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REPORT ON THE SANTA MARINA GOLD LTD. ARC PROJECT

ISKUT AREA
LIARD MINING DIVISION
BRITISH COLUMBIA

21,177

J. Chapman, F.G.A.C.
W. Raven, F.G.A.C.
A. Walus, M.Sc.

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OREQUEST CONSULTANTS LTD. 306-595 Howe Street, Vancouver, B.C., Canada, V6C 2T5 Telephone: (604) 688-6788 Fax: (604) 688-9727

SUMMARY

The Phase I exploration program has been successfully completed on the Arc Project of Santa Marina Gold Ltd. The work consisted of geological mapping and prospecting in conjunction with geochemical rock sampling (149), limited soil sampling (44) and silt (33) and heavy mineral concentrate (9) sediment sampling. The surveys constituted a first pass examination to gain an understanding of the overall property geology and to locate precious and/or base metal mineralization within the claims.

The property was determined to be underlain by sedimentary and volcanic rocks of the Hazelton Group represented by the Betty Creek and Mt. Dilworth Formations. These in turn have been intruded by a complex composite intrusive, the Lehto Porphyry, which occupies most of the property.

Results from the surveys outlined five separate anomalous zones which have been labelled as follows: Stockwork Zone; GM Vein Zone; Nanny Goat Zone; Rick Zone; and, Sky High Zone. From an exploration point of view the most promising areas are the Nanny Goat and Rick Zones, both located peripheral to the Lehto Porphyry.

At the Nanny Goat and Rick Zones gold mineralization is localized by individual fractures developed either as shears, fissures or densely fractured zones. All of these likely originated as a result of intrusion generated stress during consolidation of the Lehto Porphyry. These structures were subsequently mineralized with gold bearing chalcopyrite and pyrite along with magnetite, hematite and, in the Rick Zone, also by molybdenite and pyrrhotite. The latter two

minerals indicate hypothermal conditions, but a lower temperature environment might also have been involved. Mineralization proceeded in several stages as suggested by the diversity of mineralization which includes: pyrite, chalcopyrite, magnetite, hematite, pyrrhotite, molybdenite, sphalerite, bornite, galena and arsenopyrite. Some of the chalcopyrite from the Arc-19 claim was noted in fresh almost unaltered monzonite which suggests a primary origin.

The Nanny Goat Zone is located in the central portion of the Arc-19 claim. Gold bearing plutonic rocks are contained within a 300-400 m wide east-west trending band which can be traced for 800-900 m along strike, terminated at both ends by talus cover. Results from rock samples are very encouraging, with a high of 1.34 oz/ton gold from sample #33609. Eight additional grab samples assayed from 0.132 to 0.321 oz/ton gold. Assays for other elements are also encouraging with up to 2.70 oz/ton silver, 3.52% copper and 3.68% zinc recorded.

The Rick Zone encompasses a strip of outcrop between two glaciers on the Arc-21 claim. Very few samples were taken due to extremely difficult access, however results are encouraging. Of the grab samples collected within 400-500 m of the presumed Mt. Dilworth-Lehto Porphyry contact, five assayed over 300 ppb gold with one sample (#33046) assaying 0.801 oz/ton gold. Most samples contain anomalous molybdenum measured in hundreds of ppm with one sample (#33045) assaying >1000 ppm.

Further work is recommended on all the zones discovered to date along with mapping, prospecting, and sampling on areas of the property not examined during the 1990 program.

Work should focus on the Nanny Goat and Rick Zones as the priority targets. Initially, Phase II work should consist of detailed mapping and rock chip sampling to gain a better understanding of the structural controls on mineraliztaion and determine grades over definitive widths.

Trenching, if possible, could be done over the best anomalous zones to expose fresh material for assay and to acquire additional lithologic and structural information about those zones. In the Nanny Goat Zone trenching is required on the area of the presumed Betty Creek-Lehto Porphyry contact. Soil sampling, completed prior to trenching in the area of the contact may help to define the contact and provide a starting point for subsequent trenching surveys.

Favourable results from the above work should be followed up by a limited diamond drilling program to test anomalous zones at depth. If favourable results are obtained from this work then an expanded drill program should be underatken to further test anomalous zones along strike and at depth.

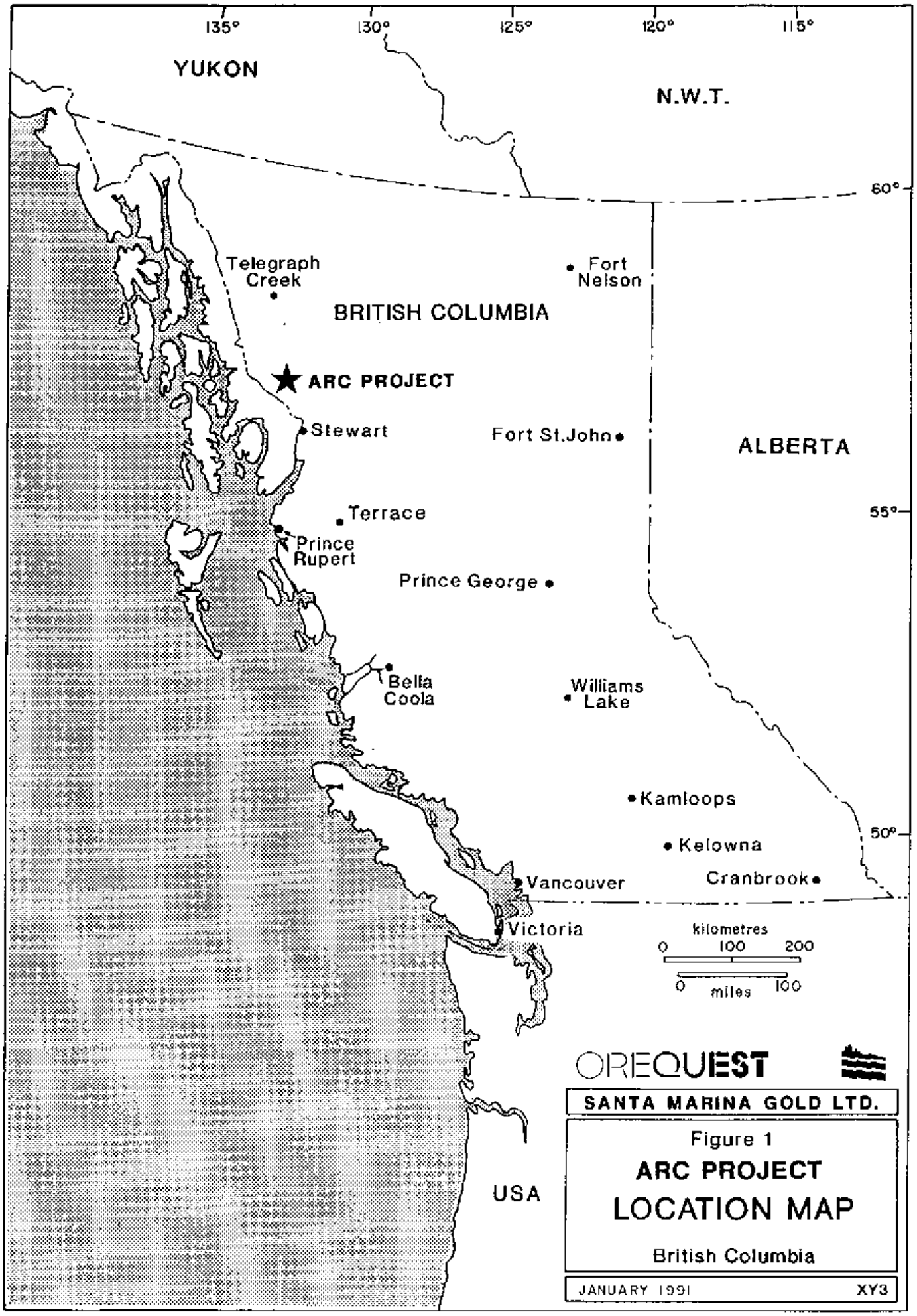
135°
130°
125°
120°
115°
YUKON
N.W.T.
60°
Telegraph Creek
Fort Nelson
BRITISH COLUMBIA
ARC PROJECT
Stewart
Fort St.John
ALBERTA
Terrace
55°
Prince Rupert
Prince George
Bella Coola
Williams Lake
Kamloops
50°
Kelowna
Vancouver
Cranbrook
Victoria
kilometres
0 100 200
0 miles 100
USA
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Figure 1
ARC PROJECT
LOCATION MAP
British Columbia
JANUARY 1991
XY3

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INTRODUCTION

This report summarizes the 1990 Phase I exploration program completed on the Arc Project of Santa Marina Gold Ltd. The report is prepared by OreQuest Consultants Ltd. at the request of the directors of Santa Marina Gold Ltd.

Phase I work consisted of property wide geological mapping, prospecting, and rock sampling in conjunction with geochemical soil, silt and heavy mineral concentrate sediment sampling of all major drainages within the claim area. The surveys constituted a first pass exploration program designed to gain an understanding of the overall property geology and to locate precious and/or base metal mineralization within the claim area.

LOCATION AND ACCESS

The Arc Project is located approximately 85 km northwest of Stewart, British Columbia, on map 104B/10E.

Access to the property is by helicopter from the Bronson Creek airstrip, 22 km to the west or the Bell II staging area on the Stewart-Cassiar Highway, Highway 37, about 58 km to the northeast. The B.C. government and several interested mining companies in the

area are presently funding a study to determine the viability of a road into the Iskut area. Surveying for the road location and environmental studies began in 1990.

Frequent scheduled and charter flights from Smithers, approximately 330 km southeast, to the Bronson Creek strip, service the exploration and mining activity in the area. Until recently the Johnny Mountain airstrip, located 23 km west of the Arc Project, was serviced regularly from Terrace. The Snippaker Creek airstrip, located 5 km southwest of the claim area was used during the 1990 season by single engine fixed wing aircraft, and is ideally suited to service an expanded work program on the Arc Project. Several old landing strips are located southeast of the property on the Unuk River but would require work to be serviceable. Exploration work was done via helicopter from OreQuest's seasonal base camp located 31 km east of the Arc Project.

PHYSIOGRAPHY AND VEGETATION

Elevations on the Arc Project range from 640 m in the main drainage along the northern claim boundary to over 2100 m in the southeast corner. The property is drained by an unnamed northerly flowing creek which ultimately flows into the Iskut River. At least

seven prominent glaciers lie along the southern and western claim boundaries which are part of the main creek's drainage basin. All slopes on the property are steep to precipitous, averaging 40°. The only exception is the valley bottom of the main drainage, which is relatively flat with steep walls of glacial moraine. Much of the south half of the property is covered by snow and ice dotted with rugged nunataks and cliffs.

Virtually the entire property is above tree line with subalpine and alpine vegetation consisting of stunted shrubs and grasses. Only the northern part of the property, down in the main drainage, has forest cover of any consequence. The sides of the main drainage (when not bare exposed moraine) are covered up to approximately 1100 m in thick slide alder and scrub brush rendering traverses very slow at best.

Climate in the area is severe, particularly at the higher elevations. Heavy snowfalls in winter and rain in the short summer working season are typical of the Iskut-Sulphurets area. Inclement weather conditions and reliance on helicopter transport make this a high cost area to explore for minerals.

CLAIM STATUS

The Arc Project consists of 4 mineral claims comprising 72 units, the status of which is as follows:

TABLE I - CLAIM STATUS

Claim Name	No. of Units	Record No.	Date of Record	Expiry Date
Arc 18	16	5620	Jan. 6, 1989	Jan. 6, 1997
Arc 19	20	5621	Jan. 6, 1989	Jan. 6, 1997
Arc 20	16	5622	Jan. 6, 1989	Jan. 6, 1997
Arc 21	20	5623	Jan. 6, 1989	Jan. 6, 1997

The expiry dates shown above reflect assessment credits based on acceptance of the 1990 work program.

The property lies mostly within the Liard Mining Division, with only the southeast corner of the Arc 21 claim located within the Skeena Mining Division. The claims are located on map 104B/10E, centred at approximately 56°37'N latitude and 130°42'W longitude. The legal corner post is within the Liard Mining Division.

During the course of the field work an attempt was made to physically locate the LCP on the ground. The search for the post was unsuccessful though given its plotted location it is entirely possible

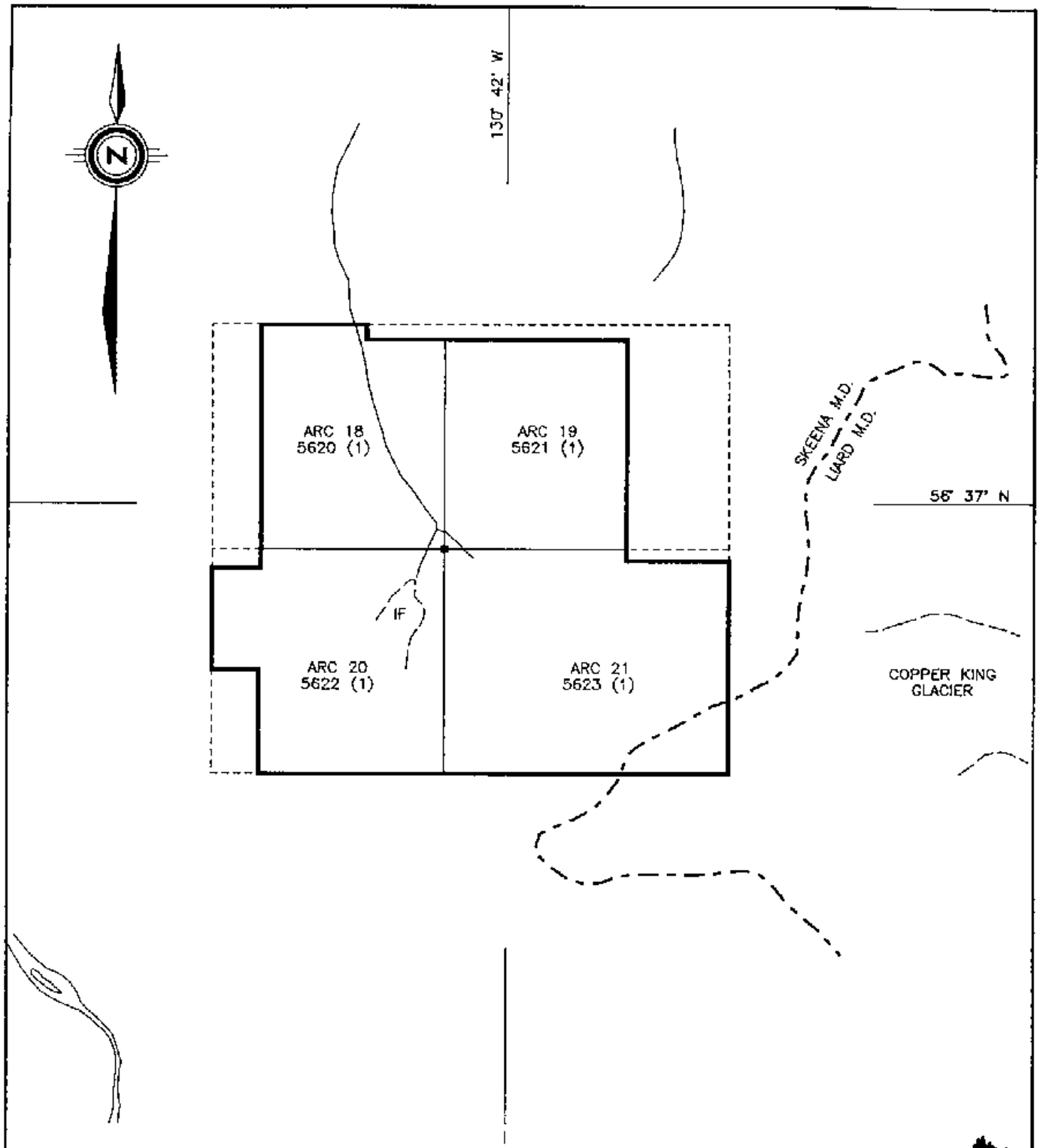

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Figure 2

ARC PROJECT

Skeena & Liard Mining Division

CLAIM MAP

British Columbia
NTS: 104 B/10E

DECEMBER 1990 Drafting RWR

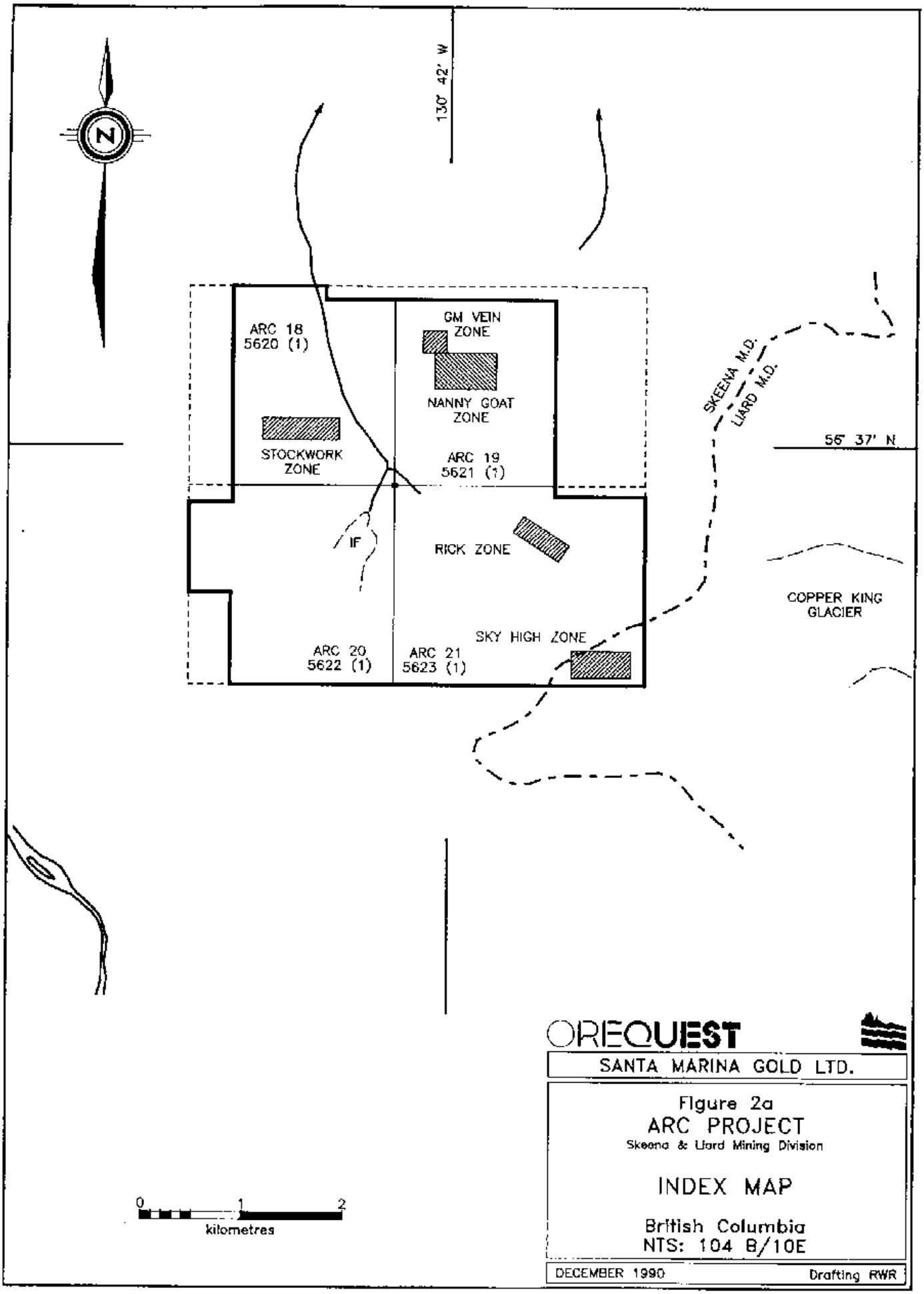

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Figure 2a
ARC PROJECT
Skeena & Liard Mining Division

INDEX MAP

British Columbia
NTS: 104 B/10E

DECEMBER 1990 Drafting RWR

that avalanche activity has swept it away. Claim boundaries shown on Figure 2 are from information believed reliable.

PROPERTY AND GENERAL AREA HISTORY

There is no record of any work having been carried out on the claim area itself except for the two silt samples taken by J. Paul Sorbara during his initial property examination (Sorbara, 1990). The two samples, VS-13 and VS-14, collected from drainages in the north central area of the property, returned values of 115 and 22 ppb gold respectively. However, much work has been done in the region both historically and recently. A brief summary of activity on surrounding properties is included here.

The Arc Project lies within an historically active mining and exploration area that extends some 225 kilometres from Stewart in the south to near Telegraph Creek in the north. Within this area, which has been referred to as the Stikine Arch, mining activity goes back to the turn of the century. Historically, the area has been divided into subareas, specifically the Stewart area, Sulphurets, Iskut River and Galore Creek, however all of these individual camps appear to be related to the Stikine Arch as a whole. Recent discoveries appear to be filling in areas between these known mineralized camps. It is

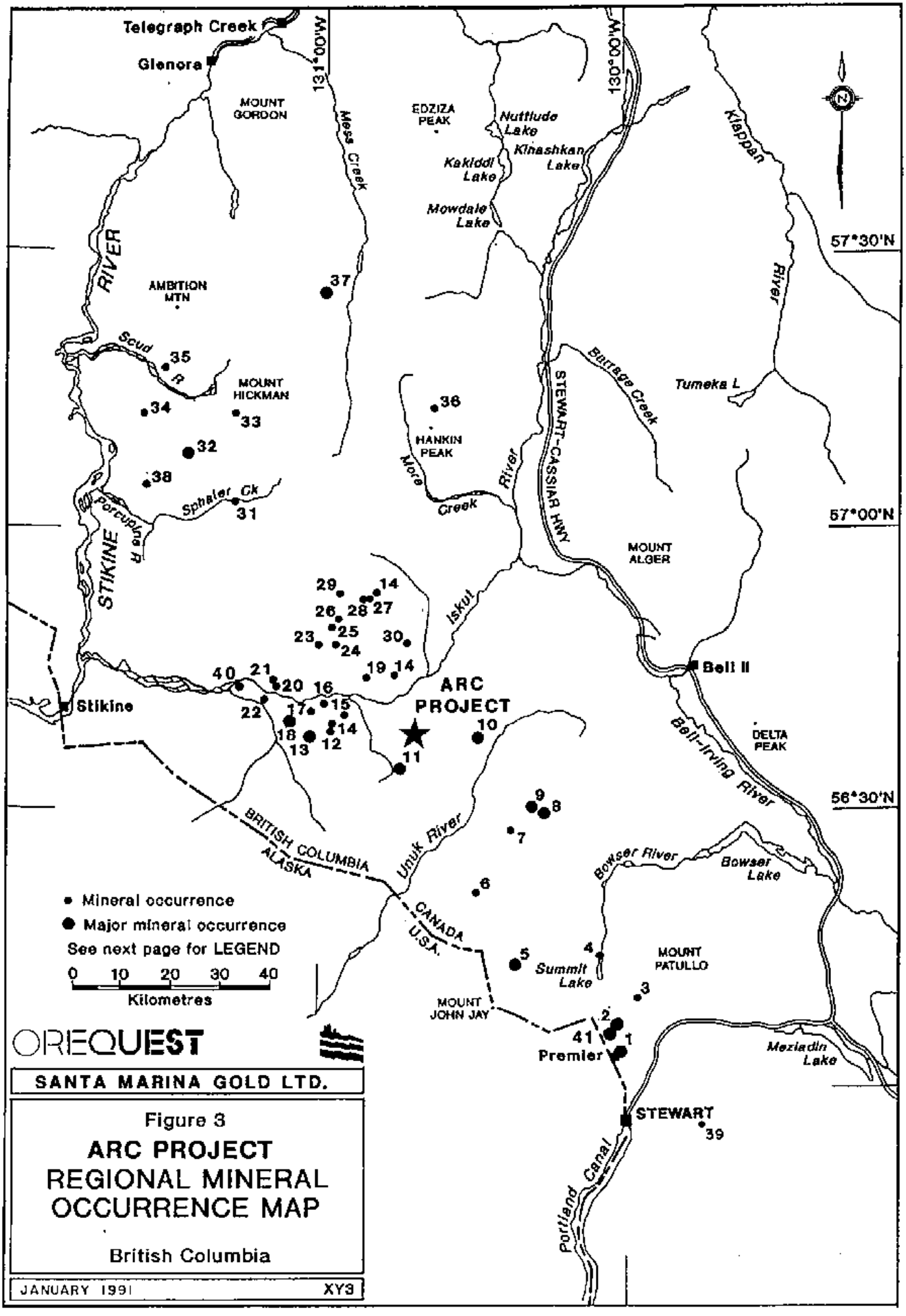
Telegraph Creek
Glenora
131°00'W
130°00'W
MOUNT GORDON
Mess Creek
EDZIZA PEAK
Nuttlude Lake
Kakiddi Lake
Klinashkan Lake
Mowdale Lake
Klappan River
57°30'N
RIVER
AMBITION MTN
37
Scud R
35
MOUNT HICKMAN
34
33
32
38
Sphaler Ck
31
Porcupine R
STIKINE
HANKIN PEAK
36
More Creek
River
STEWART-CASSIAR HWY
Barrage Creek
Tumeka L
57°00'N
MOUNT ALGER
29
14
26
28
27
25
23
24
30
19
14
Iskut
40
21
20
16
22
17
15
14
18
12
13
ARC PROJECT
10
11
Stikine
Bell II
DELTA PEAK
Bell-Irving River
56°30'N
9
8
7
6
BRITISH COLUMBIA
ALASKA
Unuk River
CANADA
USA
Bowser River
Bowser Lake
5
4
Summit Lake
MOUNT PATULLO
3
MOUNT JOHN JAY
2
41
1
Premier
Meziadin Lake
STEWART
39
Portland Canal
• Mineral occurrence
● Major mineral occurrence
See next page for LEGEND
0 10 20 30 40
Kilometres
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Figure 3
ARC PROJECT
REGIONAL MINERAL OCCURRENCE MAP
British Columbia
JANUARY 1991
XY3

LEGEND FOR FIGURE 3

	PROPERTY OWNER AND/OR NAME	MINERAL RESERVES AND/OR ELEMENTS
1	Westmin Resources Ltd./Silbak Premier Mines	6,100,000 tons 0.064 oz/t Au, 2.39 oz/t Ag
2	Westmin Resources Ltd./Tournigan Mining Explorations Ltd.	1,860,000 tons 0.09 oz/t Au, 0.67 oz/ton Ag
3	Noranda (Todd Creek Project)	Au
4	Scottie Gold Mine	Au
5	Granduc	10,890,000 tons 1.79% Cu
6	Echo Bay Mines/Magna Ventures/Silver Princess Resources (Doc Project)	470,000 tons 0.27 oz/ton Au, 1.31 oz/ton Ag
7	Western Canadian Mining (Kerr Project)	Cu, Au
8	Exponential Holdings Ltd. (Gold Wedge)	337,768 tonnes 25.78 g/tonne Au, 36.65 g/tonne Ag
9	Newhawk/Lacana/Granduc (Sulphurets Project - West Zone)	550,000 tons 0.42 oz/t Au, 18.0 oz/ton Ag
10	Prime/Stikine Resources Ltd. (Eskay Creek Project)	1,992,000 tons 1.47 oz/t Au, 55.77 oz/t Ag
11	Consolidated Silver Standard Mines Ltd. (E & L Deposit)	3,200,000 tons 0.80% Ni, 0.60% Cu
12	Inel Resources Ltd.	Au, Ag, Cu, Pb, Zn
13	Skyline Gold Corporation (Johnny Mountain)	740,000 tons 0.52 oz/ton Au, 1.0 oz/ton Ag
14	Kestrel Resources Ltd.	Au, Ag, Cu, Pb, Zn
15	Hector Resources Inc. (Golden Spray Vein)	Au, Ag
16	Tungco Resources Corp.	Au, Ag, Cu, Pb, Zn
17	Winslow	Au, Ag, Cu, Pb, Zn
18	Cominco/Prime (Snip Deposit)	1,030,000 tons 0.88 oz/ton Au
19	Pezgold Resource Corp.	Ag, Au
20	Meridor Resources Ltd.	Au
21	Prime/American Ore Ltd./Golden Band	Au
22	Magenta Development Corp./Crest Resources Ltd.	Au, Ag, Cu, Pb
23	Ticker Tape Resources Ltd. (King Vein)	Au
24	Pezgold Resource Corp.	Au
25	Consolidated Sea-Gold Corp.	Au
26	Gulf International Minerals Ltd. (Northwest Zone)	Au, Ag, Cu
27	Kerr Claims	Ag, Cu, Au
28	Pezgold Resource Corp. (Cuba Zone)	Ag, Pb, Zn
29	Pezgold Resource Corp. (Ken Zone)	Cu, Au
30	Avondale Resources Inc. (Forrest Project)	Au, Ag, Cu
31	Pass Lake Resources Ltd. (Trek Project)	Cu, Au
32	Galore Creek	125,000,000 tons 1.06% Cu, 0.397 g/t Au, 7.94 g/t Ag
33	Continental Gold Corp.	Au, Ag, Cu
34	Bellex Resources Ltd./Sarabat Resources Ltd. (Jack Wilson Project)	Au, Cu
35	Pass Lake Resources Ltd. (JD Project)	Au, Cu
36	Lac Minerals (Hankin Peak Project)	Au
37	Schaft Creek	910,000,000 tons 0.30% Cu, 0.020% Mo, 0.113 g/t Au, 0.992 g/t Ag
38	Paydirt	200,000 tons 0.120 oz/ton Au
39	Bond International Gold (Red Mountain)	Au, Ag
40	Eurus/Thios (Rock & Roll)	Ag, Pb, Zn, Cu, Au
41	Westmin Resources Ltd. (SB)	308,000 of 0.505 oz/ton Au, 1.07 oz/ton Ag

probable that the entire area can be considered as one large mineralized province with attendant subareas. The location of several deposits and mineral occurrences with respect to the Arc Project appears in Figure 3. This list of mineral occurrences is by no means comprehensive but is included to illustrate their distribution in the region.

The Arc Project is centrally located in the Iskut-Sulphurets area which has seen extensive exploration in the last three years. The Iskut area originally attracted interest at the turn of the century when prospectors, returning south from the Yukon goldfields searched for placer gold and staked bedrock gossans. In the 1970s the porphyry copper boom drew exploration into the area. The new era of gold exploration began with the 1979 option of the Sulphurets claim block by Esso Minerals Canada and the 1980 acquisition of the Mount Johnny claims by Skyline Explorations Ltd. Skyline (now Skyline Gold Corporation) commissioned its mill in July, 1988, however production has been suspended temporarily. Cominco Ltd. and Prime Resource Group Inc. are presently preparing the adjacent Snip deposit for production.

Beyond these projects, and except for limited early placer gold recovery from some creeks, the area has had no mineral production

history. Since 1979, more than 70 new mineral prospects have been identified, though ground acquisition was relatively slow until the fall of 1987 when the promising results of summer exploration programs became known and the provincial government announced the upcoming release of analytical results from a regional stream sediment survey. By April 1988, all open ground had been staked. More than 60 companies hold ground in the Iskut-Sulphurets belt but to date only small areas within this 40 x 80 km district have received extensive exploration.

In the Sulphurets Creek camp 28 km southeast of the Arc Project, near Brucejack Lake, the vein-hosted West Zone of Newhawk Gold Mines Ltd. / Granduc Mines Ltd. / Corona Corporation is reported to contain a diluted minale reserve of 550,000 tons grading 0.42 oz/ton gold and 18.0 oz/ton silver (The Northern Miner, Vol. 76, #36; November 12, 1990) while the Snowfield Gold Zone and Sulphurets Lake gold zone are bulk tonnage low grade deposits containing 7.7 million tons of 0.075 oz/ton gold and 20 million tons of 0.08 oz/ton gold respectively (GCNL Aug. 24, 1989). Newhawk has recently completed a feasibility study which has indicated that current gold and silver prices preclude production at the present time. Exponential Holdings Ltd.'s Gold Wedge Property is reported to contain 337,768 tonnes of 27.78

grams/tonne gold and 36.65 grams/tonne silver, partly in the Golden Rocket vein, in a similar setting (GCNL, November 23, 1990). Also located in this area is Placer Dome Inc.'s Kerr property, a porphyry copper-gold occurrence to which they have assigned a geological resource of 138,000,000 tons grading 0.61% copper and 0.01 oz/ton gold (Placer Dome Inc. Annual Report, 1989).

On the Snip property situated 24 km west of the Arc Project, the Twin Zone, a 3 to 25 ft thick discordant shear vein cuts a thickly bedded sequence of intensely carbonatized feldspathic wackes and siltstones. Twin Zone reserves in all categories have been reported as 1,030,000 tons of 0.88 oz/ton gold (Canadian Mines Handbook, 1990-1991). This does not include additional reserves which may be developed outside the Twin Zone when mining begins. Twin Zone mineralization occurs in a banded shear zone comprising alternating bands of massive calcite, heavily disseminated to massive pyrite, crackle quartz and thin bands of biotite-chlorite.

At Skyline's nearby Johnny Mountain Mine, reserves in all categories are estimated at 740,000 tons of 0.52 oz/ton gold and 1.00 oz/ton silver with copper, zinc, and lead (Canadian Mines Handbook, 1990-1991). Five major areas of gold-bearing sulphide are known. The

most important Stonehouse Zone consists of sulphide-potassium feldspar-quartz vein and stockwork systems which have been only partly explored. The Johnny Mountain Mine has been temporarily shut down but will be re-evaluated in light of gold price, definition of mineable reserves and road access.

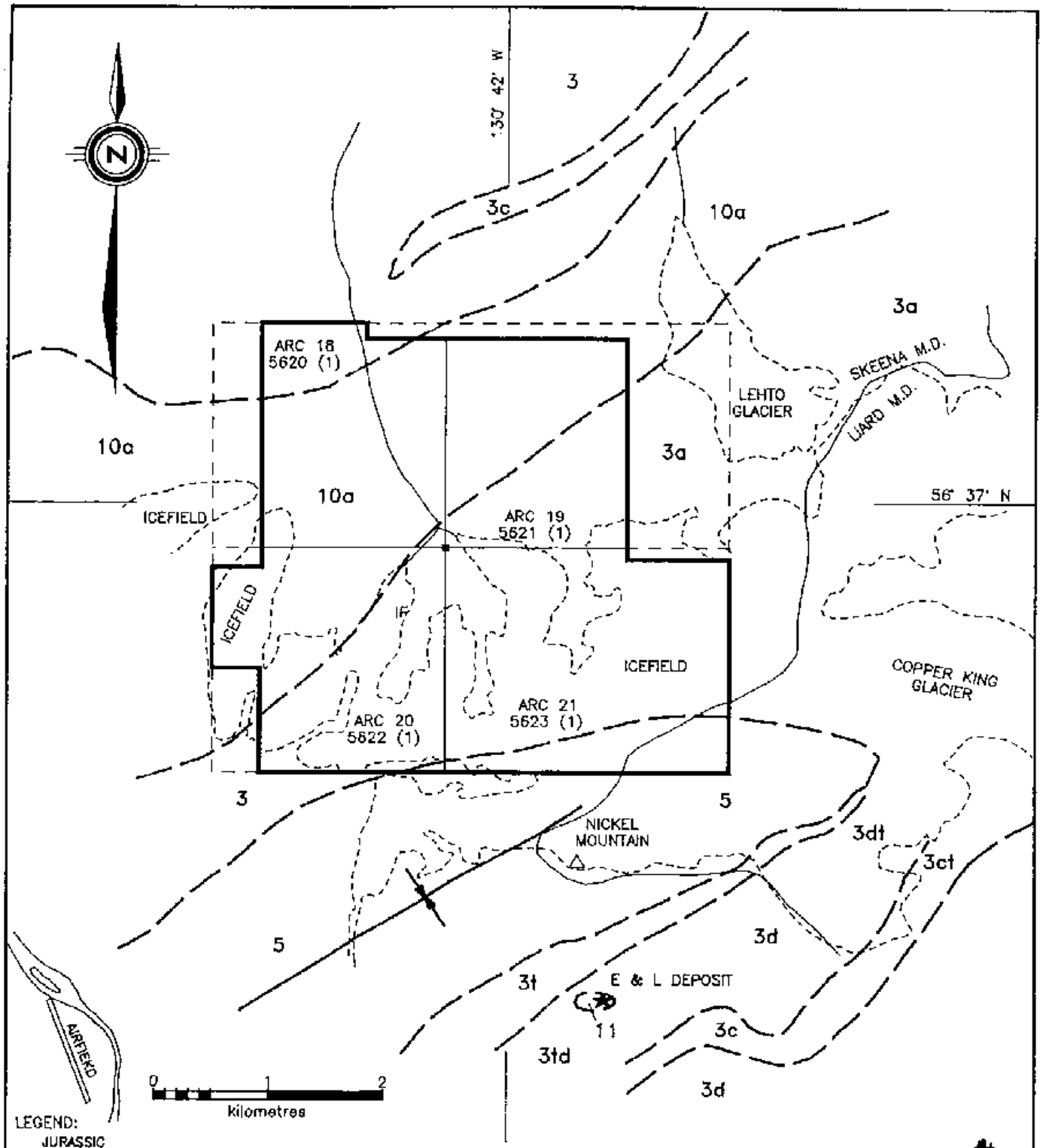
The most recently discovered and perhaps the most significant gold mineralization occurs on the Eskay Creek property of Prime Resources Group Inc./Stikine Resources Ltd., located 16 km east of the Arc Project. Numerous Calpine (now Prime)/Stikine news releases have announced results from over 600 drill holes completed from 1988 to the present, the most spectacular of which is hole CA-89-109 which produced 682.2 feet of 0.875 oz/ton gold. Published preliminary reserve calculations done in-house by Prime, based on drilling up to hole CA90-657, indicate probable geological reserves of 1,992,000 tons grading 1.47 oz/ton gold and 55.77 oz/ton silver (Prime Capital Corp. News Release, Sept 14, 1990). The company is currently driving an exploration drift to test the deposit at depth for continuity and to conduct metallurgical testing.

Several types and styles of mineralization are present at Eskay Creek, the most significant of which are: a) a gold and silver-rich

assemblage of disseminated to near-massive stibnite and realgar within a carbonaceous mudstone-rhyolite breccia "contact zone"; and, b) stratiform banded base metal sulphide layers with high gold and silver values in the contact zone and in a hanging wall andesite flow and sill complex with intercalated mudstone. The latter type accounts for most of the reserves. This stratigraphy appears to be at or near the contact between the Mt. Dilworth (felsic volcanics) and Salmon River (primarily sediments) Formations.

Immediately south of the Eskay deposit, American Fibre Corporaton and Silver Butte Resources are in a joint venture on the SIB Project, on ground that hosts the same stratigraphy as the Eskay deposit. Results from recent drilling have returned results of 46.9 ft of 0.421 oz/ton gold and 30.91 oz/ton silver from hole 90-3- (Vancouver Stockwatch, October 10, 1990). Results from the final 1990, 26 hole program included values of 6.3 ft of 0.13 oz/ton gold and 18. ft of 0.13 oz/ton gold both in hole 90-38 (GCNL, November 5, 1990).

Elsewhere in the area Tymar Resources and Akiko-Lori Gold Resources have been drilling on the Lakewater Project which adjoins the Prime/ Stikine project to the west. The companies are drilling a 320 m wide gap in the American Fibre-Silver Butte SIB claims within



LEGEND:

JURASSIC

11	NICKEL MOUNTAIN GABBRO: MELANOCRATIC OLIVINE–PYROXENE GABBRO
10a	LEHTO PORPHYRY: K–SPAR–PLAGIOCLASE–HORNBLENDE PORPHYRY GRANODIORITE TO SYENITE

MIDDLE JURASSIC

5	SILTSTONE SEQUENCE (SALMON RIVER FORMATION): DARK GREY, WELL BEDDED SILTSTONE – MINOR SANDSTONE & CGL

LOWER JURASSIC

3	PYROCLASTIC–EPICLASTIC SEQUENCE (BETTY CREEK FORMATION): MASSIVE TO BEDDED PYROCLASTIC AND SEDIMENTARY ROCKS; PILLOW LAVA
3a	GREEN AND GREY, MASSIVE TO POORLY BEDDED ANDESITE
3d	GREY, GREEN AND PURPLE DACITIC TUFF, LAPILLI TUFF, CRYSTAL AND LITHIC TUFF; MASSIVE TO WELL BEDDED; FELDSPAR PHYRIC
3c	ANDESITIC LAPILLI TUFF WITH PINK SILICEOUS CLASTS
3t	BLACK, THINLY BEDDED SILTSTONE, SHALE AND ARGILLITE (TURBIDITE)

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Figure 4

ARC PROJECT

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REGIONAL GEOLOGY MAP

After Alldrick et al, 1989 (BCMEMPR O.F.1989–10)

British Columbia

NTS: 104 B/10E

DECEMBER 1990 Drafting RWR

which the favourable Eskay deposit stratigraphy occurs. Results have been encouraging and incude the following: 9.8 ft of 1.197 oz/ton gold, 1.7 oz/ton silver, 0.73% lead and 0.72% zinc (LW90-2), 3.3 ft of 0.115 oz/ton gold (LW90-3) and 16.4 ft of 0.042 oz/ton gold (LW90-6), (Vancouver Stockwatch, October 30, 1990).

The E & L deposit is also situated in the immediate area some 2 km south of the Arc Project. This deposit was worked in the 1960's and early 1970's by trenching, drilling and 460 m of underground development, and has proven reserves of 3.2 million tons of 0.8% nickel and 0.6% copper (BCMEMPR Minfile). Mineralization consisting of disseminated pyrrhotite, chalcopyrite with minor pentlandite, pyrite and bornite occurs in a small stock of altered coarse grained gabbro.

REGIONAL GEOLOGY

The area is underlain by the Stewart Complex (Grove 1971, 1986). The Stewart Complex encompasses Late Palaeozoic and Mesozoic rocks, confined by the Coast Plutonic Complex to the west, the Bowser Basin to the east, Alice Arm to the south and the Iskut River to the north. A simplified representation of the regional geology setting after Alldrick et al (1989) appears in Figure 4.

The oldest units in the Stewart Complex are Upper Triassic epiclastic volcanics, marbles, sandstones and siltstones. These, in turn, are overlain by sedimentary and volcanic rocks of the Upper Triassic to Middle Jurassic Hazelton Group. In the Unuk River area, the Hazelton Group had been subdivided (Alldrick et al, 1989) into the Lower Jurassic Unuk River, Betty Creek and Mt. Dilworth Formations, and the Middle Jurassic Salmon River Formation. Upper Jurassic sedimentary rocks were identified as the Nass Formation by Grove (Grove, 1986) and included by him in the Hazelton Group. More recently the Salmon River Formation has been correlated with the Spatzizi Group, underlying the Ashman Formation which is the basal unit of the Bowser Group (Alldrick, 1989). Both the Salmon River and Ashman Formations occur in the Middle Jurassic.

The Unuk River Formation was deposited during Upper Triassic to Lower Jurassic times and marks a period of submergence (marine sedimentation) followed by emergence marked by volcaniclastic rocks. These rocks include arkosic and lithic wackes, siltstones, conglomerates, tuffites and green and grey intermediate to mafic volcanics.

Unuk River rocks outcrop along a broad north northwesterly trending belt from Alice Arm to the Iskut River.

Subsequent to deposition of the Unuk River Formation, a period of erosion and deformation occurred followed by deposition of the Betty Creek Formation volcanics and marine sediments. Betty Creek rocks are characterized by red and green volcaniclastic agglomerates with intercalated andesitic flows, pillow lavas, chert and minor carbonate lenses.

The Mt. Dilworth Formation was deposited during a period of explosive felsic volcanic activity. Massive to bedded airfall tuffs and welded ash flow tuff characterize this formation.

The Salmon River Formation comprises thin bedded, alternating siltstones and mudstones with minor limestone. The overlying Ashman Formation is characterized by turbidites and wackes with lesser intraformational conglomerates and marked by a basal chert pebble conglomerate.

PROPERTY GEOLOGY

Work to date on the Arc Project has focused on prospecting together with reconnaissance scale geological mapping. This mapping (Figure 5) has nevertheless probably resulted in more detailed outcrop coverage within the property than was achieved by government mappers, whose scope is much broader in most areas. The following description and interpretation differs substantially from what is shown on Figure 4, however this interpretation is by no means definitive or conclusive. Much more work is required both regionally and on the property specifically to resolve the apparent discrepancies.

The property is underlain by Hazelton Group sedimentary and volcanic rocks of the Betty Creek and Mt. Dilworth Formations. These in turn have been intruded by a complex composite intrusion (Lehto Porphyry) which occupies most of the property.

The rocks of Betty Creek Formation, occupying the northern part of Arc-19 claim and southeast corner of Arc-21 claim, consist of green to maroon andesitic pyroclastics and andesite interbedded with black, locally hornfelsed argillite, greywacke and minor, occasionally fossiliferous, limestone lenses, locally transformed to marble.

Mt. Dilworth Formation rocks comprise a northeast trending band crossing the Arc-21 claim. They consist of alternating bands, up to several meters thick, of pale green to beige rhyolite/rhyodacite crystal-lithic tuff, pale green rhyodacite and black argillite with minor greywacke (see thin section descriptions 22-8, 29-7b and 29-7, Appendix A). The Mt. Dilworth Formation is also present in the northern portion of the Arc-19 claim. Here, it occurs as a swarm of parallel, irregular pale green rhyodacite dykes 10 to 30 m wide, having a northeast-southwest strike and vertical to steep southeast dip. The composition of the dykes closely resembles the rhyodacite of the Mt. Dilworth Formation on the Arc-21 claim (see description of thin section #20-7).

These volcano-sedimentary rocks are intruded by a complex, composite intrusion (Lehto Porphyry) which occupies most of the property. The bulk of the intrusion comprises equigranular, medium grained monzonite with lesser diorite, syenite, granodiorite and granite, locally cut by minor pegmatite and aplite dykes. These rocks are accompanied by their porphyry equivalents containing K-feldspar, plagioclase and hornblende phenocrysts. The porphyries often occur as dykes within the intrusive rocks however their relationship is generally difficult to define.

Structural Features

The dominant structural feature in the Betty Creek Formation is a major fold located in the northern part of Arc-19 claim, well exposed in a deeply incised creek bed. The axial plane of this fold trends north-northwest with a west-southwest dip. Bedding in the Mt. Dilworth Formation ranges from northeast to east-west with moderate southeast to south dips. Rocks of the above formations, together with later intrusives, were subsequently cut by faults (most often developed as shears) having no preferred orientation. There are also numerous small areas of strongly fractured rocks with no apparent dominant orientation.

MINERALIZATION AND GEOCHEMISTRY

Exploration on the property during the 1990 field season included property wide mapping, prospecting and sampling. The latter involved chiefly rock sampling, supplemented by soil, silt and heavy mineral concentrate sediment samples (Figure 6). All the samples were shipped to either TSL Laboratories in Richmond, B.C. (sample preparation) and Saskatoon, Sasktachewan (analysis) or Vangeochem Labs in Vancouver, B.C. Analyses were performed for gold by atomic absorption plus 35 elements (TSL) or 25 elements (Vangeochem) by inductively coupled

plasma (ICP) spectrophotometry. Samples for which initial gold vlaues exceeded 1000 ppb were fire assayed.

Rock samples, both grab and chip, were collected from both float and outcrop into plastic bags. Soil samples, dug at a depth of 10 to 30 cm from the B horizon, were stored in kraft paper bags. Regular silt samples were collected by hand from active drainages into kraft paper bags while heavy mineral concentrate sediment samples were scooped using a stainless steel hand trowel, through a 10 mesh screen into plastic bags. Approximately 2 kg of -10 mesh material was collected for each sample.

Rock sample descriptions are presented in Appendix A, assay certificates appear in Appendix B, followed by analytical procedures in Appendix C.

Due to the very steep terrain only three comparatively short soil lines were completed. Samples were collected at 25 m intervals but only the 50 m interval samples were analyzed. The remainder were stored to be analyzed should greater detail be required. The best results, 1935 ppb (0.042 oz/ton) and 85 ppb gold, are located at

L4000/2+50W and L1/4+50W. The maximum values for base metals are: copper - 134 ppm, lead - 154 ppm and zinc - 349 ppm.

The bulk of the silts and all heavy mineral concentrate sediment samples were collected from tributaries of the north-northwest trending main drainage on the property. The maximum gold value returned was 350 ppb from sample HS-267 near the northern claim boundary.

Stockwork Zone

Mineralization on the Arc-18, Arc-20 and the southern portion of the Arc-19 claim is hosted primarily by plutonic rocks. It is restricted to quartz-epidote-chlorite-carbonate veins 5 to 50 cm wide carrying up to 10% massive pyrite (sometimes oxidized to limonite), with minor hematite, arsenopyrite and traces of malachite. These veins occur either individually or as stockwork zones, neither having any preferred orientation. The largest such zone occurs in the south central portion of the Arc-18 claim, is 6 to 9 metres wide, and can be traced for over 150 m along an east-northeast trend. Gold values in rock range from 10 to 580 ppb, with the highest results (#33723) received from a quartz-epidote-pyrite stockwork. Copper values range from 5 to 556 ppm, lead from <2 to 281 ppm, zinc from 2 to 246 ppm

and molybdenum from 7 to 115 ppm. All these elements show some correlation with gold values.

Other stockwork zones in the area have much smaller dimensions.

GM Vein Zone

The northern part of Arc-19 claim is underlain by rocks of the Betty Creek Formation, and shows considerable variety of mineralization and alteration. Mineralization consists predominantly of pyrite and limonite, supplemented by lesser amounts of magnetite, hematite, chalcopyrite and malachite-azurite. The mineralization occurs in shears and brecciated zones up to several metres wide, along with sericite, calcite, chlorite, and silica alteration. The highest intensity of alteration and mineralization was noted adjacent to rhyodacite dykes crosscutting the formation. The two highest gold results, 0.098 oz/ton (#33808) and 170 ppb (#33709) come from an east-west trending quartz-pyrite-chalcopyrite vein 0.5 to 1.0 m wide, close to the contact with the intrusive. Results from other samples range from 5 to 50 ppb gold. Copper values range from hundreds of ppm to a high of 2.62%, silver up to 42 ppm, lead to 416 ppm, zinc to 1573 ppm and arsenic to >2000 ppm.

Nanny Goat Zone

The Nanny Goat Zone is located in the central portion of the Arc-19 claim. Gold bearing plutonic rocks are contained within a 300-400 m wide east-west trending gossanous band which can be traced for 800-900 m, and is obscured at both ends by talus cover. Gold is associated with chalcopyrite (often altered to malachite-azurite) which occurs alone or accompanied by pyrite, magnetite, hematite and limonite. The copper-gold mineralization occurs in the following structures:

1. Quartz and/or calcite shear and fissure veins 1 to 100cm wide where chalcopyrite constitutes up to 10% by volume occuring as very irregular grains, small blebs and sporadically as 1-2 mm wide veinlets. Attitudes of these veins are variable.

2. Densely fractured zones up to several meters in diameter where chalcopyrite occurs as disseminated irregular small grains and blebs (see descriptions of thin sections #609 and #651). Mineralization of this type, although comparatively large in volume, tends to be lower grade than that associated with quartz-calcite veins.

3. Relatively weakly altered plutonic rocks showing no spatial relationship to veins or fractures with chalcopyrite occurring as very small disseminated grains.

A total of 49 rock samples were collected from this area of the property of which 23 returned gold values over 100 ppb. Ten grab samples assayed over 1000 ppb gold with the highest being 1.34 oz/ton (#33609). Samples #33648 (chip over 30 cm) and #33649 (chip over 1.0 m) taken from the site of sample #33609 assayed 0.044 oz/ton and 0.102 oz/ton gold respectively. Eight additional grab samples from elsewhere in the Nanny Goat Zone assayed from 0.132 to 0.321 oz/ton gold.

Gold in this area is closely associated with copper, which commonly returned in several thousands of ppm up to 3.52%. Substantial numbers of the samples also show elevated silver, up to 2.70 oz/ton, and zinc to 3.68% with lead to hundreds of ppm.

Rick Zone

Another peripheral portion of the intrusive, called the Rick Zone, encompasses a strip of outcrop between two glaciers on the Arc-21 claim. It contains substantial amounts of pyrrhotite and

molybdenite, along with pyrite (the predominant mineral in the area), magnetite, hematite and minor chalcopyrite. Gold, associated with pyrite and possibly pyrrhotite, occurs in quartz-calcite fissure and shear veins 10 to 30 cm wide. Very few samples were taken from this area due to extremely difficult access. Results, however, are encouraging. Of the 7 grab samples collected within a distance of 400-500 m from the presumed contact with the Mt. Dilworth Formation, 5 assayed over 300 ppb gold with one sample (#33046) having a gold content of 0.801 oz/ton. Samples taken further from the contact with the Mt. Dilworth Formation tend to have much lower gold values, between 5 and 60 ppb. Most samples contain anomalous molybdenum in hundreds of ppm with one sample, #33045, assaying over 1000 ppm.

Sky High Zone

The southeast corner of the property is underlain by rocks of the Betty Creek and Mt. Dilworth Formations, exposed on a few rugged nunataks. Here, mineralization is represented chiefly by pyrite and/or limonite which together with sericite, quartz, calcite and chlorite make up zones and pods up to several meters wide. Numerous boulders of drusy quartz veins with limonite and sometimes bornite and galena were found on the most southeasterly situated nunatak. In a few places minor sphalerite was noted.

Some of the samples from this area returned anomalous gold values up to 140 ppb, usually associated with pyrite. A few samples show elevated silver, in the range of several ppm while sample #33645, also containing galena, assayed over 50 ppm silver. Other samples showed elevated lead, copper and zinc measured in hundreds to thousands ppm.

DISCUSSION

The ARC property represents a geologically and mineralogically complex area carrying substantial amounts of gold and base metals. The most promising areas from the gold exploration point of view seems to be the Nanny Goat and Rick Zones, both located peripherally to the large intrusive which occupies the bulk of the property. In these two areas gold mineralization is localized by individual fractures developed either as shears or fissures, and densely fractured zones. All of these likely originated as a result of intrusion-generated stress during consolidation of the Lehto Porphyry. These structures were subsequently mineralized by gold bearing chalcopyrite and pyrite along with magnetite, hematite and, in the Rick Zone, also by molybdenite and pyrrhotite. The latter two minerals indicate hypothermal conditions but a lower temperature environment might also have been involved. Mineralization proceeded

in several stages as suggested by the diversity of mineralogy which includes: pyrite, chalcopyrite, magnetite, hematite, pyrrhotite, molybdenite, sphalerite, bornite, galena and arsenopyrite. Some of the chalcopyrite from the Arc-19 claim was noted in fresh almost unaltered monzonite which may suggest a primary origin.

Although the plutonic body appears to be the major source of mineralization in the areas adjacent to it, some of the mineralization may have been derived from the rhyodacites of the Mt. Dilworth Formation. This information and more particularly the contact area with the overlying Salmon River Formation has been the focus of attention regionally in view of the apparent position of the Eskay Creek deposit at this stratigraphic level.

CONCLUSIONS AND RECOMMENDATIONS

The Phase I exploration program has been successfully completed on the Arc Project of Santa Marina Gold Ltd. Work consisted of geological mapping and prospecting in conjunction with geochemical rock sampling, limited soil sampling and silt and heavy mineral concentrate sediment sampling. Surveys were planned to cover as much of the property as possible in an attempt to locate significant base

and/or precious metal mineralization or favorable stratigraphy to host such mineralization.

The property was found to be underlain by sedimentary and volcanic rocks of the Hazelton Group represented by the Betty Creek and Mt. Dilworth Formations. These in turn have been intruded by a complex composite intrusion (Lehto Porphyry) which occupies most of the property. Betty Creek rocks occupy the northern part of the Arc 19 claim and southeast corner of the Arc 21 claim. The Mt. Dilworth Formation forms a northeast trending band across the Arc 21 claim and is also present in the northern portion of the Arc 19 as a swarm of parallel dykes. The remainder of the areas mapped are underlain by the Lehto Porphyry.

A total of 153 rock, 44 soil, 33 silt and 9 heavy mineral concentrate samples were collected and assayed for gold by fire assay with an atomic absorption finish and a suite of 25 or 35 other elements by the ICP method.

The results outlined five separate anomalous areas.

The stockwork zones consist of quartz-epidote ± chlorite ± carbonate veins 5-50 cm wide carrying up to 10% massive pyrite with minor hematite, arsenopyrite, and traces of malachite. The largest stockwork zone occurs in the south central portion of the Arc 18 claim, is 6 to 9 m wide and can be traced for over 150 m along an east-northeast trend. Continuous chip samples over this zone returned up to 580 ppb gold.

The GM vein zone, in the northern part of the Arc 19 claim, consists of a east-west trending quartz vein 0.5 - 1.0 m wide and traceable on surface for some 30 m before disappearing under talus at both ends. The vein contains massive chalcopyrite and malachite staining with some malachite also in the surrounding wallrock. Assays are erratic, with a high of 0.098 oz/ton gold and 2.62% copper from the vein.

The Nanny Goat Zone is the largest zone on the property, located in the central portion of the Arc 19 claim. Mineralization consists of a definite gold-copper association, with copper found as chalcopyrite often altered to malachite or azurite and accompanied by pyrite, magnetite, hematite and limonite. The zone appears to parallel the Lehto Porphyry-Betty Creek Formation contact. It is

300-400 m wide and traceable for 800-900 m, before disappearing under talus cover. Assays include up to 1.34 oz/ton gold from a grab sample, with 8 additional grab samples assaying from 0.132 to 0.321 oz/ton gold and up to 2.70 oz/ton silver, 3.52% copper and 3.68% zinc.

The Rick Zone is similar to the Nanny Goat Zone in that mineralization is hosted in the peripheral portion of the Lehto Porphyry near its contact with the Mt. Dilworth Formation. Mineralization includes pyrrhotite, molybdenite, pyrite, magnetite, hematite and minor chalcopyrite. Gold, associated with pyrite and possibly pyrrhotite, occurs in quartz-calcite fissure and shear veins 10-30 cm wide. The highest gold assay received is 0.801 oz/ton.

The Sky High Zone is located high up on the most southeasterly situated nunatak on the Arc 21 claim. Mineralization consists chiefly of pyrite and/or limonite with sericite, quartz, calcite and chlorite. Boulders of drusy quartz veins with limonite $\pm$ bornite $\pm$ sphalerite and galena assayed up to 140 ppb gold and >50 ppm silver.

Further work is warranted on all the zones discovered to date and additional prospecting, mapping and sampling should be undertaken on areas of the property not examined during the 1990 program.

Work should concentrate on the Nanny Goat and Rick Zones with the other three zones examined as time and funding permits. Initially the program should consist of detailed mapping and rock chip sampling to gain a better understanding of the structural controls on mineralization and determine grades over definitive widths. As the terrain is quite inhospitable much of this work will have to be done utilizing technical climbers to get continuous sampling coverage.

Trenching, if possible, could be done over the more anomalous zones to expose fresher material for assay. Trenching should also be done where the presumed Betty Creek Formation - Lehto Porphyry contact projects through areas of talus east of the mapped area. Soil sampling over the contact area should be completed first to help define the contact. The sampling should be more successful than attempts this year as the upper reaches of the property on the Arc 19 claim are flatter and easier to traverse.

Favourable results from the above work should be followed up by a limited diamond drilling program to test anomalous zones at depth.

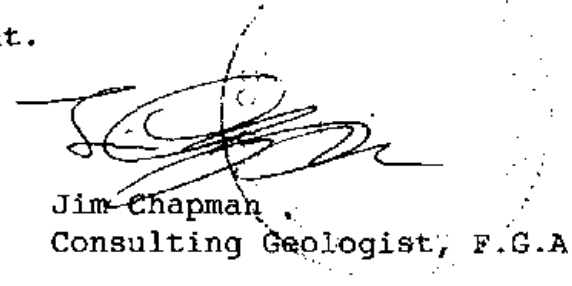
STATEMENT OF EXPENDITURES

Mob/Demob (prorated from Iskut Project)		$ 2,910.59
Wages:		
G. Cavey (consulting geologist)	5 days @ $525/day	$ 2,625.00
J. Chapman (")	4.75 days @ $450/day	2,137.50
W. Raven (geologist)	5.5 days @ $390/day	2,145.00
A. Walus (")	10 days @ $330/day	3,300.00
G. Malensek (")	5 days @ $320/day	1,600.00
R. Reidel (prospector)	6 days @ $300/day	1,800.00
M. Carson (field assistant)	3 days @ $280/day	840.00
F. Brodie (")	1 day @ $280/day	280.00
D. Page (")	1 day @ $270/day	270.00
R. Mackie (")	2 days @ $270/day	540.00
B. Birarda (")	3 days @ $250/day	750.00
J. Rollins (")	3 days @ $250/day	750.00
C. Churchill (")	4 days @ $250/day	1,000.00
G. Hoekstra (")	1 day @ $250/day	250.00
J. Pickston (")	4 days @ $220/day	880.00
K. Floyd (")	1 day @ $220/day	220.00
		$19,387.59
Support Costs (Camp Costs, expediting etc. - prorated from Iskut Project)		$14,012.31
Transportation & Communication (direct and prorated from Iskut Project)		1,294.71
Helicopter		17,440.20
Analyses		4,525.16
Contract Services:		
Badger Exploration Services (prospector)		1,000.00
Nelson Baker (consulting geologist + expenses)		6,325.41
Engineering, Supervision & Administration		3,109.31
Report Costs		6,898.30
Total Expenditures		$76,903.49

STATEMENT OF QUALIFICATIONS

I, Jim Chapman, of Route 1, Box L15, Bowen Island, British Columbia hereby certify:

1. I am a graduate of the University of British Columbia (1976) and hold a B.Sc. degree in geology.
2. I am presently employed as a consulting geologist with OreQuest Consultants Ltd. of #306-595 Howe Street, Vancouver, British Columbia, V6C 2T5.
3. I have been employed in my profession by various mining companies since graduation.
4. I am a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
5. I am a Fellow of the Geological Association of Canada.
6. The information contained in this report was obtained from a review of data listed in the bibliography, a property examination and knowledge of the area.
7. I have no interest, direct or indirect, in the property or in the securities of Santa Marina Gold Ltd.
8. I consent to and authorize the use of the attached report and my name in the Company's Prospectus, Statement of Material Facts or other public document.



Jim Chapman
Consulting Geologist, F.G.A.C.

DATED at Vancouver, British Columbia the 19th day of January, 1991.

CERTIFICATE of QUALIFICATIONS

I, Wesley D.T. Raven, of #108-1720 West 12th Ave., Vancouver, British Columbia hereby certify:

1. I am a graduate of the University of British Columbia (1983) and hold a BSc. degree in geology.
2. I am presently retained as a consulting geologist with OreQuest Consultants Ltd. of #306-595 Howe Street, Vancouver, British Columbia.
3. I have been employed as an exploration geologist on a full time basis since 1983.
4. I am a Fellow of the Geological Association of Canada.
5. The information contained in this report is based on work carried out by OreQuest Consultants Ltd. for which I was the field project manager, an onsite examination of the Arc Project and a review of information listed in the Bibliography.
6. I have no interest, direct or indirect, in the property nor in the securities of Santa Marina Gold Ltd.
7. I consent to and authorize the use of the attached report and my name in the Company's Prospectus, Statement of Material Facts or other public document.

GEOLOGICAL ASSOCIATION OF CANADA
WESLEY RAVEN
Wesley Raven

Wesley D.T. Raven,
B.Sc., F.G.A.C.

DATED at Vancouver, British Columbia, this 19th day of January, 1991

STATEMENT OF QUALIFICATIONS

I, Alojzy Aleksander Walus, of 1540 Davie Street, Vancouver, British Columbia hereby certify:

1. I am a graduate of the University of Wroclaw (Poland) and hold a MSc. degree in geology.
2. I have three years experience as an exploration geologist in Poland.
3. In 1988 and 1989 I worked in British Columbia as a geologist with several exploration companies.
4. During the 1990 summer exploration season I was employed as a field geologist with OreQuest Consultants Ltd. of #306-595 Howe Street, Vancouver, British Columbia.
5. All information contained in this report was obtained during the 1990 exploration program on the Arc Project, and a review of data listed in the bibliography.
6. I have no interest, direct or indirect, in the property nor in the securities of Santa Marina Gold Ltd.
6. I consent to and authorize the use of the attached report and my name in the Company's Prospectus, Statement of Material Facts or other public document.

A. Walus.

Alojzy Aleksander Walus, M.Sc.

DATED at Vancouver, British Columbia, this 19th day of January, 1991.

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APPENDIX I

THIN SECTION DESCRIPTIONS - ARC CLAIMS

ROCK SAMPLE DESCRIPTIONS

Thin Section Descriptions - ARC Claims

Thin sections #20-7 and 29-7 (A) - Combined description.
Rhyodacite

The rock consists of quartz, K-feldspar and plagioclase phenocrysts, each comprising 5 to 10% of the thin sections, along with a few chloritized biotite flakes. The remainder is made up of a very fine grained groundmass consisting of feldspar and quartz. In thin section #20-7 feldspar spherulites comprise substantial parts of the groundmass, they also overgrow part of the phenocrysts. Both feldspar phenocrysts and groundmass are altered to sericite and lesser calcite, comprising 10 to 30% of thin sections.

Thin sections #22-8 and 29-7(B) - combined description
Rhyolite/rhyodacite crystal - lithic tuff

The rock represents a mixture of rhyolite and rhyodacite lithic fragments with quartz, K-feldspar and plagioclase crystals. These are set in an extremely fine grained felsic groundmass. Secondary minerals include sericite, quartz, calcite with lesser chlorite and limonite. They constitute small irregular veinlets and replacement patches comprising 10 to 30% of the thin sections.

Thin section #651 (part of sample #33651)
Monzonite

The rock consists of crystals of plagioclase, K-feldspar and secondary minerals. The latter, making up about 20-30% of the thin section, include quartz, calcite, chlorite, and sericite with minor chalcopyrite and epidote. Sericite occurs as disseminated flakes in feldspars, chlorite occurs chiefly as pseudomorphs after biotite. The remainder of the chlorite occurs as replacement patches and veinlets. Chalcopyrite (approximately 1%) occurs as small irregular grains and blebs scattered throughout replacement patches.

Thin section #609 (part of sample #33609)
Monzonite?

Except for a few heavily altered, barely recognizable feldspar crystals the rock consists of secondary quartz and calcite with lesser sericite, chalcopyrite, malachite and hematite comprising the replacement mass. Chalcopyrite and malachite make up 3-5% of the thin section, consisting of small very irregular grains disseminated throughout the sample.

SANTA MARINA ARC PROJECT

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33001	July 15/90	Arc 21	And. Tuff	Float, siliceous	Massive pyrrhotite, pyrite sphalerite, bornite	<5
33002	"	"	Argillite	Float boulder	Massive py + po	<5
33003	"	"	Argillite	Float	Massive pyrrhotite	160
33004	"	"	Gossan	Intensely weathered	Massive po + py	60
33005	"	"	Shear zone	Small shear zone, qtz stringers	Massive py	45
33006	"	"	Shear zone	Same as above	Massive py	15
33007	"	"	Argillite	Same as location 33003, float	Mag, py	160
33008	July 15	Arc 21	Contact. sediments/ Syenite Porphyry	Several pyrite veins in porphyry	Pyrite veins 1.5" x 15-20ft long traces of Malachite 340°-70°W	5
33018	July 17	"	Qtz vein	Grab	Minor pyrite	330
33019	"	"	Silica-Limonite pod	Grab / silicification	Limonite	600
33024	July 17	Arc 20	Fe-Carb Vein	Grey-white, iron carb. vein w/ quartz eyes contoured patches of quartz	Traces of spec. hematite	10

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33025	July 17	Arc 20	Andesite Dyke	And. intrusive. Dyke-shot through with qtz carbonate veins, ser, chl.	None	<5
33026	July 17	Arc 20	Syenite	Tiny shear zone	Pyrite, malachite	<5
33027	July 18	Arc 19	Granodiorite	Gossan zone 10 x 5 m	Malachite, cpy	0.305 oz Au/T
33028	July 18	Arc 19	Granodiorite	Same zone as 33027	Malachite, cpy	0.321 oz Au/T
33029	"	"	Gossan zone	Intensely weathered	None visible	180
33030	"	"	Qtz vein	Vein only 10cm wide	Malachite, cpy	340
33031	"	"	Gossan zone	Intensely weathered	Malachite, diss. py	950
33044	July 29	Arc 21	Gossan zone	10 m x 5 m	Py & Pyrrhotite	0
33045	"	"	Qtz Vein Zone	Rusty veins	Sulph & mo. in qtz	120
33046	"	"	Qtz vein	6" wide, exposed for 6' then covered by snow	Massive sulph.	0.801 oz/T
33047	"	"	Rusty Zone	1 m wide, qtz veining present	Massive sulph.	350
33201	July 18	Arc 19 East	Syenite	Mineralized zone	Disseminated pyrite	30
33202	July 18	Arc 19 East	Syenite	Mineralized zone, siliceous chl.	Pyrite lens	<5
33203	"	"	Andesite	Qtz vein 15cm wide x 1.5 m	Traces of Chalcopyrite, malachite	70

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33214	July 26	Arc 21	Argillite	Rusty argillite	Pyrrhotite gossan zone some chalcopyrite	<5
33215	"	"	"	Rusty argillite	Pyrrhotite and py	<5
33216	"	"	?	Siliceous, green rock, float	10% pyrite	<5
33217	July 26	Arc 21	Argillite	Rusty argillite	Pyrrhotite + pyrite some chalcopyrite	<5
33218	July 26	Arc 21	Argillite	Rusty argillite	same as above	<5
33219	"	"	Qtz Veinlets	Float from cliff face	same as above	<5
33220	"	"	Host Rock ?	Float	" " " + sphalerite	<5
33221	"	"	Intrusive dyke	Dark green with very little light colours	15% pyrite possible pyrrhotite	<5
33222	July 29	Arc 19	Rhyolite	Contact zone between rhyolite argillite and andesite	Diss. pyrite	20
33223	"	"	Argillite	Rusty Argillite	5% pyrite	20
33224	"	"	Iron Carbonate Vein	Inconsistent mineralization 2-10 cm x 20-30 m	Bornite, cpy silver coloured mineral=asp?	20
33225	"	"	Rhyolite	Dyke	3-5% diss. pyrite	30
33226	July 29	Arc 19	Rhyolite	Dyke	3-5% diss. pyrite	20

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33255	Aug 22	"	Syenite	Siliceous, carbonate rich, float	5% cpy, malachite some pyrite	100
33256	"	"	Magnetite	Vein approx. 1 m x 14 m	5-10% pyrite	140
33257	"	"	Cpy Vein	Cpy in mag. and green siliceous carbonate vein	Cpy veinlet 1-2cm x 2m	30
33258	"	"	Syenite	1-2 cm x 2m cpy veinlet	Malachite	0.132 oz/T
33259	"	"	"	Magnetite vein 50cm x 6m	Cpy fracture filling	80
33260	"	"	"	" 5m x 5m	" " Malachite	40
33261	"	"	"	Quartz / cpy vein 5cm wide	Malachite	0.170 oz/T
33262	Aug 22	Arc 19	Syenite	Quartz / cpy vein 40cm wide	Malachite	0.242 oz/T
33263	"	"	"	Shear zone 20 cm x 3 m?	Diss cpy	980
33264	"	"	"	" " , small.	" "	150
33601	July 19	"	Qtz-calc-lim vein	Grab / shear	Limonite	5
33602	"	"	Monzonite	" / chl.- ser.; calc./shear	"	<5
33603	"	"	"	" / ser.-qtz/ shear	5-10% pyrite	15
33604	"	"	"	" / " "	" " "	140

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33605	"	"	"	" / calc. ser.	Limonite	5
33606	"	"	"	" / " " /densely frac. rock	" ", malachite-traces	5
33607	"	"	"	" / calc. ser.	Limonite	<5
33608	July 20	"	Calcite-lim.	" / calc./ fracture vein	Limonite	10
33609	"	"	Monzonite	" / calc-chl-ser/densely fractured rock	Limonite, 1-2% cpy	1.34 oz/T
33610	"	"	Lim-calcite	" /calc/ore shoots in fault zone	50% lim, traces of cpy	530
33611	July 20	Arc 19	Rhyodacite?	Float/silicification	Limonite, 3-5% pyrite	330
33612	"	"	Argillite	Grab/ strongly fractured rock	Limonite	20
33613	July 21	"	Andesite	Same as above	same as above	10
33614	"	"	Andesite?	Same as above	same as above	10
33615	"	"	Argillite	Same as above	same as above	5
33616	"	"	"	Same as above	same as above	45
33617	"	"	Andesite	Grab/sericite + chlorite	same as above	10
33618	"	"	"	" " "/strongly fractured rock	same as above	5
33619	July 26	Arc 21	Argillite	Grab	3-5% pyrite, limonite	600

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33620	"	"	Rhyodacite Tuff	Grab	Limonite	75
33621	"	"	Argillite	Grab	3-5% pyrite, limonite	300
33622	"	"	Limonite	Grab/ small pod	Almost pure limonite	40
33623	"	"	Argillite	Grab/ small pod	10-15% pyrite	45
33624	"	"	Argillite	Grab/ strongly fractured rock	5-10% pyrite	5
33625	"	"	Limonite cemented breccias	Grab/ ser.- clays/small pods	40-50% limonite	<5
33626	"	"	Argillite?	Grab	2-5% pyrite	<5
33627	July 26	Arc 21	Rhyodacite Tuff	Grab/ sericitized	2-3% pyrite	<5
33628	"	"	Rhyodacite Tuff ?	Same as above	Same as above	<5
33629	"	"	Rhyodacite Tuff	Grab/ ser.-chl.	2-3% py, minor cpy + pyrrhotite	<5
33630	"	"	As above	Same as above	5-7% py, minor cpy	<5
33631	"	"	As above	Grab/ ser. - quartz	2-3% py, limonite	<5
33632	"	"	As above	Same as above	15-20% pyrite	240

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33633	"	"	As above	Grab/ ser. - chl.	2-3% py, limonite	100
33634	"	"	Rhyodacite?	Grab/ ser.- quartz	Limonite	25
33635	July 29	"	Rhyodacite Tuff	Grab/silicification	1-2% pyrite	20
33636	"	"	Argillite	Same as above	3-5% py, limonite, tr sphalerite	20
33637	"	"	As above	Same as above	Limonite, traces sph	30
33638	"	"	As above	Same as above	Same as above	10
33639	Aug 5	Arc18/Arc20	Diorite	Same as above/fault zone	3-5% py, limonite	20
33640	Aug 22	Arc 21	Dacite Tuff?	Grab/ser.- quartz	Same as above	100
33641	Aug 22	Arc 21	Qtz-py. Vein	Float	15-20% pyrite, limonite	30
33642	"	"	Qtz vein	Float	10-15% bornite, 10-15% limonite, malachite azurite	50
33643	"	"	Qtz-Calcite cemented breccia	Float	5-10% pyrite, limonite	30
33644	"	"	Qtz cemented breccia ?	Float	20-25% limonite	10

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33645	"	"	Qtz vein	Float	30-40% limonite, 3-5% py, 1-2% gal, mal - azurite	30
33646	"	"	" "	Float	5-10% limonite	30
33647	"	"	Rhyodacite	Grab	3-5% pyrite	20
33648	Aug 25	Arc 19	Monzonite	Chip 30cm/ cal. - ser.	2-3% cpy, minor malachite-azurite	1600
33649	"	"	Monzonite	Chip 100cm/ calc-ser	Same as above	3600
33650	Aug 25	Arc 19	Monzonite	Grab / calc - ser	Same as above	60
33651	Sept 5	"	Monzonite	Grab / calc. + chl	2-3% chalcopyrite 1-2% malachite	30
33652	"	"	Monzonite	Same as above	Same as above	20
33701	7/19/90		Syenite	Medium grained equigranular white to pink intrusive, grab	0.5m wide gossanous zone, strong epidote filled fractures & joints $170^{\circ}/40^{\circ}$NE occ. vuggy boxworks	50
33702	"		?	Very gossanous, highly weathered grab	$\leq$2cm wide qtz-py $\pm$ asp ?	20

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33703	"		Rhyolite ?	White, very siliceous, massive hackly fracture, rusty weathering N-S vertical orientation approx. 1m wide, grab	Trace diss. py	30
33704	7/20/90	1240m	Hornfels ?	Dull black massive, very frac. rusty weathering, brittle, grab	20cm qtz-carb-py + trace malachite stain, yellow orange oxidation	30
33705	"	1200 m	Hornfels ?	Highly gossanous, dull black, highly fractured, brittle, massive occ brecciated cemented by carbonate, grab	5%-10% blebby py w/small <1mm anastomosing carbonate veining	20
33706	"	1200 m	Shear	0-1m highly sheared and veined fault w/numerous goasanous gouge zones w/white crypto-xtalline qtz? veining (barren) 1-2 m brecciated black hornfels cemented anastomosing qtz veinlets (non-gossanous) 2m chip	$\leq$10cm wide + green crystalline massive carbonate	20
33707	"	5m (along strike)	Vein in Hornfels	80 cm wide/080°/vertical orange, purple & crimson weathering, very vuggy qtz boxwork veining with limonite after py(?) 1m chip	5% crystalline to blebby py, minor cpy and malachite stain	30
33708	07/20/90	15m along strike	Vein in Hornfels	1.0m wide 070°/80°SE orange weathering, qtz vuggy vein boxwork appearance, often brecciated, 1.5m chip	Strong qtz-py $\pm$ rare cpy	40

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33709	"	25m along	Vein in Hornfels	80cm wide 090°/80°S purple, orange gossanous weathering	Massive qtz vein, very vuggy qtz-py-cpy, small pod of massive py-cpy with strong malachite stain thin 2mm stringers cpy-py (+malachite) in orange gouge within sheared hornfels	170
33710	7/21/90	1460 m elev.	Carbonate Vein	Carbonate Vein 30cm wide dull orange weathering 065°/vertical	Barren appearance w/2mm selvage of black resinous mineral (chl?)	<5
33711	"	1470 m elev.	Qtz Vein	10cm wide within small shear 040/90° between siliceous rock (rhyolite?) & intermediate feldspar porphyry	Weakly oxidized qtz-10% sphalerite (or py?)	25
33712	7/21/90	1465 m	Qtz Vein	Massive white qtz vein in dark green massive siltstone irregular orientation approx 30cm thick	Qtz-3%py-trace cpy - trace sp ?	5
33713	"	1655 m	Intermediate Volacanic (Andesite?)	Weakly magnetic, black, massive, smooth texture w/ pervasive chl alteration	≤3mm wide stringer veinlet of specular hematite	<5
33714	"	1700 m	Qtz Vein	Massive barren qtz vein 50cm wide 100/ subvertical within sheared andesite	Barren looking	<5
33715	7/21/90	1725 m	Qtz Vein	As above approx 30m along strike 080°/75° NE 1m wide but not continuous with 33714, grab	Barren	<5

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33716	7/21/90	1725 m	Gossanous Rhyolite?	Large 50 x 30m rusty zone medium grained, white, very siliceous pervasive iron oxide from py and reddish coating from pervasive hematite common in zone, grab	5% diss. py + red hematitic surface coating	<5
33717	7/29/90	3641'	Syenite	Medium grained, pink to beige, equigranular intrusive strong ep-chl stockworks zone 050°/90 (approx), grab	Stockworks of x-cutting qtz-massive py veins 1.5 cm average, up to 10% py in places	20
33718	7/29/90	3936'	Porphyritic Monzonite	Very coarse grained, large orthoclase phenocrysts, chl, altered mafics, grab	Small 1cm wide qtz-mass py vein-10% massive py in places (on strike from 33717)	75
33719	8/5/90	3280'	Intrusive Type ?	Textural features obliterated strongly gossanous, prominent boxwork structures, float	Minor diss py + strong carb in fractures	120
33720	"	3116'	Intrusive Type ?	Texture obliterated, silicified and vuggy, white sugary qtz, often cockade in texture, float	5% crystalline to blebby py ± cpy (or tarnished py)	10
				Descriptions for #33721-#33730		
33721	"	Arc 18	Syenite	Pink to white, equigranular, med.	Stockwork style of qtz -	80
33722	"	Arc 18	(Gossan)	grained highly chl & ep altered,	py-ep veins ranging	40
33723	"	Arc 18		dull orange gossan w/ bright yellow patches throughout. Linear	from 1.0 to 50.0cm wide numerous massive py veins	580
33724	"	0m (Start)	Syenite	shear structure 185m 6m chip	Thin stringer <1cm massive	30
33725	"	15m approx		long and avg. 7m 7m chip	py large qtz-py blowouts	30
33726	"	50m distance		wide, pinches and 7m chip	10cm wide 1 large qtz-py	60
33727	"	75m along		swells 080° overall 10m chip	blowout 50cm wide	40
33728	"	100m structure		trend appears to be 9.3m chip		160
33729	"	130m from		part of vein system 6.4m chip		200
33730	"	150m start		found upstream 2.5m chip		100
				Sampled by #33717-718		

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33801	07/19/90	Arc 19	Syenite ?	Fine grained strongly oxidized syenite ? in coarser grained epidote altered syenite?	No visible sulphides	20
33802	"	"	Quartz Vein	Grab sample. Vein 0.5m wide, glassy qtz, strongly oxidized trend=030/55° SE	Good boxwork texture from weathered out py. A few small specks of silvery-grey mineral, can't get streak but may be specular hematite	60
33803	"	"	Gossan zone	Cannot get fresh surface to see what gossaned material is. Zone is 1 m wide.	No visible sulphides	160
33804	"	"	Siliceous Dyke	Siliceous dyke? in talus chute. Zone at least 1m wide then is lost under talus. Strongly weathered on surface. Trend is 014/70°E wallrock is altered quartz monzonite	Contains 1-3% fine grained disseminated py and 5% malachite staining on surface	130
33805	07/26/90	Arc 18	Qtz rich Intrusive	Strong epidote alteration throughout qtz rich intrusive - up to 20-30% epidote	No visible sulphides	<5
33806	07/26/90	Arc 18	Quartz Vein	Emplaced along contact between Andesite and qtz rich intrusive Trend 270° dip unknown but probably vertical	Barren looking, no visible sulphides	<5
33807	07/29/90	Arc 19	Intrusive Dyke	Strongly gossaned intrusive dyke 60-100cm wide trending 300/65° NE. Dyke is bounded by argillite, dyke is siliceous.	Contains 1-5% disseminated specular hematite	30

Sample	Date	Location	Lithology	Remarks/Alteration/Structure	Mineralization	Analysis
33808	"	Arc 19	Quartz Vein	10 m up slope from #33709, vein ranges from 0.5-1.0m wide, trend 250/90° Good malachite over 2m width including vein and wallrock	Grab from east end of vein before it disappears under talus. Contains up to 10% massive cpy, and 2-3% malachite stain.	0.098 ozAu/t
33809	"	Arc 19	Argillite	Sheared and gossaned argillite & altered looking siliceous unit Qtz vein or qtz flooding.	Contains 5% fine grained disseminated py.	50
16801	08/22/90	Arc 19	Syenite/ Malachite Shear	Stringer vein of cpy & malachite shot thru syenitic intrusive that is silicified. Fracture systems trending 295/85° SW	Stringer veins of cpy and malachite	1160
16802	"	Arc 19	As above	Silicified syenite	Malachite stained syenite with 1% diss. cpy	680
16803	"		"	Mineralization part of a pseudo shear or fractured system 80cm wide trending 082/81°N	Trace 1% diss py, mal.	20
16804	"	Arc 19	Qtz Vein or Silicified Intrusive	10cm wide shear trending 030/70°SE	Zone is plastered with malachite (10-20% staining) with 1-2% diss. cpy	1160
16805	08/22/90	Arc 19	Silicified Intrusive	Probable continuation of sample 33028 zone striking due north, dip unknown. Zone is 15cm wide sample is 6m north of 33028	Malachite stained	4100
16806	"	Arc 19	As above	Continuation of sample #33028 zone, sample is 10m N of 16805	Strong malachite staining	8200

APPENDIX II

ASSAY REPORTS

TSL LABORATORIES
DIV. BONGNER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 595 Howe St.
Vancouver, B.C.
V6C 2T5

REPORT No.
S9427

INVOICE #: 14530
P.O.: R-2141

SAMPLE(S) OF Rock

A. Walus
Project:ARC/SANTA MARINA GOLD

	Au ppb	Au ozt
33601	5	
33602	<5	
33603	15	
33604	140	
33605	5	
33606	5	
33607	<5	
33608	10	
33609	>1000	1.34/1.35
33610	530	
33611	330	
33612	20	
33613	10	
33614	10	
33615	5	
33616	45	
33617	10	
33618	5	

COPIES TO: Wes Raven
INVOICE TO: OreQuest Consultants-Vancouver

Aug 10/90

SIGNED Bernie Dunn

CTA

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN
Aqua-Regia Digestion

OREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN

PROJECT: SANTA MARINA P.O. P-2141

T.S.L. REPORT No. : S - 9427 - 1
T.S.L. File No. :
T.S.L. Invoice No. : 14846

ALL RESULTS PPM

ELEMENT		33601	33602	33603	33604	33605	33606	33607	33608	33609	33610
Aluminum	[Al]	1800	3300	11000	1600	4300	2600	10000	3000	2500	870
Iron	[Fe]	33000	23000	36000	21000	20000	13000	21000	33000	12000	73000
Calcium	[Ca]	59000	29000	3500	1000	54000	23000	26000	110000	59000	110000
Magnesium	[Mg]	5300	1500	4900	430	2000	400	3900	1100	590	1600
Sodium	[Na]	70	130	290	220	60	150	190	20	110	20
Potassium	[K]	820	1800	1700	2000	2300	2000	2000	850	840	420
Titanium	[Ti]	< 1	4	850	47	3	1	13	< 1	3	< 1
Manganese	[Mn]	700	620	220	47	1100	410	370	2400	520	2300
Phosphorus	[P]	250	820	880	90	680	400	760	34	210	< 2
Barium	[Ba]	1500	790	95	120	110	700	180	370	450	1400
Chromium	[Cr]	35	18	29	67	49	52	32	24	53	10
Zirconium	[Zr]	< 1	2	3	< 1	2	1	1	< 1	< 1	4
Copper	[Cu]	17	12	6	6	12	730	29	11	10000	2700
Nickel	[Ni]	1	2	1	2	10	3	2	2	2	3
Lead	[Pb]	2	2	4	4	1	3	2	< 1	13	< 1
Zinc	[Zn]	37	22	25	3	16	13	19	100	23	170
Vanadium	[V]	36	17	82	6	15	5	47	26	8	17
Strontium	[Sr]	96	36	50	13	46	39	40	130	76	150
Cobalt	[Co]	5	5	4	3	5	4	7	6	2	12
Molybdenum	[Mo]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	12	3
Cadmium	[Cd]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	2	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	10	10	20	< 10	< 10	10	< 10
Antimony	[Sb]	5	< 5	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Yttrium	[Y]	8	9	6	< 1	10	6	10	33	7	19
Scandium	[Sc]	2	3	4	< 1	4	1	3	3	2	< 1
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	30	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	20	< 10	40	< 10	< 10	< 10	40	30	< 10	20
Arsenic	[As]	< 5	< 5	< 5	< 5	< 5	40	< 5	< 5	30	5
Bismuth	[Bi]	15	10	< 5	< 5	5	10	10	10	25	20
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	< 5	< 5	10	< 5	< 5	< 5	10	< 5	< 5	< 5
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	20	< 10	20

DATE : AUG-23-1990

SIGNED : Bernie Dunn

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A8
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN PROJECT: SANTA MARINA P.O. R-2141

T.S.L. REPORT No. : S - 9427 - 2
T.S.L. File No. :
T.S.L. Invoice No. : 14846

ALL RESULTS PPM

ELEMENT		33611	33612	33613	33614	33615	33616	33617	33618
Aluminum	[Al]	15000	18000	15000	22000	2600	11000	11000	18000
Iron	[Fe]	46000	42000	34000	44000	57000	130000	32000	31000
Calcium	[Ca]	8800	9500	2300	1200	110000	6800	5100	6800
Magnesium	[Mg]	6200	5800	5900	6300	8100	2700	5400	7100
Sodium	[Na]	360	910	290	240	90	100	140	260
Potassium	[K]	330	470	730	2100	330	1200	1300	640
Titanium	[Ti]	2300	1700	99	120	1	11	1400	1300
Manganese	[Mn]	380	290	280	290	3900	580	340	540
Phosphorus	[P]	180	480	640	620	< 2	540	360	750
Barium	[Ba]	120	110	390	65	26	140	130	54
Chromium	[Cr]	46	70	42	31	21	25	39	29
Zirconium	[Zr]	4	5	3	2	3	8	2	5
Copper	[Cu]	220	170	29	81	220	98	52	82
Nickel	[Ni]	4	10	4	9	3	11	14	8
Lead	[Pb]	6	8	7	16	1	32	11	6
Zinc	[Zn]	27	18	45	27	19	34	35	24
Vanadium	[V]	140	100	22	95	2	56	47	82
Strontium	[Sr]	18	31	10	22	190	24	13	12
Cobalt	[Co]	7	10	14	10	2	59	6	6
Molybdenum	[Mo]	< 2	6	< 2	< 2	< 2	2	< 2	< 2
Silver	[Ag]	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	< 1	2	< 1	3	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	< 5	15	< 5	< 5	10
Yttrium	[Y]	4	5	6	6	13	10	5	7
Scandium	[Sc]	6	4	4	5	< 1	4	3	6
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	30	20	20	50	60	60	20	30
Arsenic	[As]	< 5	< 5	< 5	140	< 5	190	50	20
Bismuth	[Bi]	5	5	5	10	20	15	10	15
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	10	10	10	20	< 5	< 5	10	15
Holmium	[Ho]	< 10	< 10	< 10	< 10	20	< 10	< 10	< 10

DATE : AUG-23-1990

SIGNED : Bernie Dunn

TSL LABORATORIES
DIV. BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9432

INVOICE #: 14531
P.O.: R-2146

SAMPLE(S) OF Rock

W. Raven
Project: ARC/SANTA MARINA GOLD

	Au ppb
33019	600
33020	75
33021	300
33022	40
33023	45
33624	5
33625	<5
33626	<5
33627	<5
33628	<5
33629	<5
33630	<5
33631	<5
33632	140
33633	100
33634	25
33710	<5
33711	25
33712	5
33713	<5

COPIES TO: W. Raven
INVOICE TO: OreQuest Consultants-Vancouver

Aug 10/90

SIGNED Bernie Dunn

CTA

TSL LABORATORIES
DIV. BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX. (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9432

INVOICE #: 14531
P.O.: R-2146

SAMPLE(S) OF Rock

W. Raven
Project: ARC/SANTA MARINA GOLD

	Au ppb
33714	<5
33715	<5
33716	<5

COPIES TO: W. Raven
INVOICE TO: OreQuest Consultants-Vancouver

Aug 10/90

SIGNED Bernie Dunn

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS LTD.
306 - 595 HOWE STREET
VANCOUVER, B.C.
V6C 2T5
ATTN: J. CHAPMAN

T.S.L. REPORT No. : S - 5421 - 1
T.S.L. File No. :
T.S.L. Invoice No. : 14812

PROJECT: ARC SANTA MARINA GOLD R-2146

ALL RESULTS PPM

ELEMENT		33019	33020	33021	33022	33023	33624	33625	33626	33627	33628
Aluminum	[Al]	1800	3800	3200	2400	3300	14000	4800	10000	11000	13000
Iron	[Fe]	56000	93000	67000	82000	150000	58000	150000	49000	31000	44000
Calcium	[Ca]	220	9500	2400	1300	620	3000	240	5300	7500	2900
Magnesium	[Mg]	360	780	640	250	430	4300	860	4300	4300	5100
Sodium	[Na]	550	70	40	50	30	330	20	500	220	60
Potassium	[K]	3700	2900	2600	2100	810	780	270	1100	460	850
Titanium	[Ti]	740	93	88	150	550	1600	960	850	1000	850
Manganese	[Mn]	28	210	130	12	73	770	74	770	440	770
Phosphorus	[P]	640	370	390	320	660	750	450	1500	910	780
Barium	[Ba]	97	14	22	13	90	59	170	130	70	160
Chromium	[Cr]	15	64	37	35	19	38	12	22	46	38
Zirconium	[Zr]	2	4	2	4	23	6	34	4	4	2
Copper	[Cu]	3	10	6	< 1	17	200	1500	190	59	110
Nickel	[Ni]	1	2	1	7	3	2	< 1	2	2	< 1
Lead	[Pb]	60	14	38	< 1	34	8	18	7	5	9
Zinc	[Zn]	7	10	82	2	17	41	48	35	82	550
Vanadium	[V]	56	7	6	3	39	72	60	98	30	31
Strontium	[Sr]	48	20	9	11	6	30	4	32	21	12
Cobalt	[Co]	38	77	44	410	96	9	1	11	4	4
Molybdenum	[Mo]	26	120	58	330	230	10	6	< 2	< 2	< 2
Silver	[Ag]	2	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	5
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	5
Yttrium	[Y]	3	5	4	3	3	4	3	6	5	5
Scandium	[Sc]	2	< 1	< 1	< 1	< 1	2	< 1	3	2	2
Tungsten	[W]	110	20	30	280	60	< 10	< 10	< 10	< 10	10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	30	20	30	30	60	40	80	30	30	30
Arsenic	[As]	< 5	5	< 5	< 5	15	5	< 5	< 5	< 5	< 5
Bismuth	[Bi]	< 5	< 5	< 5	15	35	< 5	75	10	10	10
Tin	[Sn]	< 10	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	< 5	< 5	< 5	< 5	< 5	10	< 5	10	5	5
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10	20	< 10	< 10	< 10

DATE : AUG-22-1990

SIGNED : Bernie Dunn

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1633
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

DREQUEST CONSULTANTS LTD.
306 - 595 HOWE STREET
VANCOUVER, B.C.
V6C 2T5
ATTN: J. CHAPMAN

T.S.L. REPORT No. : 9 - 8421 - I
T.S.L. File No. :
T.S.L. Invoice No. : 14613

PROJECT: ARC SANTA MARINA GOLD R-2146

ALL RESULTS PPM

ELEMENT		33629	33630	33631	33632	33633	33634	33719	33721	33722	33723
Aluminum	[Al]	28000	28000	11000	10000	16000	10000	1700	5100	7900	6100
Iron	[Fe]	59000	71000	36000	130000	44000	77000	57000	60000	26000	45000
Calcium	[Ca]	3300	2700	5600	1500	3400	1200	110000	48000	4500	4600
Magnesium	[Mg]	6600	6200	4200	2700	6000	3300	8600	3000	4400	3600
Sodium	[Na]	40	40	250	30	220	220	90	40	150	280
Potassium	[K]	1000	690	930	1100	690	730	600	1600	350	1000
Titanium	[Ti]	840	940	390	260	750	1100	36	7	730	210
Manganese	[Mn]	1600	1400	580	490	900	490	3700	4000	460	310
Phosphorus	[P]	680	620	410	540	790	630	< 2	140	470	120
Barium	[Ba]	90	62	95	15	71	130	35	340	42	130
Chromium	[Cr]	48	27	39	52	32	31	7	27	61	43
Zirconium	[Zr]	7	7	2	10	3	4	2	< 2	2	< 2
Copper	[Cu]	190	680	120	1600	180	89	14	76	87	7
Nickel	[Ni]	13	5	12	2	2	2	5	5	4	3
Lead	[Pb]	11	15	9	130	16	7	< 2	< 2	4	4
Zinc	[Zn]	110	120	30	85	820	430	24	20	16	14
Vanadium	[V]	88	97	57	21	42	47	11	17	32	4
Strontium	[Sr]	10	6	19	5	28	26	58	24	8	6
Cobalt	[Co]	7	14	8	33	5	2	2	50	22	12
Molybdenum	[Mo]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	3	9	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	< 1	< 1	6	< 1	< 1	1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	10	< 10
Antimony	[Sb]	15	< 5	< 5	< 5	< 5	< 5	20	< 5	< 5	5
Yttrium	[Y]	8	7	4	4	5	2	13	16	6	4
Scandium	[Sc]	6	6	3	< 1	2	1	2	2	4	1
Tungsten	[W]	< 10	< 10	< 10	< 10	20	< 10	< 10	< 10	< 10	20
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	50	50	20	70	40	30	70	20	< 10	20
Arsenic	[As]	< 5	< 5	5	55	< 5	5	< 5	60	15	< 5
Bismuth	[Bi]	10	10	15	30	15	< 5	25	10	10	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	15	15	5	5	5	< 5	< 5	< 5	5	< 5
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10	20	< 10	< 10	< 10

DATE : AUG-22-1990

SIGNED : Bernie Quinn

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS LTD.
306 - 595 HOWE STREET
VANCOUVER, B.C.
V6C 2T5
ATTN: J. CHAPMAN

T.S.L. REPORT No. : S - 9432 - I
T.S.L. File No. :
T.S.L. Invoice No. : 14813

PROJECT: ARC SANTA MARINA GOLD R-2146

ALL RESULTS PPM

ELEMENT		33714	33715	33716
Aluminum	[Al]	1900	11000	2200
Iron	[Fe]	7600	16000	13000
Calcium	[Ca]	9100	14000	740
Magnesium	[Mg]	1600	6200	740
Sodium	[Na]	50	60	260
Potassium	[K]	150	70	810
Titanium	[Ti]	12	270	21
Manganese	[Mn]	540	730	60
Phosphorus	[P]	120	560	120
Barium	[Ba]	59	31	120
Chromium	[Cr]	160	160	52
Zirconium	[Zr]	< 1	2	< 1
Copper	[Cu]	4	8	2
Nickel	[Ni]	5	38	3
Lead	[Pb]	1	4	2
Zinc	[Zn]	14	55	6
Vanadium	[V]	7	35	2
Strontium	[Sr]	7	34	7
Cobalt	[Co]	2	7	< 1
Molybdenum	[Mo]	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1
Boron	[B]	20	10	10
Antimony	[Sb]	< 5	5	< 5
Yttrium	[Y]	1	2	1
Scandium	[Sc]	1	4	< 1
Tungsten	[W]	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10
Thorium	[Th]	< 10	< 10	< 10
Arsenic	[As]	< 5	< 5	< 5
Bismuth	[Bi]	15	20	10
Tin	[Sn]	< 10	< 10	< 10
Lithium	[Li]	< 5	5	< 5
Holmium	[Ho]	< 10	< 10	< 10

DATE : AUG-22-1990

SIGNED : Bernie Dunn

TSL LABORATORIES
DIV BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX: (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No. S9474

INVOICE #: 14599
P.O.: R-2156

SAMPLE(S) OF Rock

W. Raven
Project: ARC

REMARKS: SANTA MARINA

	Au ppb	Au ozt
33001	<5	
33002	<5	
33003	160	
33004	60	
33005	45	
33006	15	
33007	160	
33008	5	
33018	330	
33024	10	
33025	<5	
33026	<5	
33027	>1000	.300/.310
33028	>1000	.335/.307
33029	180	
33030	340	
33031	950	
33801	20	
33802	60	
33803	160	

COPIES TO: B. Dewonck, J. Chapman
INVOICE TO: OreQuest - Vancouver

Aug 14/90

SIGNED Bernie Dunn

CTA

TSL LABORATORIES
DIV BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9474

INVOICE #: 14599
P.O.: R-2156

SAMPLE(S) OF Rock

W. Raven
Project: ARC

REMARKS: SANTA MARINA

	Au ppb
33804	130
33201	30
33202	<5
33203	70

COPIES TO: B. Dewonck, J. Chapman
INVOICE TO: OreQuest - Vancouver

Aug 14/90

SIGNED Bernie Ouse

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T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

GREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN PROJECT: ARC R-2156

T.S.L. REPORT No. : S - 9474- 1
T.S.L. File No. :
T.S.L. Invoice No. : 15012

ALL RESULTS PPM

ELEMENT		33001	33002	33003	33004	33005	33006	33007	33008	33018	33024
Aluminum	[Al]	11000	3200	8000	8300	4300	5500	2200	5400	2100	5500
Iron	[Fe]	90000	63000	71000	35000	46000	51000	71000	26000	59000	24000
Calcium	[Ca]	1900	660	1800	3300	2300	5400	1200	11000	1100	99000
Magnesium	[Mg]	3800	550	2100	2600	1200	2500	730	2100	910	3500
Sodium	[Na]	30	40	30	20	20	40	30	180	20	20
Potassium	[K]	970	1700	1400	870	790	850	310	1400	500	90
Titanium	[Ti]	160	45	110	130	140	200	100	170	83	3
Manganese	[Mn]	700	120	300	280	120	200	63	310	79	2700
Phosphorus	[P]	170	190	650	350	170	310	74	450	46	< 2
Barium	[Ba]	48	49	74	36	23	37	16	59	40	22
Chromium	[Cr]	< 1	38	19	52	73	36	81	41	81	27
Zirconium	[Zr]	3	3	3	1	< 1	2	< 1	1	2	< 1
Copper	[Cu]	790	1200	1300	64	13	25	14	59	15	3
Nickel	[Ni]	18	20	2	3	2	3	2	3	1	2
Lead	[Pb]	14	4	< 1	110	29	12	4	5	11	1
Zinc	[Zn]	26000	610	410	71	43	38	18	25	15	16
Vanadium	[V]	19	5	16	10	8	10	29	23	17	6
Strontium	[Sr]	4	2	6	72	51	44	19	27	4	110
Cobalt	[Co]	48	20	13	38	70	69	64	21	20	9
Molybdenum	[Mo]	< 2	< 2	< 2	14	2	< 2	10	< 2	< 2	< 2
Silver	[Ag]	< 1	3	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	190	7	4	< 1	< 1	< 1	< 1	< 1	1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	< 5	< 5	< 5	5	< 5	< 5	< 5
Yttrium	[Y]	2	4	4	2	1	2	1	3	1	20
Scandium	[Sc]	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tungsten	[W]	420	30	< 10	50	30	350	120	110	30	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	50	20	40	10	< 10	10	10	20	< 10	20
Arsenic	[As]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	100	10
Bismuth	[Bi]	35	< 5	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	90	150	140	140	140	130	120	120	120	120
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	10

DATE : AUG-31-1990

SIGNED : Bernie Dewonck

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

DREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN PROJECT: ARC P.O. R-2156

T.S.L. REPORT No. : S - 9474 - 2
T.S.L. File No. :
T.S.L. Invoice No. : 15012

ALL RESULTS PPM

ELEMENT		33025	33026	33027	33028	33029	33030	33031	33801	33802	33803
Aluminum	[Al]	24000	6300	3200	2900	1500	1600	2200	3200	2800	2100
Iron	[Fe]	35000	16000	36000	55000	15000	55000	32000	23000	36000	43000
Calcium	[Ca]	17000	5700	5000	1600	540	62000	6500	40000	2500	1600
Magnesium	[Mg]	6800	2900	1000	190	150	710	150	3600	1400	300
Sodium	[Na]	280	280	60	370	40	20	20	150	80	840
Potassium	[K]	210	920	1200	1500	1000	1400	2300	2300	870	2100
Titanium	[Ti]	1100	380	36	15	6	4	5	5	65	10
Manganese	[Mn]	630	530	220	84	120	1600	300	600	71	41
Phosphorus	[P]	230	230	340	260	72	76	470	690	590	220
Barium	[Ba]	20	38	310	290	880	510	290	1100	340	260
Chromium	[Cr]	55	54	64	55	110	61	63	28	100	48
Zirconium	[Zr]	8	2	1	2	< 1	2	< 1	3	1	2
Copper	[Cu]	60	1100	17000	39000	800	12000	5200	300	85	36
Nickel	[Ni]	44	4	3	2	4	2	3	< 1	4	1
Lead	[Pb]	6	180	< 1	3	3	< 1	4	2	1	3
Zinc	[Zn]	36	23	44	69	4	69	5	18	5	2
Vanadium	[V]	59	16	13	5	4	10	7	17	22	8
Strontium	[Sr]	21	16	12	6	29	84	25	110	51	34
Cobalt	[Co]	17	17	4	5	10	9	11	7	12	7
Molybdenum	[Mo]	< 2	< 2	22	380	20	22	32	2	6	< 2
Silver	[Ag]	< 1	1	8	33	1	2	4	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	13	26	< 1	5	1	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Yttrium	[Y]	8	5	5	5	5	15	6	7	1	1
Scandium	[Sc]	4	1	1	< 1	< 1	< 1	< 1	4	2	< 1
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	30	60	< 10	< 10	< 10	< 10	< 10	40	< 10	< 10
Arsenic	[As]	20	< 5	15	< 5	5	< 5	< 5	< 5	20	< 5
Bismuth	[Bi]	15	5	15	45	< 5	< 5	5	5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	130	120	110	110	95	95	90	80	75	70
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	20	< 10	< 10	< 10	< 10

DATE : AUG-31-1990

SIGNED : Bernie Dewonck

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN PROJECT: ARC - A-2156

T.S.L. REPORT No. : S - 9474 - 3
T.S.L. File No. :
T.S.L. Invoice No. : 15012

ALL RESULTS PPM

ELEMENT		33804	33201	33202	33203
Aluminum	[Al]	3400	7400	2500	6000
Iron	[Fe]	14000	31000	6600	66000
Calcium	[Ca]	1700	1300	4200	1100
Magnesium	[Mg]	980	3100	1100	1300
Sodium	[Na]	110	90	80	60
Potassium	[K]	1200	1800	740	710
Titanium	[Ti]	9	490	44	66
Manganese	[Mn]	97	120	160	160
Phosphorus	[P]	270	520	150	480
Barium	[Ba]	570	460	520	41
Chromium	[Cr]	67	37	100	83
Zirconium	[Zr]	1	4	2	3
Copper	[Cu]	7000	430	390	580
Nickel	[Ni]	3	2	3	6
Lead	[Pb]	3	3	17	3
Zinc	[Zn]	4	14	12	17
Vanadium	[V]	8	33	7	15
Strontium	[Sr]	26	24	16	19
Cobalt	[Co]	9	31	3	62
Molybdenum	[Mo]	14	8	< 2	< 2
Silver	[Ag]	3	< 1	< 1	1
Cadmium	[Cd]	2	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	< 5
Yttrium	[Y]	3	5	2	2
Scandium	[Sc]	< 1	2	< 1	< 1
Tungsten	[W]	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10
Thorium	[Th]	< 10	40	< 10	< 10
Arsenic	[As]	< 5	10	< 5	20
Bismuth	[Bi]	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10
Lithium	[Li]	60	65	60	65
Holmium	[Ho]	< 10	< 10	< 10	< 10

DATE : AUG-31-1990

SIGNED : Bernie Dunn

TSL LABORATORIES
DIV BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX. (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9475

INVOICE #: 14567
P.O.: R-2158

SAMPLE(S) OF Rock

W. Raven
Project: ARC

REMARKS: P.O. No: SANTA MARINA

	Au ppb
33214	<5
33215	<5
33216	<5
33217	<5
33218	<5
33219	<5
33220	<5
33221	<5
33619	<5
33620	<5
33805	<5
33806	<5
33717	20
33718	75

COPIES TO: B. Dewonck, J. Chapman
INVOICE TO: OreQuest - Vancouver

Aug 13/90

SIGNED Bernie Quinn

CTA

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS LTD.
306 - 595 HOWE STREET
VANCOUVER, B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN

T.S.L. REPORT No. : S - 9475 - 1
T.S.L. File No. :
T.S.L. Invoice No. : 14856

PROJECT: ARC SANTA MARINA R-2158

ALL RESULTS PPM

ELEMENT		33214	33215	33216	33217	33218	33219	33220	33221	33619	33620
Aluminum	[Al]	27000	22000	37000	23000	23000	12000	32000	11000	25000	35000
Iron	[Fe]	35000	34000	69000	46000	45000	27000	41000	34000	37000	59000
Calcium	[Ca]	5300	5800	3400	5900	4500	2000	8000	4800	6700	7100
Magnesium	[Mg]	5100	4700	6000	4600	4700	3100	6300	2500	5000	6600
Sodium	[Na]	1100	1100	170	1200	490	190	870	370	520	170
Potassium	[K]	720	1400	630	1200	670	590	330	240	710	390
Titanium	[Ti]	600	560	1000	660	340	380	670	610	780	1100
Manganese	[Mn]	1000	700	1800	580	910	480	560	550	1200	1000
Phosphorus	[P]	370	370	720	470	1200	520	220	480	450	2200
Barium	[Ba]	380	54	67	52	67	68	35	23	240	92
Chromium	[Cr]	41	25	77	42	26	40	15	41	49	45
Zirconium	[Zr]	11	8	20	10	11	6	8	8	11	19
Copper	[Cu]	84	66	850	270	180	1800	970	160	120	740
Nickel	[Ni]	19	17	12	19	13	1	120	7	16	10
Lead	[Pb]	7	6	2	5	11	2	2	4	5	2
Zinc	[Zn]	71	39	240	38	59	62	56	32	78	61
Vanadium	[V]	71	36	120	59	35	50	110	4	91	140
Strontium	[Sr]	73	41	11	44	34	20	53	17	47	23
Cobalt	[Co]	12	15	12	16	29	12	38	5	11	19
Molybdenum	[Mo]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	2	< 1	< 1	4	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Yttrium	[Y]	4	4	7	4	5	3	3	16	5	6
Scandium	[Sc]	6	4	9	4	3	2	1	3	6	7
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	30	40	40	40	40	20	50	10	30	50
Arsenic	[As]	< 5	< 5	< 5	5	10	< 5	< 5	< 5	< 5	10
Bismuth	[Bi]	15	10	15	5	10	5	10	< 5	< 5	10
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	10	15	20	10	10	5	10	5	10	15
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10

DATE : AUG-25-1990

SIGNED : Bernie Dunn

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1022
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS LTD.
306 - 595 HOWE STREET
VANCOUVER, B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN

T.S.L. REPORT No. : S - 9475 - I
T.S.L. File No. :
T.S.L. Invoice No. : 14896

PROJECT: ARC SANTA MARINA R-2158

ALL RESULTS PPM

ELEMENT		33805	33806	33717	33718
Aluminum	[Al]	11000	2900	3100	4100
Iron	[Fe]	14000	2800	20000	30000
Calcium	[Ca]	6600	2500	12000	2300
Magnesium	[Mg]	3400	630	590	1200
Sodium	[Na]	240	500	160	220
Potassium	[K]	530	750	1700	1400
Titanium	[Ti]	420	170	130	340
Manganese	[Mn]	330	95	120	100
Phosphorus	[P]	760	110	460	510
Barium	[Ba]	57	25	82	52
Chromium	[Cr]	39	45	84	57
Zirconium	[Zr]	4	2	5	5
Copper	[Cu]	7	18	5	4
Nickel	[Ni]	4	< 1	2	1
Lead	[Pb]	11	24	4	8
Zinc	[Zn]	44	11	5	7
Vanadium	[V]	27	6	5	14
Strontium	[Sr]	160	18	45	17
Cobalt	[Co]	5	1	30	38
Molybdenum	[Mo]	< 2	< 2	< 2	24
Silver	[Ag]	< 1	< 1	< 1	1
Cadmium	[Cd]	< 1	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10
Antimony	[Sb]	10	< 5	< 5	< 5
Yttrium	[Y]	3	3	5	2
Scandium	[Sc]	1	< 1	< 1	< 1
Tungsten	[W]	< 10	< 10	< 10	10
Niobium	[Nb]	< 10	< 10	< 10	< 10
Thorium	[Th]	20	< 10	10	10
Arsenic	[As]	15	< 5	< 5	< 5
Bismuth	[Bi]	5	5	5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10
Lithium	[Li]	5	< 5	5	< 5
Holmium	[Ho]	< 10	< 10	< 10	< 10

DATE : AUG-25-1990

SIGNED : Bernie Dunn

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
(604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: AUG 16 1990
REPORT#: 900210 GA
JOB#: 900210

PROJECT#: SM
SAMPLES ARRIVED: AUG 09 1990
REPORT COMPLETED: AUG 16 1990
ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 900210 NA
TOTAL SAMPLES: 8
SAMPLE TYPE: 8 ROCK
REJECTS: SAVED

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST~~
~~VANCOUVER, B.C. V5L 1K5~~
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● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A.

REPORT NUMBER: 900210 GA JOB NUMBER: 900210 **ORREQUEST CONSULTANTS LTD.**

SAMPLE #	Au ppb
33222	20
33223	20
33224	20
33225	30
33226	20
33807	30
33808	6800
33809	50

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sr and W.

ANALYST: *Raymond Ca*

REPORT #: 900210 PA | CREQUEST CONSULTANTS LTD. | PROJECT: SM | DATE IN: AUG 09 1990 | DATE OUT: AUG 24 1990 | ATTENTION: MR. W. RAVEN | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	W	Y	Zr
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
33222	0.7	6.12	158	31	<3	2.38	5.9	49	111	387	>10.00	0.14	1.48	682	21	<0.01	50	0.32	92	112	27	159	40	3	185
33223	0.1	4.30	71	13	<3	2.30	3.1	27	57	131	5.70	0.11	2.12	507	17	0.01	<1	0.11	62	22	22	25	34	2	19
33224	28.0	0.57	>2000	33	<3	>10.00	561.8	76	9	9998	>10.00	0.11	0.65	2219	18	<0.01	59	0.02	358	46	12	316	9	1	5545
33225	0.6	1.25	>2000	101	<3	4.49	40.8	15	38	385	3.06	0.10	0.83	1684	4	<0.01	<1	0.10	42	12	9	104	14	1	338
33226	0.4	1.76	865	51	<3	1.24	2.4	15	91	158	2.98	0.08	0.58	312	5	0.01	<1	0.07	41	42	12	49	23	42	51
33807	0.1	1.12	119	41	<3	1.03	<0.1	7	84	86	1.55	0.08	0.07	40	1	0.02	<1	0.02	39	42	8	19	22	3	14
33808	42.0	1.37	965	22	>1000	2.45	3.5	96	47	>20000	6.42	0.10	0.71	3302	23	<0.01	<1	0.02	328	42	9	34	36	43	128
33809	0.6	3.36	218	14	<3	1.68	2.2	21	71	862	6.70	0.11	1.60	795	11	<0.01	<1	0.09	78	31	16	<1	23	<3	26
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	10000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

1830 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
(604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD
BATHURST, N B
MISSISSAUGA, ONT
RENO, NEVADA, U S A

ASSAY ANALYTICAL REPORT

CLIENT: **OREQUEST CONSULTANTS LTD.**
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: AUG 16 1990
REPORT#: 900210 AA
JOB#: 900210

PROJECT#: SM
SAMPLES ARRIVED: AUG 09 1990
REPORT COMPLETED: AUG 16 1990
ANALYSED FOR: Au

INVOICE#: 900210 NA
TOTAL SAMPLES: 1
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 1 ROCK

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA U.S.A.

REPORT NUMBER: 900210 AA JOB NUMBER: 900210 OREQUEST CONSULTANTS LTD. PAGE 1 OF 1

SAMPLE #	Au oz/st
33808	.098

DETECTION LIMIT .005

1 troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: Raymond Lau

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1966 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

ASSAY ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: AUG 27 1990
REPORT#: 900210 AB
JOB#: 900210

PROJECT#: SM
SAMPLES ARRIVED: AUG 09 1990
REPORT COMPLETED: AUG 27 1990
ANALYSED FOR: Cu

INVOICE#: 900210 NA
TOTAL SAMPLES: 1
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 1 ROCK

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A

REPORT NUMBER: 900210 AB JOB NUMBER: 900210 ORBQUEST CONSULTANTS LTD.

SAMPLE #	Cu %
33808	2.62

DETECTION LIMIT .01

1 troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

1020 TAYLOR STREET
VANCOUVER, BC V6L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT:	**OREQUEST CONSULTANTS LTD.**	DATE:	AUG 27 1990
ADDRESS:	306 - 595 Howe St.		
:	Vancouver, BC	**REPORT#:**	**900249 GA**
:	V6C 2T5	JOB#:	900249
PROJECT#:	SM	INVOICE#:	900249 NA
SAMPLES ARRIVED:	AUG 16 1990	TOTAL SAMPLES:	20
REPORT COMPLETED:	AUG 27 1990	SAMPLE TYPE:	20 ROCK
ANALYSED FOR:	Au (FA/AAS) ICP	REJECTS:	SAVED

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

REPORT NUMBER: 900249 GA JOB NUMBER: 900249 **OREQUEST CONSULTANTS LTD.**

SAMPLE #	Au
	ppb
33044	nd
33045	120
33046	10000
33047	350
33621	30
33622	40
33623	30
33635	20
33636	20
33637	30
33638	10
33701	50
33702	20
33703	30
33704	30
33705	20
33706	20
33707	30
33708	40
33709	170

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED
1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST:

REPORT #: 900249 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SM | DATE IN: AUG 16 1990 | DATE OUT: SEPT 06 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	*Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	*Pb	Sb	Sn	Sr	U	W	Y
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
33644	<0.1	3.54	<3	52	36	5.58	5.2	56	37	27	9.82	<0.01	2.23	2144	31	<0.01	30	0.06	76	14	15	126	14	<3	109
33645	0.5	0.50	30	29	27	1.12	4.5	53	60	18	5.33	0.43	0.15	458	>1000	<0.01	22	0.06	82	20	14	29	<5	<3	71
33646	8.5	0.23	24	35	<3	0.23	3.5	34	92	59	3.78	0.39	0.04	49	49	<0.01	2	0.02	164	14	6	12	19	20	26
33647	0.5	0.48	63	45	70	>10.00	4.6	57	69	8	8.92	<0.01	0.17	1032	28	<0.01	16	0.07	61	18	8	98	31	<3	22
33621	4.9	3.14	<3	336	76	0.67	4.2	32	119	1471	6.95	0.65	1.58	1759	25	<0.01	18	0.22	63	7	23	15	5	<3	81
33622	2.9	1.43	<3	22	<3	0.88	13.3	46	43	282	>10.00	1.95	0.11	172	45	<0.01	39	0.15	136	83	50	71	<5	<3	64
33623	0.1	4.48	<3	55	60	1.09	5.1	39	60	553	9.56	0.83	1.27	986	29	0.04	22	0.06	56	10	33	124	7	<3	74
33635	<0.1	3.52	<3	171	<3	0.95	4.4	23	86	45	3.95	0.38	1.30	1260	18	<0.01	<1	0.12	32	<2	9	90	24	<3	135
33636	7.8	4.73	<3	39	123	0.30	29.7	26	112	1143	>10.00	1.22	1.43	2995	40	<0.01	45	0.09	528	37	25	11	<5	<3	2936
33637	4.6	3.37	<3	52	21	0.33	17.9	30	97	968	>10.00	1.26	0.85	2454	40	<0.01	25	0.09	132	43	33	4	<5	<3	2884
33638	1.5	4.21	<3	74	<3	0.47	37.5	31	85	347	9.90	0.92	1.53	3029	36	<0.01	29	0.13	104	16	19	10	<5	<3	5322
33701	0.2	1.57	<3	389	106	0.78	4.7	24	58	20	3.91	0.33	0.48	305	24	<0.01	<1	0.11	76	12	12	221	23	11	122
33702	0.5	0.77	15	127	7	0.36	4.8	32	67	81	2.39	0.26	0.18	207	22	<0.01	<1	0.04	53	10	8	138	5	<3	25
33703	<0.1	0.25	<3	118	113	0.04	2.7	13	25	5	2.31	0.25	0.01	29	15	<0.01	<1	0.02	28	18	<2	5	21	<3	28
33704	<0.1	1.14	11	36	<3	2.33	5.5	27	102	276	2.84	<0.01	0.49	239	20	<0.01	4	0.06	36	<2	6	38	<5	13	61
33705	<0.1	2.99	<3	18	53	1.07	6.3	30	71	67	4.47	0.27	1.75	657	23	<0.01	<1	0.08	41	<2	20	10	<5	<3	49
33706	33.0	1.18	>2000	583	<3	>10.00	14.6	15	36	35	4.40	<0.01	1.27	1877	18	<0.01	<1	0.06	265	<2	6	236	14	9	1573
33707	2.3	0.24	165	31	121	1.26	4.8	19	67	2288	4.30	0.24	0.10	1853	20	<0.01	<1	0.03	66	7	<2	17	<5	<3	98
33708	5.4	0.83	223	36	127	0.16	6.1	14	117	2408	4.58	0.54	0.15	134	30	<0.01	<1	0.06	416	21	9	2	<5	8	308
33709	17.3	1.26	1096	23	939	1.01	5.2	18	77	>20000	6.79	0.51	0.28	1004	25	<0.01	<1	<0.01	192	<2	15	20	6	<3	151
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

1630 PANDORA STREET
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VGC VANGEOCHEM LAB LIMITED

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BRANCH OFFICES
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MISSISSAUGA, ONT
RENO, NEVADA, U.S.A.

ASSAY ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: AUG 27 1990
REPORT#: 900249 AA
JOB#: 900249

PROJECT#: SM
SAMPLES ARRIVED: AUG 16 1990
REPORT COMPLETED: AUG 27 1990
ANALYSED FOR: Au

INVOICE#: 900249 NA
TOTAL SAMPLES: 1
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 1 ROCK

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

[illegible]
VANCOUVER, BC V5L 1L6
(604) 251-5656

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REPORT NUMBER: 900249 AA JOB NUMBER: 900249 **OREQUEST CONSULTANTS LTD.**

SAMPLE #	Au oz/st
33046	.801

DETECTION LIMIT .005

1 Troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: [signature]

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ASSAY ANALYTICAL REPORT

CLIENT: **OREQUEST CONSULTANTS LTD.**
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 07 1990
REPORT#: 900249 AB
JOB#: 900249

PROJECT#: SM
SAMPLES ARRIVED: AUG 16 1990
REPORT COMPLETED: SEPT 07 1990
ANALYSED FOR: Cu

INVOICE#: 900249 NA
TOTAL SAMPLES: 1
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 1 ROCK

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

1650 [illegible] ELT
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REPORT NUMBER: 900249 AB JOB NUMBER: 900249 OREQUEST CONSULTANTS LTD.

SAMPLE #	Cu %
33709	1.97

DETECTION LIMIT .01

1 troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

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VGC VANGEOCHEM LAB LIMITED

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GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 04 1990
REPORT#: 900314 GA
JOB#: 900314

PROJECT#: SANTA MARINA (SM)
SAMPLES ARRIVED: AUG 27 1990
REPORT COMPLETED: SEPT 04 1990
ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 900314 NA
TOTAL SAMPLES: 24
SAMPLE TYPE: 24 ROCK
REJECTS: SAVED

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

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REPORT NUMBER: 900314 GA JOB NUMBER: 900314 **OREQUEST CONSULTANTS LTD.** PAGE 1 OF 1

SAMPLE #	Au ppb
16801	1160
16802	680
16803	20
16804	1160
16805	4100
16806	8200
33255	100
33256	140
33257	30
33258	4500
33259	80
33260	40
33261	5500
33262	7800
33263	980
33264	150
33640	100
33641	30
33642	50
33643	30
33644	10
33645	30
33646	30
33647	20

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST:

REPORT #: 900314 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SANTA MARINA | DATE IN: AUG 27 1990 | DATE OUT: SEPT 11 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	*Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	*Pb	Sb	Sn	Sr	Ti	W	*Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
16801	1.8	0.68	<3	127	<3	1.19	2.1	9	48	4069	1.92	0.26	0.25	447	7	<0.01	16	0.06	46	4	5	20	<5	<3	68
16802	6.0	0.93	<3	67	<3	0.71	1.4	22	88	4712	4.21	0.25	0.31	388	15	<0.01	20	0.09	23	5	10	20	<5	<3	41
16803	1.6	0.85	5	144	<3	1.02	2.1	14	46	3078	3.10	0.26	0.39	392	20	<0.01	20	0.08	23	3	9	23	<5	<3	35
16804	7.0	0.34	<3	42	<3	0.42	2.0	9	90	10055	2.05	0.17	0.03	128	85	<0.01	26	0.02	35	4	5	14	<5	<3	33
16805	11.1	0.48	<3	78	<3	0.58	3.0	13	83	11622	2.02	0.20	0.05	158	99	<0.01	26	0.04	76	6	6	18	<5	<3	40
16806	19.5	0.44	<3	39	<3	0.53	2.6	17	57	8781	2.21	0.19	0.15	238	15	<0.01	34	0.02	48	5	6	20	<5	<3	43
33255	2.9	1.14	<3	233	<3	2.11	5.4	33	66	3864	4.83	0.30	0.49	656	35	<0.01	39	0.07	18	<2	14	53	<5	<3	58
33256	1.0	2.05	63	65	<3	1.25	7.9	111	69	172	>10.00	0.73	0.56	801	305	<0.01	55	0.04	48	26	42	24	<5	<3	89
33257	0.5	1.26	19	558	<3	3.49	2.7	14	68	1703	4.83	0.39	0.39	786	18	<0.01	40	0.09	24	<2	11	50	<5	<3	40
33258	4.7	0.71	7	113	<3	3.72	3.8	18	60	12965	4.01	0.38	0.14	814	68	<0.01	47	0.09	38	<2	10	51	<5	<3	63
33259	2.1	2.01	10	608	<3	1.43	6.0	26	65	6067	5.63	0.28	0.67	798	19	<0.01	52	0.12	12	<2	15	50	<5	<3	72
33260	1.1	2.64	16	360	<3	2.00	5.7	38	98	4068	5.69	0.32	1.11	1056	19	<0.01	57	0.13	12	<2	22	192	<5	<3	79
33261	5.7	0.42	11	92	<3	0.25	5.4	14	77	11651	2.19	0.10	0.09	164	24	<0.01	53	0.02	32	<2	7	16	<5	<3	53
33262	9.5	0.83	31	42	<3	1.71	7.6	19	139	>20000	6.10	0.29	0.21	667	43	<0.01	60	<0.01	9	<2	13	36	<5	<3	122
33263	2.2	1.17	22	147	<3	2.22	4.6	17	62	5018	2.46	0.25	0.32	519	16	<0.01	62	0.09	26	<2	11	92	<5	<3	54
33264	1.0	1.41	<3	203	<3	1.89	6.0	20	96	2399	3.22	0.27	0.51	573	13	<0.01	67	0.12	58	<2	12	42	<5	<3	68
33640	2.0	0.44	56	30	<3	0.15	7.6	13	55	174	7.94	0.23	0.07	640	21	<0.01	68	0.06	501	5	12	52	<5	<3	67
33641	3.6	0.71	82	120	<3	0.70	11.2	37	81	520	>10.00	0.37	0.19	8723	91	<0.01	83	0.05	155	16	21	34	<5	<3	172
33642	7.8	2.71	209	272	<3	1.25	10.8	27	71	5183	9.51	0.31	0.81	1973	29	<0.01	89	0.07	144	4	23	72	<5	<3	729
33643	1.5	0.37	25	199	<3	>10.00	8.1	16	68	102	3.92	0.33	0.90	3147	15	<0.01	82	0.03	65	<2	13	305	<5	<3	81
33644	1.0	0.28	<3	570	<3	5.05	29.9	18	63	669	6.07	0.35	0.15	3986	17	<0.01	86	0.01	1254	4	11	37	<5	<3	2468
33645	>50.0	0.56	257	16	<3	0.44	336.3	86	107	10991	>10.00	0.44	0.11	3607	29	<0.01	103	0.02	16686	25	33	31	<5	<3	>20000
33646	9.6	0.52	37	122	<3	3.29	16.4	19	245	674	4.05	0.25	0.19	2449	17	<0.01	93	0.04	340	19	11	50	<5	<3	741
33647	0.7	2.86	48	113	<3	2.77	9.7	30	52	84	5.86	0.32	1.63	2055	28	<0.01	121	0.24	72	<2	22	95	<5	<3	280
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

(- Less Than Minimum) - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

VGC VANGEOCHEM LAB LIMITED

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BRANCH OFFICES
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ASSAY ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: OCT 19 1990
REPORT#: 900314 AC
JOB#: 900314

PROJECT#: SANTA MARINA
SAMPLES ARRIVED: AUG 27 1990
REPORT COMPLETED: OCT 19 1990
ANALYSED FOR: Au

INVOICE#: 900314 NC
TOTAL SAMPLES: 4
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 4 ROCK PULP

SAMPLES FROM: W. RAVEN - OREQUEST
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

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REPORT NUMBER: 900314 AC JOB NUMBER: 900314 OREQUEST CONSULTANTS LTD. PAGE 1 OF 1

SAMPLE #	Au oz/st
16801	.044
16804	.296
16805	.140
33258	.132

DETECTION LIMIT .005

1 Troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

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ASSAY ANALYTICAL REPORT

CLIENT: **OREQUEST CONSULTANTS LTD.**
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 14 1990

REPORT#: 900314 AB
JOB#: 900314

PROJECT#: SANTA MARINA
SAMPLES ARRIVED: AUG 27 1990
REPORT COMPLETED: SEPT 14 1990
ANALYSED FOR: Cu Zn Ag

INVOICE#: 900314 NB
TOTAL SAMPLES: 2
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 2 ROCK

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____

Registered Provincial Assayer

GENERAL REMARK: None

1630 PANDORA STREET
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REPORT NUMBER: 980314 AB JOB NUMBER: 980314 ORDQUEST CONSULTANTS LTD.

SAMPLE #	Cu %	Zn %	Ag oz/st
33262	3.52	--	--
33645	--	3.68	2.70
DETECTION LIMIT	.01	.01	.01

1 Troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

1685 PARKER ST. E.
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ASSAY ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 04 1990
REPORT#: 900314 AA
JOB#: 900314

PROJECT#: SANTA MARINA (SM)
SAMPLES ARRIVED: AUG 27 1990
REPORT COMPLETED: SEPT 04 1990
ANALYSED FOR: Au

INVOICE#: 900314 NA
TOTAL SAMPLES: 3
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 3 ROCK

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

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REPORT NUMBER: 900314 AA JOB NUMBER: 900314 ~~ORSQUEST CONSULTANTS LTD.~~

SAMPLE #	Au oz/st
16806	.232
33261	.170
33262	.242

DETECTION LIMIT .005

1 Troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

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GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 12 1990
REPORT#: 900349 GA
JOB#: 900349

PROJECT#: SANTA MARINA
SAMPLES ARRIVED: AUG 31 1990
REPORT COMPLETED: SEPT 12 1990
ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 900349 NA
TOTAL SAMPLES: 13
SAMPLE TYPE: 13 ROCK
REJECTS: SAVED

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: MR. GEORGE CAVEY

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

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VANCOUVER, BC V5L 1L6
(604) 251-5656

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REPORT NUMBER: 900349 GA JOB NUMBER: 900349 ORDQUEST CONSULTANTS LTD. PAGE 1 OF 1

SAMPLE #	Au ppb
33639	20
33719	120
33720	10
33721	80
33722	40
33723	560
33724	30
33725	30
33726	60
33727	40
33728	160
33729	200
33730	100

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

1630 Pandora Street, Vancouver, B.C. V5L 1L6
PH:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST:

REPORT #: 900349 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SANTA MARINA | DATE IN: AUG 31 1990 | DATE OUT: OCT 2 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	*Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	*Pb	Sb	Sn	Sr	U	W	*Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
33639	0.2	0.35	<3	161	<3	0.15	0.6	18	61	7	1.55	0.05	0.03	111	4	0.01	4	<0.01	<2	4	8	13	<5	<3	6
33719	<0.1	0.53	<3	>1000	<3	>10.00	3.3	28	55	3	5.96	0.30	1.07	5759	11	0.03	10	0.01	38	16	7	336	<5	<3	246
33720	0.5	0.56	<3	24	<3	1.04	1.4	40	145	5	4.32	0.14	0.12	574	10	0.01	7	0.08	<2	6	6	47	<5	<3	24
33721	0.5	0.31	<3	9	<3	0.32	1.7	21	136	11	5.45	0.12	0.03	86	14	0.02	4	0.03	75	10	6	24	<5	<3	9
33722	1.3	0.32	<3	14	<3	0.29	0.6	14	130	473	2.35	0.07	0.01	43	19	<0.01	10	0.02	52	6	4	74	<5	<3	7
33723	2.2	0.16	<3	8	<3	0.12	1.4	19	96	16	5.60	0.10	0.01	26	115	0.01	13	<0.01	281	12	5	10	<5	<3	7
33724	0.2	0.97	<3	83	<3	1.03	0.1	12	77	14	2.45	0.13	0.43	538	8	0.02	3	0.06	<2	<2	6	53	<5	<3	34
33725	<0.1	0.42	<3	29	<3	0.54	0.4	12	80	34	2.23	0.09	0.06	118	12	0.01	5	0.05	18	4	6	37	<5	<3	7
33726	0.8	0.39	<3	14	<3	0.29	0.2	12	101	476	2.56	0.08	0.02	35	21	<0.01	3	0.04	49	5	4	40	<5	<3	5
33727	0.7	0.25	<3	29	<3	0.40	0.2	13	89	556	2.26	0.08	0.02	66	12	0.01	3	0.03	50	6	5	29	<5	<3	5
33728	0.5	0.29	<3	17	<3	0.25	<0.1	11	107	259	2.31	0.08	0.01	22	18	0.01	4	0.04	63	6	5	33	<5	<3	2
33729	0.4	0.42	<3	66	<3	0.51	<0.1	12	82	188	1.90	0.09	0.11	186	7	0.01	3	0.05	20	4	6	21	<5	<3	12
33730	0.5	0.50	<3	61	<3	0.38	<0.1	10	82	177	1.37	0.07	0.04	51	8	<0.01	2	0.04	34	<2	6	78	<5	<3	3
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

1630 PANDORA ...
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1900 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
(604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 10 1990
REPORT#: 900399 GA
JOB#: 900399

PROJECT#: SANTA MARINA (ARC)
SAMPLES ARRIVED: SEPT 06 1990
REPORT COMPLETED: SEPT 10 1990
ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 900399 NA
TOTAL SAMPLES: 3
SAMPLE TYPE: 3 ROCK
REJECTS: SAVED

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: MR. GEORGE CAVEY

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST~~
~~VANCOUVER, B.C. V5L 1K5~~
(604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD
BATHURST, N.B.
MISSISSAUGA ONT
RENO NEVADA, U.S.A.

REPORT NUMBER: 900399 GA JOB NUMBER: 900399 **OREQUEST CONSULTANTS LTD.**

SAMPLE #	Au ppb
33648	1600
33649	3600
33650	60

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED
1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST: _____

REPORT #: 900399 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SANTA MARINA (ARC) | DATE IN: SEPT 06 1990 | DATE OUT: SEPT 13 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
33648	10.2	0.80	249	193	272	2.77	26.0	14	92	10136	3.02	<0.01	0.11	703	8	<0.01	5	0.16	916	<2	7	28	<5	<3	708
33649	5.8	0.48	87	360	61	2.32	0.2	3	79	5646	1.63	<0.01	0.05	384	4	<0.01	<1	0.12	40	6	5	35	<5	<3	49
33650	0.1	1.01	26	630	<3	3.94	<0.1	3	80	2144	1.72	<0.01	0.38	492	7	<0.01	<1	0.11	8	3	9	99	<5	<3	34
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

ASSAY ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: OCT 19 1990

REPORT#: 900399 AA
JOB#: 900399

PROJECT#: SANTA MARINA (ARC)
SAMPLES ARRIVED: SEPT 06 1990
REPORT COMPLETED: OCT 19 1990
ANALYSED FOR: Au

INVOICE#: 900399 NB
TOTAL SAMPLES: 2
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 2 ROCK PULP

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: MR. GEORGE CAVEY

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

REPORT NUMBER: 900399 AA JOB NUMBER: 900399 ORBQUEST CONSULTANTS LTD.

SAMPLE #	Au oz/st
33648	.044
33649	.102

DETECTION LIMIT .005

1 troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: OCT 02 1990

REPORT#: 900623 GA
JOB#: 900623

PROJECT#: SM ARC
SAMPLES ARRIVED: OCT 01 1990
REPORT COMPLETED: OCT 02 1990
ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 900623 NA
TOTAL SAMPLES: 2
SAMPLE TYPE: 2 ROCK
REJECTS: SAVED

SAMPLES FROM: MR. W. RAVEN
COPY SENT TO: OREQUEST CONSULTANTS LTD.

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

REPORT NUMBER: 900623 GA JOB NUMBER: 900623 **ORREQUEST CONSULTANTS LTD.** PAGE 1 OF 1

SAMPLE #	Au ppb
33651	30
33652	20

DETECTION LIMIT 5

nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST: _____

REPORT #: 900623 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SK ARC | DATE IN: OCT 01 1990 | DATE OUT: NOV 5 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
33651	0.7	1.00	<3	149	<3	4.71	1.7	6	66	1014	1.87	0.22	0.35	816	6	0.05	3	0.07	31	<2	<2	59	<5	<3	80
33652	0.4	4.03	<3	243	<3	2.66	2.4	23	53	1653	5.96	0.27	2.13	1507	13	0.08	3	0.14	<2	<2	<2	327	<5	<3	161
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

TSL LABORATORIES
DIV. BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX. (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9441

INVOICE #: 14631
P.O.: SANTA MARINA

SAMPLE(S) OF Soils

W. Raven
Project:ACR

	Au ppb
SM L1 0+00	10
SM L1 0+50	5
SM L1 1+00	15
SM L1 1+50	5
SM L1 2+00	20
SM L1 2+50	15
SM L1 3+00	10
SM L1 3+50	20
SM L1 4+00	15
SM L1 4+50	85
SM L1 5+00	10
SM L1 5+50	30
SM L1 6+00	20
SM L1 6+50	10
SM L1 7+00	10
SM L1 7+50	15
SM L1 8+00	10
SM L1 9+00	20
SM L1 9+50	5
SM L1 10+00	5

COPIES TO: W. Raven
INVOICE TO: OreQuest - Vancouver

Aug 15/90

SIGNED _____

CTA

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: J. CHAPMAN, B. DEWONCK PROJECT: ARC SANTA MARINA

T.S.L. REPORT No. : S - 9441 - 1
T.S.L. File No. :
T.S.L. Invoice No. : 14905

ALL RESULTS PPM

ELEMENT		SML1 0+00	SML1 0+50	SML1 1+00	SML1 1+50	SML1 2+00	SML1 2+50	SML1 3+00	SML1 3+50	SML1 4+00	SML1 4+50
Aluminum	[Al]	36000	34000	29000	25000	38000	22000	21000	13000	22000	15000
Iron	[Fe]	32000	43000	29000	41000	30000	34000	34000	48000	30000	31000
Calcium	[Ca]	1600	4500	2800	1500	2200	3000	3700	2000	2000	4100
Magnesium	[Mg]	5300	5100	4700	2900	3900	4500	5200	2100	4200	5500
Sodium	[Na]	190	1700	290	260	90	230	500	420	210	300
Potassium	[K]	530	950	440	420	350	460	600	440	490	480
Titanium	[Ti]	430	4400	910	1900	710	1400	1300	2800	1200	720
Manganese	[Mn]	1200	900	650	980	690	700	950	260	410	920
Phosphorus	[P]	690	780	900	810	1100	750	850	840	850	820
Barium	[Ba]	96	92	53	41	43	58	74	34	50	110
Chromium	[Cr]	16	17	17	16	17	17	17	14	16	16
Zirconium	[Zr]	4	27	5	14	7	5	7	20	5	4
Copper	[Cu]	31	17	41	19	32	29	43	19	32	23
Nickel	[Ni]	12	10	11	7	9	10	13	6	9	12
Lead	[Pb]	30	14	15	15	9	14	19	11	14	23
Zinc	[Zn]	70	57	58	63	50	86	130	39	54	120
Vanadium	[V]	56	93	61	79	60	77	68	129	71	67
Strontium	[Sr]	25	47	37	20	28	29	32	26	28	28
Cobalt	[Co]	12	12	13	9	12	10	12	4	6	11
Molybdenum	[Mo]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Yttrium	[Y]	10	10	8	7	8	7	12	5	6	7
Scandium	[Sc]	3	6	3	1	3	2	4	2	2	3
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	40	30	20	40	20	20	40	20	30	40
Arsenic	[As]	10	< 5	10	15	< 5	25	< 5	< 5	10	15
Bismuth	[Bi]	10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	25	25	30	25	30	30	25	25	25	25
Holmium	[Ho]	20	140	40	70	30	50	60	100	50	30

DATE : AUG-25-1990

SIGNED : Bernie Dunn

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A9
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: J. CHAPMAN, B. DEWONCK

T.S.L. REPORT No. : S - 9441 - 2
T.S.L. File No. :
T.S.L. Invoice No. : 14705

PROJECT: ARC SANTA MARINA

ALL RESULTS PPM

ELEMENT		SML1 5+00	SML1 5+50	SML1 6+00	SML1 6+50	SML1 7+00	SML1 7+50	SML1 8+00	SML1 9+00	SML1 9+50	SML1 10+00
Aluminum	[Al]	21000	24000	18000	18000	24000	20000	17000	22000	34000	21000
Iron	[Fe]	31000	46000	33000	38000	38000	38000	34000	41000	25000	27000
Calcium	[Ca]	7700	6600	4900	4800	6300	7000	5600	7300	2200	3800
Magnesium	[Mg]	5200	7300	5700	5800	6100	6400	5800	6700	2700	3600
Sodium	[Na]	3500	1200	290	450	2000	1800	540	1200	420	1600
Potassium	[K]	1500	650	540	630	1100	970	560	820	480	820
Titanium	[Ti]	2800	1500	890	1100	2300	2000	1100	1500	2200	2500
Manganese	[Mn]	800	1500	920	1100	1200	1000	1000	1200	1000	290
Phosphorus	[P]	780	770	800	870	920	830	840	840	1200	670
Barium	[Ba]	99	130	98	120	110	110	94	160	120	70
Chromium	[Cr]	8	22	18	17	16	18	17	31	18	11
Zirconium	[Zr]	18	10	5	6	10	9	6	8	13	11
Copper	[Cu]	15	99	41	71	58	44	68	65	26	16
Nickel	[Ni]	10	38	14	19	15	17	12	36	9	6
Lead	[Pb]	6	60	26	62	33	31	31	50	17	12
Zinc	[Zn]	54	480	190	250	150	210	220	420	76	33
Vanadium	[V]	76	73	66	71	78	75	65	69	72	69
Strontium	[Sr]	89	44	32	32	63	57	35	48	20	43
Cobalt	[Co]	11	22	13	15	17	15	15	20	10	7
Molybdenum	[Mo]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	4	1	1	1	1	2	3	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	3	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Yttrium	[Y]	7	12	11	12	12	11	11	10	46	15
Scandium	[Sc]	3	6	4	5	5	5	5	5	2	2
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	10	< 10
Thorium	[Th]	30	40	40	20	30	40	30	40	50	50
Arsenic	[As]	< 5	35	< 5	< 5	10	< 5	10	10	< 5	< 5
Bismuth	[Bi]	< 5	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	20	30	25	25	25	25	25	25	25	15
Holmium	[Ho]	90	60	40	50	80	80	40	60	80	90

DATE : AUG-25-1990

SIGNED : Bernie Dunn

1630 [illegible]
VANCOUVER, BC V5L 1E6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254 5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B
MISSISSAUGA, ONT
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 06 1990
REPORT#: 900350 GA
JOB#: 900350

PROJECT#: SANTA MARINA
SAMPLES ARRIVED: AUG 31 1990
REPORT COMPLETED: SEPT 06 1990
ANALYSED FOR: Au ICP

INVOICE#: 900350 NA
TOTAL SAMPLES: 5
SAMPLE TYPE: 5 SOIL
REJECTS: DISCARDED

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: MR. GEORGE CAVEY

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1988 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

REPORT NUMBER: 900350 GA JOB NUMBER: 900350 **OREQUEST CONSULTANTS LTD.**

SAMPLE #	Au ppb
SM L4500 0+00N	20
SM L4500 0+50N	30
SM L4500 1+00N	20
SM L4500 1+50N	10
SM L4500 2+00N	35

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED
1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST: _____

REPORT #: 900350 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SANTA MARINA | DATE IN: AUG 31 1990 | DATE OUT: OCT 01 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SM L4500 0+00N	0.1	3.01	<3	200	<3	2.32	3.0	44	28	121	5.30	0.28	1.56	2752	12	0.05	26	0.07	<2	<2	17	58	<5	<3	176
SM L4500 0+50N	0.2	2.86	<3	157	<3	0.59	3.2	59	26	250	6.76	0.21	0.99	2463	19	0.03	31	0.11	<2	<2	14	82	<5	<3	189
SM L4500 1+00N	<0.1	4.09	<3	102	<3	0.28	0.7	22	20	35	5.02	0.13	0.47	754	14	0.03	8	0.05	<2	<2	20	43	<5	<3	105
SM L4500 1+50N	0.1	3.30	<3	79	<3	0.37	1.0	26	23	30	5.33	0.13	0.46	823	17	0.02	7	0.07	<2	<2	20	44	<5	<3	110
SM L4500 2+00N	0.8	4.75	<3	184	<3	1.09	1.9	72	41	294	5.58	0.22	1.12	2915	21	0.04	26	0.10	<2	<2	21	152	<5	<3	212
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1966 TRIUMPH ST~~
~~VANCOUVER, B.C. V5L 1K5~~
• (604) 251-5656
• FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: SEPT 14 1990
REPORT#: 900395 GA
JOB#: 900395

PROJECT#: SM (ARC)
SAMPLES ARRIVED: SEPT 05 1990
REPORT COMPLETED: SEPT 14 1990
ANALYSED FOR: Au ICP

INVOICE#: 900395 NA
TOTAL SAMPLES: 19
SAMPLE TYPE: 19 SOIL
REJECTS: DISCARDED

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: MR. GEORGE CAVEY

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

1630 PANDORA STREET
VANCOUVER, BC V5L 1L6
(604) 251-5656

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
~~1088 TRIUMPH ST.~~
~~VANCOUVER, B.C. V5L 1K5~~
● (604) 251-5656
● FAX (604) 254-5717

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A

REPORT NUMBER: 900395 GA JOB NUMBER: 900395 **OREQUEST CONSULTANTS LTD.**

SAMPLE #	Au ppb
L4000 0+00W	15
L4000 0+50W	15
L4000 1+50W	25
L4000 2+00W	nd
L4000 2+50W	1935
L4000 3+00W	30
L4500 0+00W	15
L4500 0+50W	30
L4500 1+00W	25
L4500 1+50W	nd
L4500 2+00W	nd
L4500 2+50W	nd
L4500 3+00W	25
L4500 3+50W	30
L4500 4+00W	20
L4500 4+50W	20
L4500 5+00W	10
L4500 5+50W	25
L4500 6+00W	nd

DETECTION LIMIT 5
nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED
1630 Pandora Street, Vancouver, B.C. V5L 1L6
Ph:(604)251-5656 Fax:(604)254-5717

ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST: _____

REPORT #: 900395 PA | OREQUEST CONSULTANTS LTD. | PROJECT: SM (ARC) | DATE IN: SEPT 05 1990 | DATE OUT: OCT 05 1990 | ATTENTION: MR. GEORGE CAVEY | PAGE 1 OF 1

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
L4000 0+00W	<0.1	4.04	<3	73	<3	0.26	2.8	12	26	41	4.18	0.08	0.51	498	9	0.04	25	0.09	12	<2	14	39	<5	<3	79
L4000 0+50W	<0.1	2.62	<3	143	<3	0.37	2.5	19	27	44	3.87	0.09	0.77	789	9	0.06	25	0.05	29	<2	12	56	<5	<3	97
L4000 1+50W	<0.1	2.78	<3	285	<3	0.85	2.6	23	24	32	4.38	0.16	0.66	1911	9	0.06	21	0.13	27	<2	13	75	<5	<3	136
L4000 2+00W	<0.1	3.38	<3	59	<3	0.23	2.9	17	22	32	4.98	0.08	0.32	628	9	0.05	15	0.11	21	<2	18	29	5	<3	58
L4000 2+50W	1.1	2.36	<3	107	<3	0.37	5.2	14	19	134	5.49	0.10	0.43	1464	12	0.07	12	0.09	154	<2	12	40	<5	<3	349
L4000 3+00W	<0.1	2.65	<3	126	<3	0.36	2.9	15	18	34	4.33	0.09	0.31	822	9	0.05	13	0.09	21	<2	15	48	<5	<3	84
L4500 0+00W	<0.1	2.63	<3	193	<3	0.68	3.3	26	14	109	4.58	0.14	0.99	1416	9	0.08	20	0.11	20	<2	12	81	<5	<3	93
L4500 0+50W	0.1	2.42	<3	514	<3	0.58	3.4	38	15	90	4.32	0.12	0.47	2598	13	0.06	10	0.11	26	<2	12	51	<5	<3	117
L4500 1+00W	<0.1	2.58	<3	436	<3	0.42	2.7	25	15	80	4.47	0.10	0.51	962	11	0.05	11	0.08	24	<2	12	47	<5	<3	102
L4500 1+50W	<0.1	3.43	<3	103	<3	0.19	2.5	14	20	33	4.76	0.08	0.38	478	10	0.06	12	0.08	19	<2	16	27	5	<3	72
L4500 2+00W	<0.1	3.29	<3	135	<3	0.26	3.1	15	18	30	4.37	0.09	0.43	473	9	0.05	13	0.05	22	<2	15	39	<5	<3	69
L4500 2+50W	<0.1	4.24	<3	302	<3	0.36	2.8	21	26	36	5.10	0.11	0.65	1188	10	0.07	29	0.08	20	<2	17	26	<5	<3	84
L4500 3+00W	<0.1	4.02	<3	118	<3	0.23	3.2	36	20	89	5.02	0.09	0.81	1595	9	0.07	16	0.06	16	<2	16	42	<5	<3	118
L4500 3+50W	<0.1	4.18	<3	138	<3	0.43	2.4	32	17	46	4.32	0.11	0.50	1186	9	0.11	12	0.10	12	<2	19	38	<5	<3	87
L4500 4+00W	0.1	2.95	<3	174	<3	0.31	3.5	18	27	53	4.60	0.09	0.83	813	8	0.05	22	0.07	25	<2	14	43	<5	<3	119
L4500 4+50W	<0.1	3.10	<3	100	<3	0.48	2.9	25	32	76	4.62	0.12	0.96	1045	9	0.07	24	0.09	26	<2	14	56	<5	<3	117
L4500 5+00W	<0.1	3.22	<3	91	<3	0.28	2.6	19	27	42	4.15	0.09	0.50	750	11	0.07	12	0.07	26	<2	17	32	5	<3	86
L4500 5+50W	<0.1	2.77	<3	180	<3	0.58	2.9	28	29	49	4.81	0.13	0.86	1227	10	0.06	24	0.08	31	<2	15	52	<5	<3	102
L4500 6+00W	<0.1	5.58	<3	58	<3	0.70	3.6	34	20	58	5.50	0.16	0.79	711	10	0.12	13	0.08	14	<2	28	67	<5	<3	53
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

ASSAY ANALYTICAL REPORT

CLIENT: OREQUEST CONSULTANTS LTD.
ADDRESS: 306 - 595 Howe St.
: Vancouver, BC
: V6C 2T5

DATE: OCT 19 1990

REPORT#: 900395 AA
JOB#: 900395

PROJECT#: SM (ARC)
SAMPLES ARRIVED: SEPT 05 1990
REPORT COMPLETED: OCT 19 1990
ANALYSED FOR: Au

INVOICE#: 900395 NB
TOTAL SAMPLES: 1
REJECTS/PULPS: 90 DAYS/1 YR
SAMPLE TYPE: 1 SOIL PULP

SAMPLES FROM: OREQUEST CONSULTANTS LTD.
COPY SENT TO: MR. GEORGE CAVEY

PREPARED FOR: MR. GEORGE CAVEY

ANALYSED BY: Raymond Chan

SIGNED: _____
Registered Provincial Assayer

GENERAL REMARK: None

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

REPORT NUMBER: 900395 AA JOB NUMBER: 900395 OREQUEST CONSULTANTS LTD. PAGE 1 OF 1

SAMPLE #	Au oz/st
L4000 2+50W	.042

DETECTION LIMIT .005

1 Troy oz/short ton = 34.28 ppm 1 ppm = 0.0001% ppm = parts per million < = less than

signed: _____

TSL LABORATORIES
DIV. BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX: (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9503

INVOICE #: 14690
P.O.: R-2088

SAMPLE(S) OF Silt

W. Raven
Project: SANTA MARINA

	Au ppb
SM-S-2	5
SM-S-3	<5
SM-S-4	<5
SM-S-5	<5
SM-S-6	<5
SM-S-7	<5
SM-S-8	<5
SM-S-9	<5
SM-S-11	35
SM-S-12	10
SM-S-13	<5
SM-S-14	5
SM-S-15	10
SM-S-17	5

COPIES TO: B. Dewonck, J. Chapman
INVOICE TO: OreQuest - Vancouver

Aug 17/90

SIGNED Bernie Dunn

CTA

[illegible] LABORATORIES

[illegible]

I.C.A.P. PLASMA SCAN

Soils Peels Digestion

PROJECT COMPLIANCE LTD.
[illegible]
ANCOUVER, B.C.
[illegible]
ATTN: B. DEWONCK, J. CHAPMAN PROJECT: APE ENVIR ANALYSIS [illegible]

ELEMENT		SM-S-2	SM-S-3	SM-S-4	SM-S-5	SM-S-6	SM-S-7	SM-S-8	SM-S-9	SM-S-10	SM-S-12
Aluminum	[Al]	6750	7500	7600	8100	8100	[illegible]	[illegible]	8200	[illegible]	[illegible]
Iron	[Fe]	35000	25000	21000	20000	24000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Calcium	[Ca]	5100	4800	7500	8500	12000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium	[Mg]	4100	3500	3500	3700	4000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sodium	[Na]	190	90	130	220	170	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Potassium	[K]	690	330	340	350	310	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Titanium	[Ti]	320	230	280	470	420	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Manganese	[Mn]	430	440	430	420	470	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Phosphorus	[P]	830	1000	960	910	960	[illegible]	[illegible]	[illegible]	950	[illegible]
Barium	[Ba]	270	95	77	72	66	[illegible]	[illegible]	67	[illegible]	[illegible]
Chromium	[Cr]	110	8	9	6	8	9	9	7	8	15
Zirconium	[Zr]	5	4	4	5	5	6	4	5	5	5
Copper	[Cu]	31	10	10	11	15	17	17	12	14	20
Nickel	[Ni]	47	9	7	8	8	7	7	7	7	9
Lead	[Pb]	9	6	9	9	6	11	6	8	8	15
Zinc	[Zn]	48	48	47	52	76	64	52	68	[illegible]	[illegible]
Vanadium	[V]	47	35	34	31	39	38	40	42	46	57
Strontium	[Sr]	41	37	33	40	42	39	33	38	34	42
Cobalt	[Co]	24	5	5	5	6	6	5	5	7	9
Molybdenum	[Mo]	14	< 2	2	2	2	2	2	2	< 2	< 2
Silver	[Ag]	1	< 1	1	1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	1	< 1	< 1	< 1	1	1	1	1	< 1
Beryllium	[Be]	< 1	1	1	< 1	< 1	1	1	1	1	1
Boron	[B]	< 10	< 10	10	10	20	10	10	10	10	10
Antimony	[Sb]	< 5	< 5	< 5	< 5	5	< 5	< 5	< 5	5	5
Yttrium	[Y]	7	7	6	6	7	7	6	6	7	9
Scandium	[Sc]	2	2	2	2	2	2	2	2	2	2
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	10	10	10	< 10	10
Niobium	[Nb]	< 10	10	10	10	< 10	10	10	10	10	< 10
Thorium	[Th]	10	60	60	60	70	50	50	70	50	30
Arsenic	[As]	5	10	5	5	5	10	5	5	5	10
Bismuth	[Bi]	< 5	< 5	5	< 5	< 5	10	5	5	5	< 5
Tin	[Sn]	10	< 10	10	10	< 10	10	10	10	10	< 10
Lithium	[Li]	5	5	5	10	10	15	10	10	10	15
Holmium	[Ho]	10	10	10	10	< 10	10	10	10	10	< 10

DATE : AUG-27-1990

SIGNED : Bernie Dunn

T S L LABORATORIES

[illegible]

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

GREGUSSEN CONSULTANTS LTD.
204 - 595 HOWE STREET
VANCOUVER B.C.
V6C 2T5
ATTN: B. GENGNON, J. CHAPMAN PROJECT: APC SOUTH VARIOUS P.O.

[illegible]

ELEMENT		SM-S-12	SM-S-14	SM-S-15	SM-S-17
Aluminum	[Al]	16000	14000	[illegible]	[illegible]
Iron	[Fe]	32000	30000	[illegible]	[illegible]
Calcium	[Ca]	4200	4300	[illegible]	3500
Magnesium	[Mg]	5400	5000	[illegible]	6100
Sodium	[Na]	210	150	[illegible]	190
Potassium	[K]	610	490	[illegible]	450
Titanium	[Ti]	530	520	[illegible]	[illegible]
Manganese	[Mn]	700	590	[illegible]	[illegible]
Phosphorus	[P]	730	660	[illegible]	[illegible]
Barium	[Ba]	130	120	[illegible]	130
Chromium	[Cr]	34	12	[illegible]	[illegible]
Zirconium	[Zr]	9	7	[illegible]	6
Copper	[Cu]	28	23	[illegible]	[illegible]
Nickel	[Ni]	21	[illegible]	[illegible]	[illegible]
Lead	[Pb]	15	12	[illegible]	[illegible]
Zinc	[Zn]	110	75	[illegible]	[illegible]
Vanadium	[V]	46	44	[illegible]	[illegible]
Strontium	[Sr]	25	25	[illegible]	[illegible]
Cobalt	[Co]	10	9	[illegible]	[illegible]
Molybdenum	[Mo]	< 2	< 2	[illegible]	< 2
Silver	[Ag]	< 1	< 1	[illegible]	< 1
Cadmium	[Cd]	< 1	< 1	[illegible]	2
Beryllium	[Be]	< 1	< 1	[illegible]	1
Boron	[B]	< 10	< 10	[illegible]	< 10
Antimony	[Sb]	< 5	< 5	[illegible]	5
Yttrium	[Y]	9	5	[illegible]	7
Scandium	[Sc]	4	3	[illegible]	4
Tungsten	[W]	< 10	< 10	[illegible]	< 10
Niobium	[Nb]	< 10	< 10	[illegible]	< 10
Thorium	[Th]	20	20	[illegible]	30
Arsenic	[As]	10	15	[illegible]	< 5
Bismuth	[Bi]	< 5	< 5	[illegible]	< 5
Tin	[Sn]	< 10	< 10	[illegible]	10
Lithium	[Li]	10	10	[illegible]	10
Holmium	[Ho]	< 10	< 10	[illegible]	10

DATE : AUG-27-1990

SIGNED : Bernie Dunn

TSL LABORATORIES
DIV BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No. S9622

INVOICE #: 14872
P.O.: R-2234

SAMPLE(S) OF Silts

W. Raven
Project: ARC

REMARKS: Santa Marina

	Au ppb
SM-S-101	<5
SM-S-102	<5
SM-S-103	<5
SM-S-104	30
SM-S-105	<5
SM-S-106	<5
SM-S-251	60
SM-S-252	20
SM-S-254	15
SM-S-255	<5
SM-S-256	<5
SM-S-257	10

COPIES TO: B. Dewonck, J. Chapman
INVOICE TO: OreQuest - Vancouver

Aug 24/90

SIGNED Bernie Dunn

CTA

T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: J. CHAPMAN PROJECT: ARC SANTA MARIA R-2224

T.S.L. REPORT No. : S - 9621 - I
T.S.L. File No. : 9147747
T.S.L. Invoice No. : 15158

ALL RESULTS PPM

ELEMENT		SM-S-101	SM-S-102	SM-S-103	SM-S-104	SM-S-105	SM-S-106	SM-S-251	SM-S-252	SM-S-254	SM-S-255
Aluminum	[Al]	24000	39000	24000	35000	31000	29000	21000	16000	25000	22000
Iron	[Fe]	34000	53000	39000	44000	37000	38000	44000	40000	40000	35000
Calcium	[Ca]	16000	19000	9900	7800	12000	14000	18000	10000	13000	33000
Magnesium	[Mg]	6500	9600	6600	6700	7300	6900	7200	6600	5700	8300
Sodium	[Na]	2000	8500	1400	350	690	960	700	310	440	530
Potassium	[K]	1400	3600	1600	1200	2000	1900	1100	980	1900	1200
Titanium	[Ti]	2000	7100	1900	1600	1000	1500	1200	1000	1900	1400
Manganese	[Mn]	830	840	960	1200	1100	950	1500	950	540	1200
Phosphorus	[P]	760	610	710	660	690	750	970	920	670	960
Barium	[Ba]	450	280	710	610	810	930	200	150	220	220
Chromium	[Cr]	110	23	130	260	66	68	11	17	130	220
Zirconium	[Zr]	10	33	9	19	7	9	8	9	9	12
Copper	[Cu]	42	20	41	57	65	65	150	66	76	72
Nickel	[Ni]	50	22	54	100	29	35	20	11	54	87
Lead	[Pb]	20	1	17	22	15	11	35	15	9	9
Zinc	[Zn]	150	100	120	150	150	160	190	130	160	94
Vanadium	[V]	81	130	82	98	78	82	72	66	110	67
Strontium	[Sr]	260	210	87	74	140	170	90	68	70	150
Cobalt	[Co]	16	23	16	17	14	14	32	17	16	20
Molybdenum	[Mo]	4	< 2	4	6	2	2	4	< 2	< 2	6
Silver	[Ag]	< 1	1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	10	< 5	< 5	< 5	< 5	< 5	10	< 5	10	10
Yttrium	[Y]	13	16	17	16	27	25	15	12	11	17
Scandium	[Sc]	4	9	4	5	5	5	5	4	7	5
Tungsten	[W]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	130	430	90	< 10	230	130	330	710	320	< 10
Arsenic	[As]	< 5	< 5	10	< 5	15	< 5	20	10	< 5	10
Bismuth	[Bi]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Litnium	[Li]	15	10	15	15	20	20	15	15	20	20
Holmium	[Ho]	40	140	40	40	20	30	30	20	40	30

DATE : SEP-01-1990

SIGNED : Bernie Ann

T S L LABORATORIES
2-302-48T- STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

GREENEST CONSULTANTS
C/o 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: J. CHAPMAN PROJECT: ARC SANTA MARIA R-2234

T.S.L. REPORT No. : S - 9622 - I
T.S.L. File No. : E1M7743
T.S.L. Invoice No. : 15158

ALL RESULTS PPM

ELEMENT		SM-S-256	SM-S-257
Aluminum	[Al]	20000	23000
Iron	[Fe]	40000	36000
Calcium	[Ca]	12000	18000
Magnesium	[Mg]	7300	8200
Sodium	[Na]	250	820
Potassium	[K]	1200	1300
Titanium	[Ti]	660	1400
Manganese	[Mn]	1300	1300
Phosphorus	[P]	810	970
Barium	[Ba]	260	390
Chromium	[Cr]	410	110
Zirconium	[Zr]	4	10
Copper	[Cu]	120	85
Nickel	[Ni]	170	44
Lead	[Pb]	25	17
Zinc	[Zn]	99	120
Vanadium	[V]	78	94
Strontium	[Sr]	79	75
Cobalt	[Co]	17	16
Molybdenum	[Mo]	4	< 2
Silver	[Ag]	< 1	< 1
Cadmium	[Cd]	< 1	< 1
Beryllium	[Be]	< 1	< 1
Boron	[B]	< 10	< 10
Antimony	[Sb]	20	5
Yttrium	[Y]	12	15
Scandium	[Sc]	4	6
Tungsten	[W]	< 10	< 10
Niobium	[Nb]	< 10	< 10
Thorium	[Th]	< 10	150
Arsenic	[As]	45	15
Bismuth	[Bi]	< 5	< 5
Tin	[Sn]	< 10	< 10
Lithium	[Li]	15	20
Holmium	[Ho]	10	30

DATE : SEP-01-1990

SIGNED : Bernice Dunn

TSL LABORATORIES
DIV BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX (306) 242-4717

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SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S9623

INVOICE #: 14873
P.O.: R-2235

SAMPLE(S) OF Silts

W. Raven
Project: ARC

REMARKS: Santa Marina

	Au ppb
SM-S-260	<5
SM-S-261	30
SM-S-262	20
SM-S-264	20
SM-S-265	25
SM-S-266	15
SM-S-269	10

COPIES TO: B. Dewonck, J. Chapman
INVOICE TO: OreQuest Vancouver

Aug 24/90

SIGNED Bernie Dunn

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TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

OREQUEST CONSULTANTS LTD.
306 - 395 HOWE STREET
VANCOUVER, B.C.
V6C 2T5
ATTN: J. CHAPMAN PROJECT: ARC SANTA MARINA R-2235

T.S.L. REPORT No. : S - 9623 - 1
T.S.L. File No. : E:M7729
T.S.L. Invoice No. : 15118

ALL RESULTS PPM

ELEMENT		SM-S-260	SM-S-261	SM-S-262	SM-S-264	SM-S-265	SM-S-266	SM-S-269
Aluminum	[Al]	15000	8700	16000	16000	12000	11000	15000
Iron	[Fe]	32000	22000	29000	30000	25000	25000	29000
Calcium	[Ca]	7500	6500	7200	5500	8100	6300	9500
Magnesium	[Mg]	6200	4000	5000	5000	5100	5500	4300
Sodium	[Na]	310	100	270	180	360	160	520
Potassium	[K]	690	420	680	730	590	380	680
Titanium	[Ti]	660	350	880	630	730	490	1000
Manganese	[Mn]	690	640	830	1000	690	800	930
Phosphorus	[P]	600	640	840	860	640	620	980
Barium	[Ba]	77	77	150	110	80	73	230
Chromium	[Cr]	270	180	50	79	210	16	10
Zirconium	[Zr]	3	1	6	2	2	2	11
Copper	[Cu]	200	42	55	43	33	24	26
Nickel	[Ni]	110	76	25	32	82	9	7
Lead	[Pb]	16	5	10	11	5	5	7
Zinc	[Zn]	99	47	80	75	57	55	63
Vanadium	[V]	68	52	66	67	58	50	61
Strontium	[Sr]	49	34	49	41	40	33	69
Cobalt	[Co]	35	9	10	10	9	7	7
Molybdenum	[Mo]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Silver	[Ag]	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	[Cd]	1	< 1	< 1	< 1	< 1	< 1	< 1
Beryllium	[Be]	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	< 5	< 5	5	< 5	< 5	5
Yttrium	[Y]	9	6	9	9	6	6	10
Scandium	[Sc]	3	2	4	3	3	2	3
Tungsten	[W]	< 10	10	< 10	< 10	< 10	< 10	< 10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	< 10	< 10	20	20	< 10	30	60
Arsenic	[As]	70	10	< 5	< 5	< 5	10	5
Bismuth	[Bi]	10	< 5	< 5	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	10	< 5	5	5	5	< 5	10
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10	< 10

DATE : AUG-30-1990

SIGNED : Dennis Pilipiak

TSL LABORATORIES
DIV. BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX: (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No. S1147

INVOICE #: 15880
P.O.: R-2088

SAMPLE(S) OF Heavy Sediment

W. Raven
Project: Santa Maria

	Au ppb
SM-HS-16	150

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INVOICE TO: OreQuest - Vancouver

Oct 12/90

SIGNED Bernie Quinn

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T S L LABORATORIES
2-302-48TH STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #:(306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

GREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN

T.S.L. REPORT No. : S - 1147 - 1
T.S.L. File No. : M - 8215
T.S.L. Invoice No. : 15880

PROJECT: SANTA MARIA

ALL RESULTS PPM

ELEMENT		SM-H5-16
Aluminum	[Al]	6700
Iron	[Fe]	98000
Calcium	[Ca]	6300
Magnesium	[Mg]	3300
Sodium	[Na]	60
Potassium	[K]	150
Titanium	[Ti]	500
Manganese	[Mn]	320
Phosphorus	[P]	1500
Barium	[Ba]	6
Chromium	[Cr]	17
Zirconium	[Zr]	6
Copper	[Cu]	260
Nickel	[Ni]	39
Lead	[Pb]	410
Zinc	[Zn]	1200
Vanadium	[V]	54
Strontium	[Sr]	45
Cobalt	[Co]	65
Molybdenum	[Mo]	6
Silver	[Ag]	< 1
Cadmium	[Cd]	11
Beryllium	[Be]	< 1
Boron	[B]	< 10
Antimony	[Sb]	< 5
Yttrium	[Y]	8
Scandium	[Sc]	1
Tungsten	[W]	< 10
Niobium	[Nb]	< 10
Thorium	[Th]	80
Arsenic	[As]	65
Bismuth	[Bi]	20
Tin	[Sn]	< 10
Lithium	[Li]	< 5
Holmium	[Ho]	< 10

DATE : OCT-11-1990

SIGNED : Bernie Dunn

TSL LABORATORIES
DIV BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX (306) 242-4717

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S1148

INVOICE #: 15881
P.O.: R-2234

SAMPLE(S) OF Heavy Sediment

W. Raven
Project: Santa Maria

	Au ppb
SM-HS-203	55
SM-HS-253	25

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Oct 12/90

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T S L LABORATORIES
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TELEPHONE #: (306) 931 - 1033
FAX #: (306) 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

GREENBELT CONSULTANTS
206 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. BEWSHER, J. CHAPMAN

T.S.L. REPORT No. : S - 1148 - 1
T.S.L. File No. : M - 8216
T.S.L. Invoice No. : 15861

PROJECT: SANTA MARIA

ALL RESULTS PPM

ELEMENT		SM-HS-303	SM-HS-253
Aluminum	[Al]	6900	7700
Iron	[Fe]	87000	150000
Calcium	[Ca]	6500	4300
Magnesium	[Mg]	3100	3600
Sodium	[Na]	60	60
Potassium	[K]	160	230
Titanium	[Ti]	420	230
Manganese	[Mn]	370	1100
Phosphorus	[P]	1700	780
Barium	[Ba]	26	9
Chromium	[Cr]	11	18
Zirconium	[Zr]	6	20
Copper	[Cu]	140	1400
Nickel	[Ni]	20	230
Lead	[Pb]	85	88
Zinc	[Zn]	590	230
Vanadium	[V]	110	17
Strontium	[Sr]	39	24
Cobalt	[Co]	40	160
Molybdenum	[Mo]	10	28
Silver	[Ag]	< 1	4
Cadmium	[Cd]	5	3
Beryllium	[Be]	< 1	< 1
Boron	[B]	< 10	< 10
Antimony	[Sb]	< 5	< 5
Yttrium	[Y]	8	42
Scandium	[Sc]	< 1	3
Tungsten	[W]	< 10	< 10
Niobium	[Nb]	< 10	< 10
Thorium	[Th]	70	80
Arsenic	[As]	35	480
Bismuth	[Bi]	15	85
Tin	[Sn]	< 10	< 10
Lithium	[Li]	< 5	< 5
Holmium	[Ho]	< 10	< 10

DATE : OCT-11-1990

SIGNED : Bernie Ann

TSL LABORATORIES
DIV. BURGENER TECHNICAL ENTERPRISES LIMITED

2 - 302 - 48th STREET, EAST
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX: (306) 242-4717

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SAMPLE(S) FROM OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

REPORT No.
S1149

INVOICE #: 15898
P.O.: R-2235

SAMPLE(S) OF Heavy Sediment

W. Raven
Project: Santa Maria ARC

	Au ppb
SM-HS-71	140
SM-HS-259	3600
SM-HS-263	100
SM-HS-267	350
SM-HS-268	300
SM-HS-270	250

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Oct 29/90

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CTA

T S L LABORATORIES
2-302-487W STREET, SASKATOON, SASKATCHEWAN S7K 6A4
TELEPHONE #: Dia 931 - 1333
FAX #: Dia 242 - 4717

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

GREQUEST CONSULTANTS
306 595 HOWE ST.
VANCOUVER B.C.
V6C 2T5
ATTN: B. DEWONCK, J. CHAPMAN

T.S.L. REPORT No. : S - 1149 - 1
T.S.L. File No. : M - 8217
T.S.L. Invoice No. : 15895

PROJECT: SANTA MARIA ARC

ALL RESULTS PPM

ELEMENT		SM-HS-71	SM-HS-259	SM-HS-263	SM-HS-267	SM-HS-268	SM-HS-270
Aluminum	[Al]	5100	8200	4500	4500	3500	3400
Iron	[Fe]	50000	140000	40000	38000	35000	86000
Calcium	[Ca]	7100	4200	5900	6100	6500	4100
Magnesium	[Mg]	3300	4500	2400	2500	2800	2600
Sodium	[Na]	60	100	40	30	30	60
Potassium	[K]	150	240	90	80	90	220
Titanium	[Ti]	200	290	210	180	200	160
Manganese	[Mn]	360	390	330	320	370	270
Phosphorus	[P]	1100	850	850	750	1300	530
Barium	[Ba]	26	22	25	22	29	30
Chromium	[Cr]	4	11	6	6	5	3
Zirconium	[Zr]	3	17	2	2	2	4
Copper	[Cu]	54	1600	34	20	39	26
Nickel	[Ni]	3	130	4	4	4	3
Lead	[Pb]	15	220	12	9	13	14
Zinc	[Zn]	32	360	29	27	34	42
Vanadium	[V]	37	26	65	54	63	32
Strontium	[Sr]	24	25	38	37	52	22
Cobalt	[Co]	12	400	13	13	12	10
Molybdenum	[Mo]	4	6	4	2	4	8
Silver	[Ag]	< 1	8	< 1	< 1	< 1	< 1
Cadmium	[Cd]	< 1	4	< 1	< 1	< 1	1
Beryllium	[Be]	< 1	1	< 1	< 1	< 1	< 1
Boron	[B]	< 10	10	< 10	< 10	< 10	< 10
Antimony	[Sb]	< 5	5	< 5	< 5	< 5	< 5
Yttrium	[Y]	6	13	4	4	6	4
Scandium	[Sc]	< 1	4	< 1	< 1	1	< 1
Tungsten	[W]	< 10	70	< 10	< 10	< 10	10
Niobium	[Nb]	< 10	< 10	< 10	< 10	< 10	< 10
Thorium	[Th]	80	60	< 10	< 10	< 10	70
Arsenic	[As]	5	450	10	10	10	5
Bismuth	[Bi]	< 5	100	< 5	< 5	< 5	< 5
Tin	[Sn]	< 10	< 10	< 10	< 10	< 10	< 10
Lithium	[Li]	< 5	< 5	< 5	< 5	< 5	< 5
Holmium	[Ho]	< 10	< 10	< 10	< 10	< 10	< 10

DATE : OCT-11-1990

SIGNED : Bernie Ouw

APPENDIX III

ANALYTICAL PROCEDURES

T S L LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
2 - 302 - 48th STREET,
SASKATOON, SASKATCHEWAN
S7K 6A4
(306) 931-1033 FAX: (306) 242-4717

OreQuest Consultants Ltd.
306 - 595 Howe Street
Vancouver, B.C.
V6C 2T5

Jan.9/90

1 - SAMPLE PREPARATION PROCEDURES
Rock and Core

- Entire sample is crushed, riffled and the subsequent split is pulverized to -150 mesh.

Soils and Silts
- Sample is dried and sieved to -80 mesh.

2 - FIRE ASSAY PROCEDURES
Geochem Gold (Au ppb) -
A 30g subsample is fused, cupelled and the subsequent dore' bead is dissolved in aqua rega. The solution is then analyzed on the Atomic Absorption.

Assay Gold (Au oz/ton) -
A 29.16g subsample is fused, cupelled and the subsequent dore' bead is parted with a dilute nitric acid solution. The gold obtained is rinsed with DI water, annealed and weighed on a microbalance.

3 - Geochem Silver (Ag ppm) -
A 1g subsample is digested with 5mls of aqua rega for 1 1/2 to 2 hours, then diluted with DI H20. The solutions are then run on the Atomic Absorption.

Assay Silver (Ag oz/ton) -
A 2.00g sample is digested with 15mls HCl plus 5mls HNO3 for 1 hour in a covered beaker; diluted to 100mls with 1:1 HCl. The solution is run on the Atomic Absorption.

4 - BASE METALS
Geochem - A 1g subsample is digested with 5mls of aqua rega for 1 1/2 to 2 hours, then diluted with DI H20. The solutions are then run on the Atomic Absorption.

Assay - A 0.500g sample is taken to dryness with 15mls HCl plus 5mls HNO3, then redissolved with 5mls HNO3 and diluted to 100mls with DI H20. The solution is run on the Atomic Absorption.

con't...

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DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
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5. ICAP Geochemical Analysis -
A 1g subsample is digested with 5mls of aqua rega for 1 1/2 to 2 hours, then diluted with DI H20. The solutions are then run on the ICAP.

6. Heavy Mineral Concentrates -
The sample is initially wet sieved through -1700 micron, then placed on a shaker table. A heavy liquid separation is performed, Methylene Iodide, (S.G. - 3.3); diluted to give a S.G. of 2.96. The heavies were then analyzed for Au by Fire Assay plus an ICAP Scan.

Yours truly,

Bernie Dunn

Bernie Dunn

BD/vh

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

October 19, 1990

TO: Mr. Bernie Dewonck
OREQUEST CONSULTANTS LTD.
306 - 595 Howe Street
Vancouver, BC V6C 2T5

FROM: VANGEOCHEM LAB LIMITED
1630 Pandora Street
Vancouver, BC V5L 1L6

SUBJECT: Analytical procedure used to determine gold by fire assay method and detect by atomic absorption spectrophotometry in geological samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.

(b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.

(c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

2. Method of Extraction

(a) 20.0 to 30.0 grams of the pulp samples were used. Samples were weighed out using a top-loading balance and deposited into individual fusion pots.

(b) A flux of litharge, soda ash, silica, borax, and, either flour or potassium nitrite is added. The samples are then fused at 1900 degrees Farenhiet to form a lead "button".

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

(c) The gold is extracted by cupellation and parted with diluted nitric acid.

(d) The gold beads are retained for subsequent measurement.

3. Method of Detection

(a) The gold beads are dissolved by boiling with concentrated aqua regia solution in hot water bath.

(b) The detection of gold was performed with a Techtron model AA5 Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out on a strip chart recorder. The gold values, in parts per billion, were calculated by comparing them with a set of known gold standards.

4. Analysts

The analyses were supervised or determined by Mr. Raymond Chan or Mr. Conway Chun and his laboratory staff.

Raymond Chan
VANGEOCHEM LAB LIMITED

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

October 19, 1990

TO: Mr. Bernie Dewonck
OREQUEST CONSULTANTS LTD.
306 - 595 Howe Street
Vancouver, BC V6C 2T5

FROM: VANGEOCHEM LAB LIMITED
1630 Pandora Street
Vancouver, BC V5L 1L6

SUBJECT: Analytical procedure used to determine hot acid soluble for 25 element scan by Inductively Coupled Plasma Spectrophotometry in geochemical silt and soil samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" X 6", Kraft paper bags. Rock samples would be received in poly ore bags.

(b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.

(c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

2 Method of Digestion

(a) 0.50 gram portions of the minus 80-mesh samples were used. Samples were weighed out using an electronic balance.

(b) Samples were digested with a 5 ml solution of HCl:HNO3:H2O in the ratio of 3:1:2 in a 95 degree Celsius water bath for 90 minutes.

(c) The digested samples are then removed from the bath and bulked up to 10 ml total volume with demineralized water and thoroughly mixed.

VGC VANGEOCHEM LAB LIMITED

MAIN OFFICE
1630 PANDORA STREET
VANCOUVER, B.C.
V5L 1L6
TEL (604) 251-5656
FAX (604) 254-5717

BRANCH OFFICES
BATHURST, N.B.
RENO, NEVADA, U.S.A.

3. Method of Analyses

The ICP analyses elements were determined by using a Jarrell-Ash ICAP model 9000 directly reading the spectrophotometric emissions. All major matrix and trace elements are interelement corrected. All data are subsequently stored onto disketts.

4 Analysts

The analyses were supervised or determined by Mr. Conway Chun or Mr. Raymond Chan and his laboratory staff.

Raymond Chan
VANGEOCHEM LAB LIMITED

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FAX (604) 254-5717

BRANCH OFFICES
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RENO, NEVADA, U.S.A.

October 19, 1990

TO: Mr. Bernie Dewonck
OREQUEST CONSULTANTS LTD.
306 - 595 Howe Street
Vancouver, BC V6C 2T5

FROM: VANGEOCHEM LAB LIMITED
1630 Pandora Street
Vancouver, BC V5L 1L6

SUBJECT: Analytical procedure used to determine metallic gold by fire assay method and determined gravimetrically.

1. Method of Sample Preparation

(a) Rock samples would be received at the laboratory in poly ore bags.

(b) Dried rock samples would be crushed using a jaw crusher and pulverized to 140 mesh or finer by using a disc mill.

(c) The whole sample or portion of the sample would then be screened through a 140 mesh screen. The +140 mesh fraction (metallics) would be weighed and then put into an envelope for gold analysis with its weight recorded. The 140 mesh fraction would be weighed then rolled and transferred to a new bag with its weight recorded and a portion subsequently used for analysis.

2. Method of Extraction

(a) The whole +140 mesh fraction is fluxed and fused. 1/2 to 1 assay tonne of the pulp sample (140 mesh fraction) would be used.

(b) A flux of litharge, soda ash, silica, borax, either flour or potassium nitrite is added. The samples are thoroughly mixed, a liquid Ag inquart is added then fused at 1900 degrees Fahrenheit to form a lead button.

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(c) The lead buttons are cupelled to dore beads. The beads are parted with dilute nitric acid and washed several times.

(d) The gold beads are then annealled.

3. Method of Determination

The gold beads are weighed using a Sartorius electronic micro-balance. Using the weights of +140 mesh and -140 mesh fraction and the weights of gold, the assay is then calculated and reported in ounces per short tonne or grams per tonne.

4. Analysts

The analyses were supervised or determined by Mr. Raymond Chan or Mr. Conway Chun and his laboratory staff.

Raymond Chan
VANGEOCHEM LAB LIMITED

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VANCOUVER, B.C.
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RENO, NEVADA, U.S.A.

October 19, 1990

TO: Mr. Bernie Dewonck
OREQUEST CONSULTANTS LTD.
306 - 595 Howe Street
Vancouver, BC V6C 2T5

FROM: VANGEOCHEM LAB LIMITED
1630 Pandora Street
Vancouver, BC V5L 1L6

SUBJECT: Analytical procedure used to determine silver by fire assay method in geological samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were eceived at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in 8" x 12" plastic bags.

(b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.

(c) Dried rock samples were crushed using a jaw crusher and pulverized into 100-mesh or finer by using a disc mill. The pulverized samples were then put in the new bags for subsequent analyses.

2. Method of Digestion

(a) 20.0 - 30.0 grams of the pulp samples were used. Samples were weighed out by using a top-loading balance into a fusion pot.

(b) A flux of litharge, soda ash, silica, borax, either flour or potassium nitrite was added. The samples were thoroughly mixed and then fused at 1900 degrees Fahrenheit to form a lead button.

(c) The silver was extracted by cupellation, weighed and parted with diluted nitric acid.

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V5L 1L6
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FAX (604) 254-5717

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BATHURST, N.B.
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3. Method of Calculation

The silver was calculated by the weigh loss of the bead and then parts per million (ppm) was calculated.

4. Analysts

The analyses were supervised or determined by Mr. Conway Chun or Mr. Raymond Chan and the laboratory staff.

Raymond Chan
VANGEOCHEM LAB LIMITED

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V5L 1L6
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October, 19 1990

TO: Mr. Bernie Dewonck
OREQUEST CONSULTANTS LTD.
306 - 595 Howe Street
Vancouver, BC V6C 2T5

FROM: VANGEOCHEM LAB LIMITED
1630 Pandora Street
Vancouver, BC V5L 1L6

SUBJECT: Analytical procedure used to determine Cu, Pb and Zn assay samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.

(b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.

(c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in the new bags for subsequent analyses.

2. Method of Digestion

(a) 0.200 gram portions of the minus 100 mesh samples were used. Samples were weighed out by using an analytical balance.

(b) Samples were digested in multi acids in volumetric flasks.

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3. Method of Analyses

Cu, Pb and Zn concentrations were determined using a Techtron Atomic Absorption Spectrophotometer Model AA5 with their respective hollow cathode lamps. The digested samples were directly aspirated into an air and acetylene mixture flame. The results, in parts per million, were calculated by comparing them to a set of standards used to calibrate the atomic absorption units.

4. Analysts

The analyses were supervised or determined by Mr. Conway Chun or Mr. Raymond Chan and their laboratory staff.

Raymond Chan
VANGEOCHEM LAB LIMITED

3798000 3797000 3796000 3795000 3794000 3793000 3792000

6278000 6277000 6276000

ARC 18 ARC 19 ARC 20 ARC 21

LCP LCP LCP LCP

Qtz-3%py, 1%cpy-minor sp? 30 cm wide
Carb veining - barren
Qtz-Sp vein 10cm wide

Siltstone
Intermediate feldspar porphyry
Coral bearing Limestone
Andesite (massive) Thin stringers of specular hematite throughout
Rhyolite gossanous, brecciated

Argillite
And. tuff
And. cryst. tuff with minor feld porph. and.
1m Rhyodacite dyke
Complete Calcitization
Aphanitic Andesite
Aphanitic and. Dacite dykes
Rhyodacite dykes

Rhyolite dyke
Andesite dyke
Marble
Gossan
Arg+silt+gwke
monz
Plunge
Calc porph. diorite + Syenite

Qtz-py-hm vein massive malachite stain, 0.65 m wide, 30m long
Minor hornfels gossanous brecciated
Qtz, calc
Shear with lim, chl, ser, carb
Monzonite
Quartz carbonate veining
Equigranular Monzonite
Diorite
Monzonite
Siliceous dyke
0.5m Qtz Vein
Syenite
Diorite, monzonite, granodiorite locally porphyritic

Granite
Mafic dykes
Granite
Granite
Qtz boulder with mal stain
Qtz Vein 20-30% ep no sulphides
Granite
Granite
Granite/Syenite Strong ep+chl+ he alteration
chl altered mafics
Porphyritic Monzonite
1cm wide Qtz-py vein 10% mass py
Qtz py stockwork veins 1.5cm 10% moss py
Syenite-ep-chl Stockwork veins up to 20 cm wide
And. dyke
Diorite chl alt'n
Qtz-py-ep Stockwork in shear. 080° bearing.

Fault with limonitic fault zone
Monzonite - Syenite
Syenite
Syenite to Diorite
10m Shear zone in andesite that has been shot through with qtz-carb stringers. Veins to 5 cm wide, bounded by syenite.
1m andesite dyke
Fe carb veins w/spec. he
Epidote altered w/minor rust staining

Diorite to monzonite locally porphyritic
lim, gn, calc
Equigranular to porph. diorite to monzonite cut by a swarm of andesite dykes.
Andesite Dykes
Diorite to monzonite
Shear zone with ser, gn, py
Diorite to monzonite
Diorite with lesser amounts of monzonite and andesite minor dacite.
Quartz with minor py and mo
fault
Diorite
Argillite
Interbedded packages of felsic volcanics and argillite
Aphanitic rhyodacite
Felsic lithic lapilli tuff
Feldspar porphyry rhyodacite limonitic, up to 5% py
Boulders of quartz veins with limonite, py, bornite, malachite azurite, galena, sphalerite.
Betty Creek Formation Green, violet andesite pyroclastics and andesite.

10 3 4

LEGEND:

INTRUSIVE ROCKS
JURASSIC

10 — SYN TO POST-VOLCANIC INTRUSIONS
LEHTO PORPHYRY
EQUIGRANULAR TO PORPHYRITIC MONZONITE, DIORITE, SYENITE, GRANODIORITE, GRANITE

VOLCANIC AND SEDIMENTARY ROCKS
LOWER JURASSIC
HAZELTON GROUP

4 — MT. DILWORTH FORMATION
RHYOLITE/RHYODACITE CRYSTAL AND LITHIC TUFF

3 — BETTY CREEK FORMATION
ANDESITE PYROCLASTICS, ANDESITE, ARGILLITE, GREYWACKE, MINOR LIMESTONE

SYMBOLS

- AREA OF OUTCROP
- X SMALL OUTCROP
- 45 BEDDING: VERTICAL, INCLINED
- 60 CLEAVAGE/FOLIATION: VERTICAL, INCLINED
- 45 VEIN: VERTICAL, INCLINED
- 70 FRACTURE: VERTICAL, INCLINED
- PLUNGE FOLD AXIS WITH PLUNGE
- FAULT - INFERRED
- DYKE
- GEOLOGICAL CONTACT (ASSUMED)

arg	ARGILLITE
silt	SILTSTONE
gwke	GREYWACKE
and.	ANDESITE
alt'n	ALTERATION
Fe	IRON
mass	MASSIVE
porph	PORPHYRY or PORPHYRITIC
w/	WITH
calc	CALCITE
carb	CARBONATE
chl	CHLORITE
ep	EPIDOTE
he	HEMATITE
lim	LIMONITE
qtz	QUARTZ
ser	SERICITE
cpy	CHALCOPYRITE
gn	GALENA
mo	MOLYBDENITE
py	PYRITE
sp	SPHALERITE
spec	SPECULAR

0 200 400 600 800 1000
metres

OREQUEST

SANTA MARINA GOLD LTD.

Figure 5
ARC 18-21 CLAIMS
Liard Mining Division

PROPERTY GEOLOGY

British Columbia
NTS: 104 B/10

OCTOBER 1990 Drafting RWR

SILT SAMPLES

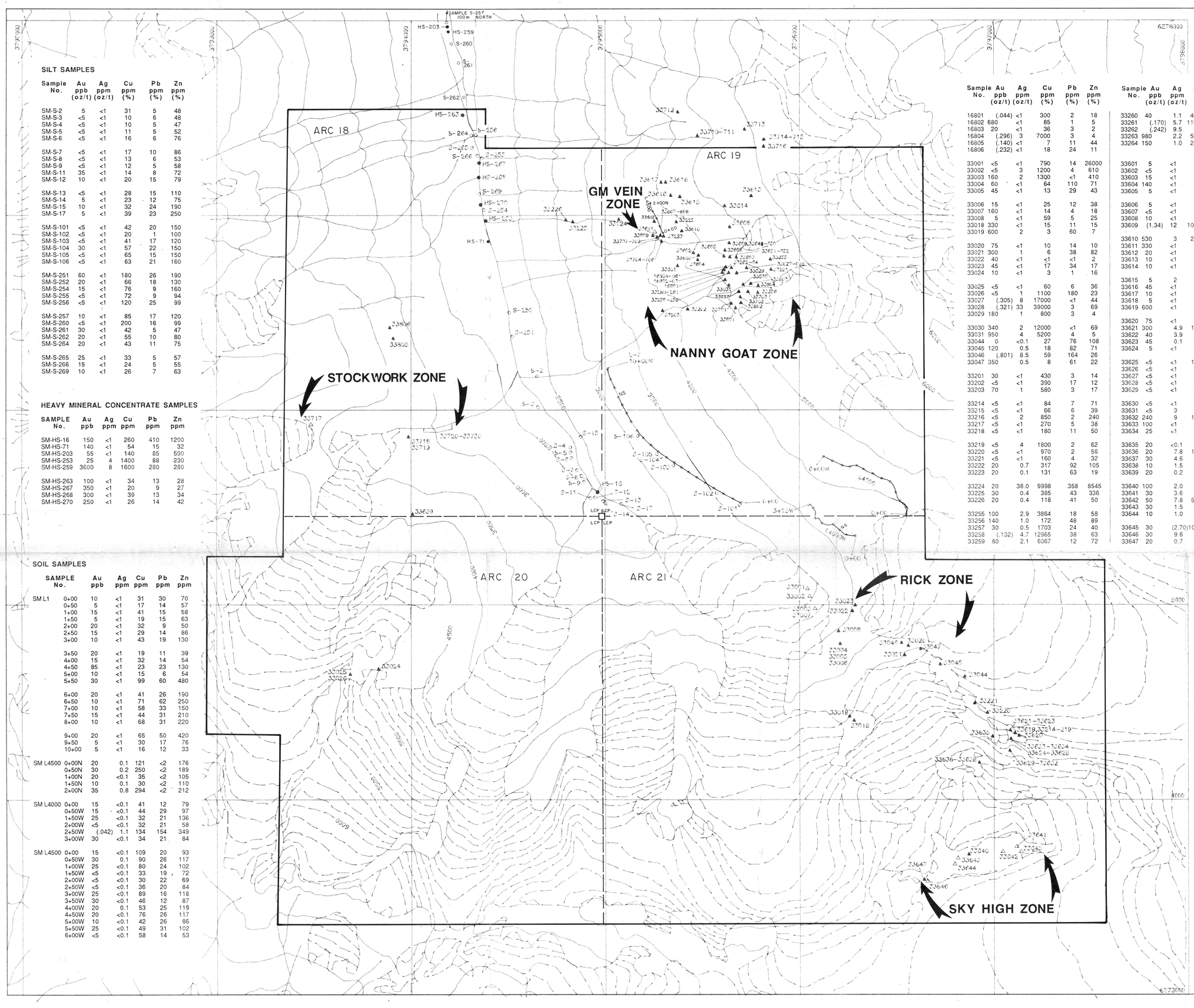
Sample No.	Au ppb (oz/t)	Ag ppm (oz/t)	Cu ppm (%)	Pb ppm (%)	Zn ppm (%)
SM-S-2	5	<1	31	5	48
SM-S-3	<5	<1	10	6	48
SM-S-4	<5	<1	10	5	47
SM-S-5	<5	<1	11	5	52
SM-S-6	<5	<1	16	6	76
SM-S-7	<5	<1	17	10	86
SM-S-8	<5	<1	13	6	53
SM-S-9	<5	<1	12	5	58
SM-S-11	35	<1	14	8	72
SM-S-12	10	<1	20	15	79
SM-S-13	<5	<1	28	15	110
SM-S-14	5	<1	23	12	75
SM-S-15	10	<1	32	24	190
SM-S-17	5	<1	39	23	250
SM-S-101	<5	<1	42	20	150
SM-S-102	<5	<1	20	1	100
SM-S-103	<5	<1	41	17	120
SM-S-104	30	<1	57	22	150
SM-S-105	<5	<1	65	15	150
SM-S-106	<5	<1	63	21	160
SM-S-251	60	<1	180	26	190
SM-S-252	20	<1	66	18	130
SM-S-254	15	<1	76	9	160
SM-S-255	<5	<1	72	9	94
SM-S-256	<5	<1	120	25	99
SM-S-257	10	<1	85	17	120
SM-S-260	<5	<1	200	16	99
SM-S-261	30	<1	42	5	47
SM-S-262	20	<1	55	10	80
SM-S-264	20	<1	43	11	75
SM-S-265	25	<1	33	5	57
SM-S-266	15	<1	24	5	55
SM-S-269	10	<1	26	7	63

HEAVY MINERAL CONCENTRATE SAMPLES

SAMPLE No.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
SM-HS-16	150	<1	260	410	1200
SM-HS-71	140	<1	54	15	32
SM-HS-203	55	<1	140	85	590
SM-HS-253	25	4	1400	88	230
SM-HS-259	3600	8	1600	280	280
SM-HS-263	100	<1	34	13	28
SM-HS-267	350	<1	20	9	27
SM-HS-268	300	<1	39	13	34
SM-HS-270	250	<1	26	14	42

SOIL SAMPLES

	SAMPLE No.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
SM L1	0+00	10	<1	31	30	70
	0+50	5	<1	17	14	57
	1+00	15	<1	41	15	58
	1+50	5	<1	19	15	63
	2+00	20	<1	32	9	50
	2+50	15	<1	29	14	86
	3+00	10	<1	43	19	130
	3+50	20	<1	19	11	39
	4+00	15	<1	32	14	54
	4+50	85	<1	23	23	130
	5+00	10	<1	15	6	54
	5+50	30	<1	99	60	480
	6+00	20	<1	41	26	190
	6+50	10	<1	71	62	250
	7+00	10	<1	58	33	150
	7+50	15	<1	44	31	210
	8+00	10	<1	68	31	220
	9+00	20	<1	65	50	420
	9+50	5	<1	30	17	76
	10+00	5	<1	16	12	33
SM L4500	0+00N	20	0.1	121	<2	176
	0+50N	30	0.2	250	<2	189
	1+00N	20	<0.1	35	<2	105
	1+50N	10	0.1	30	<2	110
	2+00N	35	0.8	294	<2	212
SM L4000	0+00	15	<0.1	41	12	79
	0+50W	15	<0.1	44	29	97
	1+50W	25	<0.1	32	21	136
	2+00W	<5	<0.1	32	21	58
	2+50W	(.042)	1.1	134	154	349
	3+00W	30	<0.1	34	21	84
SM L4500	0+00	15	<0.1	109	20	93
	0+50W	30	0.1	90	26	117
	1+00W	25	<0.1	80	24	102
	1+50W	<5	<0.1	33	19	72
	2+00W	<5	<0.1	30	22	69
	2+50W	<5	<0.1	36	20	84
	3+00W	25	<0.1	89	16	118
	3+50W	30	<0.1	46	12	87
	4+00W	20	0.1	53	25	119
	4+50W	20	<0.1	76	26	117
	5+00W	10	<0.1	42	26	86
	5+50W	25	<0.1	49	31	102
	6+00W	<5	<0.1	58	14	53



Sample No.	Au ppb (oz/t)	Ag ppm (oz/t)	Cu ppm (%)	Pb ppm (%)	Zn ppm (%)
16801	(.044)	<1	300	2	18
16802	680	<1	85	1	5
16803	20	<1	36	3	2
16804	(.296)	3	7000	3	4
16805	(.140)	<1	7	11	44
16806	(.232)	<1	18	24	11
33001	<5	<1	790	14	26000
33002	<5	3	1200	4	610
33003	160	2	1300	<1	410
33004	60	<1	64	110	71
33005	45	<1	13	29	43
33006	15	<1	25	12	38
33007	160	<1	14	4	18
33008	5	<1	59	5	25
33018	330	<1	15	11	15
33019	600	2	3	60	7
33020	75	<1	10	14	10
33021	300	1	6	38	82
33022	40	<1	<1	<1	2
33023	45	<1	17	34	17
33024	10	<1	3	1	16
33025	<5	<1	60	6	36
33026	<5	1	1100	180	23
33027	(.305)	8	17000	<1	44
33028	(.321)	33	39000	3	69
33029	180	1	800	3	4
33030	340	2	12000	<1	69
33031	950	4	5200	4	5
33044	0	<0.1	27	76	108
33045	120	0.5	18	82	71
33046	(.801)	8.5	59	164	26
33047	350	0.5	8	61	22
33201	30	<1	430	3	14
33202	<5	<1	390	17	12
33203	70	1	580	3	17
33214	<5	<1	84	7	71
33215	<5	<1	66	6	39
33216	<5	2	850	2	240
33217	<5	<1	270	5	38
33218	<5	<1	180	11	50
33219	<5	4	1800	2	62
33220	<5	<1	970	2	56
33221	<5	<1	160	4	32
33222	20	0.7	317	92	105
33223	20	0.1	131	63	19
33224	20	38.0	9998	358	8545
33225	30	0.4	385	43	336
33226	20	0.4	118	41	50
33255	100	2.9	3864	18	58
33256	140	1.0	172	48	89
33257	30	0.5	1703	24	40
33258	(.132)	4.7	12965	38	63
33259	80	2.1	6067	12	72

Sample No.	Au ppb (oz/t)	Ag ppm (oz/t)	Cu ppm (%)	Pb ppm (%)	Zn ppm (%)
33260	40	1.1	4068	12	79
33261	(.170)	5.7	11651	32	53
33262	(.242)	9.5	(3.52)	9	122
33263	980	2.2	5018	26	54
33264	150	1.0	2399	58	68
33601	5	<1	17	2	37
33602	<5	<1	12	2	22
33603	15	<1	6	4	25
33604	140	<1	6	4	3
33605	5	<1	12	1	16
33606	5	<1	730	3	13
33607	<5	<1	29	2	19
33608	10	<1	11	<1	100
33609	(1.34)	12	10000	13	23
33610	530	3	2700	<1	170
33611	330	<1	220	6	27
33612	20	<1	170	8	18
33613	10	<1	29	7	45
33614	10	<1	81	16	27
33615	5	2	220	1	19
33616	45	<1	98	32	34
33617	10	<1	52	11	35
33618	5	<1	82	6	24
33619	600	<1	120	5	78
33620	75	<1	740	2	61
33621	300	4.9	1471	63	81
33622	40	3.9	282	136	69
33623	45	0.1	553	56	74
33624	5	<1	200	8	41
33625	<5	<1	1500	18	48
33626	<5	<1	190	7	35
33627	<5	<1	59	5	82
33628	<5	<1	110	9	550
33629	<5	<1	190	11	110
33630	<5	<1	680	15	120
33631	<5	3	120	9	30
33632	240	9	1600	130	85
33633	100	<1	180	16	820
33634	25	<1	89	7	430
33635	20	<0.1	45	32	115
33636	20	7.8	1143	528	2936
33637	30	4.6	968	132	2884
33638	10	1.5	347	104	5323
33639	20	0.2	7	<2	6
33640	100	2.0	174	501	67
33641	30	3.6	520	155	172
33642	50	7.8	5183	144	729
33643	30	1.5	102	65	81
33644	10	1.0	669	1254	2468
33645	30	(2.70)	10991	16686	(3.68)
33646	30	9.6	674	340	741
33647	20	0.7	84	72	280

Sample No.	Au ppb (oz/t)	Ag ppm (oz/t)	Cu ppm (%)	Pb ppm (%)	Zn ppm (%)	
33648	(.044)	10.2	10136	916	708	(0.3m chip)
33649	(.102)	5.8	5646	40	49	(2.0m chip)
33650	60	0.1	2144	8	34	
33651	30	0.7	1014	31	80	
33652	20	0.4	1653	<2	161	
33701	50	0.2	20	76	123	
33702	20	0.5	81	53	25	
33703	30	<0.1	5	28	28	
33704	30	<0.1	276	36	61	
33705	20	<0.1	67	41	49	
33706	20	33.0	35	265	1573	(2.0m chip)
33707	30	2.3	2288	66	98	(1.0m chip)
33708	40	5.4	2408	416	308	(1.5m chip)
33709	170	17.3	(1.97)	192	151	
33710	<5	<1	14	<1	24	
33711	25	<1	76	<1	20	
33712	5	<1	87	4	18	
33713	<5	<1	7	4	14	
33714	<5	<1	4	1	14	
33715	<5	<1	8	4	55	
33716	<5	<1	2	2	6	
33717	20	<1	5	4	5	
33718	75	1	4	8	7	
33719	120	<0.1	3	33	246	
33720	10	0.5	5	<2	24	
33721	80	0.5	11	75	9	
33722	40	1.3	473	52	7	
33723	580	2.2	16	281	7	
33724	30	0.2	14	<2	34	
33725	30	<0.1	34	18	7	
33726	60	0.8	476	49	5	
33727	40	0.7	556	50	5	
33728	160	0.5	259	63	2	
33729	200	0.4	188	20	12	
33730	100	0.5	177	34	3	
33801	20	1.8	4069	46	68	
33802	60	6.0	4712	23	41	
33803	160	1.6	3078	23	35	
33804	130	7.0	10055	35	33	
33805	<5	11.1	11622	76	40	
33806	<5	19.5	8781	48	43	
33807	30	0.1	86	39	16	
33808	(.098)	42.0	(2.62)	328	128	
33809	50	0.6	862	78	26	

LEGEND:
SAMPLE Nos.
33647 ▲ ROCK SAMPLE
33646 △ FLOAT SAMPLE
HS-263 ● HEAVY SEDIMENT SAMPLE
S1 ○ SILT SAMPLES
⟿ SOIL SAMPLES

0 200 400 600 800 1000
metres

OREQUEST

SANTA MARINA GOLD LTD.

Figure 6
ARC 18-21 CLAIMS
Liard Mining Division
PROPERTY GEOCHEMISTRY

British Columbia
NTS: 104 B/10

OCTOBER 1990 Drafting RWR