contour Intervals:
>6ppm
3-6ppm
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,388
PLATE 8
orvana
RESOURCES CORP.
Coeur d'Alene, Idaho USA
DATE Nov 1997
REVISED BY
DATE
RTP
1/22/98
STEWART PROJECT
1996-97 Craigtown Cr. Soils
(Including Minnova Data)
Mo (ppm)
Plot Date: 1/23/98
DATA BY ORVANA
SCALE 1:5000
SHEET NO. C9711001Mo



60000N
59500N
59000N
58500N
58000N
57500N
57000N
75000E
75500E
76000E
76500E
77000E
77500E
[ ] - Samples collected in 1997 program
Contour Intervals:
>80ppm
60-79ppm
40-59ppm
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,388
PLATE 9
orvana
RESOURCES CORP.
Coeur d'Alene, Idaho USA
Nov 1997
STEWART PROJECT
1996-97 Craigtown Cr. Soils
(Including Minnova Data)
Ni (ppm)
ORVANA
1:5000
C9711001NI



60000N
59500N
59000N
58500N
58000N
57500N
57000N
75000E
75500E
76000E
76500E
77000E
77500E
[ ] - Samples collected in 1997 program
Contour Intervals:
>200ppm
120-199ppm
70-119ppm
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,388
PLATE 10
orvana
RESOURCES CORP.
Coeur d'Alene, Idaho USA
Nov 1997
STEWART PROJECT
1996-97 Craigtown Cr. Soils
(Including Minnova Data)
Cr (ppm)
ORVANA
1:5000
C9711001Cr



60000N
59500N
59000N
58500N
58000N
57500N
57000N
75000E
75500E
76000E
76500E
77000E
77500E
[ ] - Samples collected in 1997 program
Contour Intervals:
>80ppm
40-79ppm
20-39ppm
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,388
PLATE 11
orvana
RESOURCES CORP.
Coeur d'Alene, Idaho USA
Nov 1997
STEWART PROJECT
1996-97 Craigtown Cr. Soils
(Including Minnova Data)
As (ppm)
ORVANA
1:5000
C9711001As

(11)